



**A social constructivist approach to enhance the literacy skills of
English as Second Language pre-service students**

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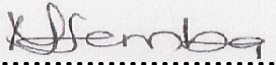
UNIVERSITY OF THE FREE STATE

September 2021

DECLARATION

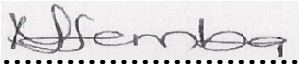
I, Josephine Lutaaya Najjemba, declare that the thesis entitled, **The Social constructivist approach to enhance the literacy skills of English as Second Language pre-service students**, submitted for the qualification of the degree of Doctor of Philosophy in Higher Education Studies at the University of the Free State is my own independent work.

All the references that I have used have been indicated and acknowledged by means of a complete reference list. Furthermore, this thesis has not been previously submitted for any academic qualification at the University of Free State or any other university elsewhere.


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ABSTRACT

This study was undertaken with the primary aim to provide language practitioners, particularly literacy educators and teachers with a theory-driven pedagogical framework that could be used to teach literacy using emerging technologies. This undertaking was motivated by the realization that literacy pedagogy in many educational institutions in Uganda is gradually becoming obsolete, as it is no longer adequate to address the contemporary needs of learners in the 21st century classrooms. The challenge is attributed to the way literacy is taught using predominantly behaviourist pedagogies which significantly reduce active learner engagement and have little connection with the way today's students' process information. Vygotsky's sociocultural theory has been employed to advocate for social interactions and dialogical conversations between educators and students in constructing meanings in writing of English as Second Language (ESL) texts, mediated by emerging technologies, particularly the Wikis.

Thus, the study has been guided by three research questions: first, to what extent does the Wiki intervention foster social interactions and collaborative dialogues among ESL pre-service students? Second, how do social interactions and collaborative dialogues mediated by the Wiki intervention impact on ESL pre-service students' literacy skills? Third, what design principles will guide the pedagogical framework for enhancing ESL pre-service students' literacy skills? The study has been framed within the four-phased Design Based Research (DBR) approach by Reeves (2006). This approach allows for iterative testing and refining of the Wiki design solution as well as the development of a new set of design principles to guide the teaching of literacy mediated by the Wiki technology. Data from observations, interviews, researcher's field notes and students' reflections and Wiki artifacts have been analyzed through a sociocultural theory-driven analytical framework during the third phase of DBR.

Key findings indicate that the Wiki intervention largely fosters social interactions and dialogical engagements between students, peers, and educators. Meanings of the Wiki-generated artifacts were specifically obtained through collaborative exchanges of ideas, negotiations and shared understandings on the Wiki online platform. The contribution of this study is two-fold, namely, the practical and theoretical contribution. The practical contribution is reflected in the creation of new design principles including: supporting online presence, building online cultural experiences, validating information, promoting dialogue in literacy pedagogy, and applying literacy. This has

led to a pedagogical framework that could be used to support students' literacy mediated by technologies. The theoretical contribution of this study, on the other hand, is in the approach of utilizing Design Based Research methodology to implement the sociocultural theoretical aspects, such as social interactions, dialogue and collaboration. These were tested and refined through two cycles of implementation at an authentic language education context in Uganda.

Key terms: Sociocultural theory; English as Second Language; Constructivism; Literacy pedagogy; Emerging technologies; Wikis; Online learning; Collaborative learning; Dialogue; Social interactions; Language education, Pre-service students, Design-Based Research

DEDICATION

To my sister, Margaret and my children, Angella, Andrew, Adrian, Vanessa, and Proscovia.

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LIST OF ACRONYMS

‘A’ Level	Advanced Level
BA (Educ.)	Bachelor of Arts with Education
CPUT	Cape Peninsula University of Technology
DBR	Design Based Research
EFA	Education for All
ELE	English Language Education
ESL	English as Second Language
ETs	Emerging Technologies
ICTs	Information and Communication Technologies
IRA	International Reading Association
L2	Second Language
MAK	Makerere
MEd	Master of Education
MoEs	Ministry of Education and Sports
NCHE	National Council for Higher Education
OECD	Organization for Economic Co-operation and Development
‘O’ Level	Ordinary level
PGDE	Post Graduate Diploma in Education
PISA	Programme for International Students’ Assessment
SCT	Sociocultural Theory
SDGs	Sustainable Millennium Development Goals
SOE	School of Education
UBoS	Uganda Bureau of Statistics
UCT	University of Cape Town
UFS	University of the Free State
UN	United Nations
UNESCO	United Nations Education, Scientific and Cultural Organization
UNICEF	United Nations Children’s Education Fund
US	United States
ZPD	Zone of Proximal Development

CHAPTER ONE

INTRODUCTION AND ORIENTATION TO THE STUDY

1.0 Introduction

This study primarily aimed at providing literacy practitioners with a theory-driven pedagogical framework that could be used to teach literacy using emerging technologies. This undertaking was motivated by the realization that literacy pedagogy is gradually becoming obsolete, as it is no longer adequate to address the contemporary needs of learners in the 21st century classrooms. This challenge is attributed to the way literacy in higher education is taught using predominantly behaviourist teacher-centred pedagogies. These pedagogical practices significantly reduce active learner engagement in the learning process and also have limited alignment to the way contemporary students learn (Sebbowa, Ngambi and Brown 2014:27). For purposes of this study, the terms literacy and writing are synonymously used. That said, the key argument in this study is that the didactic, teacher-centred approaches to teaching writing that characterize language education classrooms in Uganda, render students incapable of exercising their own creativity or even develop ownership for their writing. The monologic writing tasks set by educators usually focus on covering authoritative content (Lyle 2008:223) and also put pressure on the students to produce linguistically accurate print-based texts (Kaur, Ganapathy and Sidhu 2012:119). This not only alienates the students from meaningful writing experiences, but also heightens their boredom and anxiety levels (Ganapathy and Kaur 2013: 549).

Kalantzis and Cope (2005:179) point out that traditional print-based literacies conducted in confined settings with the teacher as the primary source of information are no longer adequate to satisfy the diverse cultural, media and linguistic needs of learners in contemporary classrooms. Today's learners have much more exposure to different technologies and thus, they prefer to read, write and communicate through popular online platforms (Larson in Ganapathy and Kaur 2013:548). Therefore, in today's globalized era, the teachers' practices need to equip students with the relevant skills to survive and compete favourably in their future workplaces (Cope and Kalantzis 2009:170). Accordingly, Ganapathy and Kaur (2013:549) emphasize that learning in the 21st century ought to relate to students' real life as well as respond to their study needs. In line with such global trends, I argue that it is imperative for educators in teacher education in Uganda and Africa in general to integrate technology into their teaching in order to relate to students' life-worlds and also create meaningful learning experiences for them.

Even though research has provided different understandings of the impact of technologies on students' learning, (Velesianos 2010; Shelly, Gunter and Gunter, 2012; Ramorola, 2013; Boyd 2014; Towndrow and Fareed 2014), these studies have been specifically conducted in educational contexts where there is higher uptake and adoption of technology for pedagogical purposes. This study aimed to add to the existing literature by examining how students in a technologically-emerging context can be motivated to actively engage in knowledge construction and meaning-making of their writings using the Wiki technology. The term technologically-emerging context in this study is used to refer to a context where adoption and uptake of technology for teaching and learning purposes is still growing and that the educators apply technology for basic pedagogical tasks (Sadeck and Cronje 2017:401). Drawing on Vygotsky's sociocultural theory and its various strands, I advocate a collaborative dialogical approach between students, peers and educators mediated by Wiki technology. The collaborative dialogical approach in this study is conceptualized as increased learner involvement and engagement in conversations, discussions, questions or negotiations with others intended to facilitate understanding and build new meanings of the created online artifacts.

In an attempt to develop guidelines for teaching literacy to second language students, Salmon's (2002:11) design principles provided suitable reusable guidelines to mediate interactions and dialogues among participants learning online and for supporting meaningful pedagogical activities in online learning environments. Moreover, since Salmon's principles were generated basing on learner-centred constructivist models, they blend well with the sociocultural theoretical perspective employed in this study. The four-phased design-based research approach (Reeves 2006:59) adopted in this study allow for progressive testing and refining of the Wiki intervention (design solution) and the draft principles. This was conducted through two successive iterative implementations which resulted into a new set of design principles (pedagogical framework) to guide literacy practitioners who may be interested in supporting students' literacy skills using technologies, such as the Wikis.

1.1 Background to the study

Higher education pedagogy in general, and the language education field in particular, is more inclined towards theory than practice. This limits opportunities to make literacy relevant to the learners' present day circumstances (Kyeyune 2012: Slide 12), and it also constrains developing students' language skills in general (Godwin-Jones 2018:2). According to Chun, Kern and Smith

(2016:66), many of the writing concerns and issues that preoccupy 21st century learners are not addressed in their writing classrooms. Students require a wide range of literacy skills and knowledge of genres to participate in online communities and to ensure that the language used to write texts is grammatically correct (Godwin-Jones 2018:2; Javadi-Safa 2018:15). This is because advanced writing skills are a pre-requisite for success in many academic and work-related fields. Furthermore, Chun *et al.* (2016:66) assert that English as Second language (ESL) educators have not necessarily provided students with the benefits they would derive from mastering the writing skills. As result, most contemporary learners do not value writing ESL texts, since they do not see its relevancy to their interests (Shidrah, Nurhairan and Noor Lide 2005:1; Ganapathy and Kaur 2013:548). Educators should not only focus on the mechanics of writing but also they should support learners to develop their critical writing skills (Chun *et al.* 2016:66). Similarly, Ganapathy and Kaur (2013:548) and Elola and Oskoz (2017:52) reiterate that language educators need to consider using a variety of approaches that can enhance students' writing skills, and one of them can be integrating technology into their classrooms.

In this study, writing is conceptualized as a communicative meaning-making social activity which involves interaction and participation in learning communities, in order to obtain shared interpretation and new understandings of the generated texts (Slavkov 2015:81). This implies that writing is essentially an iterative, dialogic process which involves building meanings through dialogues with peers, educators and any other interested members (Zheng and Warschauer 2017:61). The Sociocultural theory employed in this study advocates for active learner engagement in different socially mediated activities where students and educators or students and students are jointly engaged in knowledge-building and problem-solving activities (Rish, Bylen, Vreenland and Wimberley 2015:359). In agreement with above views, King (2015:107) confirms that writing should not only involve learning the distinct writing skills, but also should encourage students to interact and participate in the writing communities.

According to Ganapathy and Kaur (2013:549) research on literacy pedagogy in Asia and many parts of the world indicate a predominant use of behaviourist pedagogies across all levels of education. This is indicated in the limited conversations between learners and their educators, drills in grammatical aspects, methods that are textbook-centred, and the educator as the sole source of information (Ganapathy and Kaur 2013:549). Although behaviourist pedagogies are beneficial in introducing new concepts, supporting wide content coverage and providing summaries on key topics during the pedagogical process, they limit active learning and also put emphasis on

regurgitation of ideas (Sebbowa *et al.* 2014:27). The argument I present in this study is that such teacher-centred activities are incapable of enhancing students' creativity in writing, since they focus more on the lower order thinking skills. Moreover, such activities are neither aligned to the contemporary students' study needs nor their daily lives (Sebbowa *et al.* 2014:27; Najjemba, Cronje and Kafui-Aheto 2018:515).

Similarly, the use of behaviourist approaches like the traditional lecture methods in second language education classrooms limits the development of key skills and components that are necessary for effective writing. This is because there is no sustained dialogical conversations between learners and educators (Sebbowa *et al.* 2014:27), there is limited analytical and meaningful interpretation or reflection on the learning process (Chun *et al.* 2016:66) and that such approaches do not enhance critical thinking skills (Elola and Oskoz 2017:53). In addition, such behaviourist approaches do not promote the necessary knowledge and skills required for effective preparation of pre-service students (Mulumba 2016:2 of 12). Recent studies in technology-mediated second language writing support a change from the behaviourist approaches with largely structured, teacher-centred tasks to informal online literacy practices (Ganapathy and Kaur 2013:549; Zheng and Warschauer 2017:61; Elola and Oskoz 2017:52). The informal online literacy practices that relate to students' engagement in out-of-school online practices motivated by the digital era include: online chatting, playing online games, emailing, text-messaging through social network sites, creating and uploading profiles on social media platforms, downloading and uploading information online, video gaming, and creating You Tube videos (Zheng and Warschauer 2017:61). Zheng and Warschauer further maintain that these out-of-school literacy practices not only cover topics that students are deeply interested in, but also and are mediated by digital tools that students are fascinated about. This implies that educators have to re-think their approaches to learning "well beyond the traditional transmission model" (Sadeck and Cronje 2017:401). In other words, educators must engage in what Elola and Oskoz (2017:52) describe as a "re-evaluation of literacy, writing genres and associated instructional practices in the second language classroom". Thus, in their classroom teaching, literacy educators need to take into consideration students' out-of-school technology-related practices, as these form a significant part of the students' day-to-day life (Godwin- Jones 2017:3) and can be exploited to support meaningful learning experiences.

Research has shown that students are motivated to voice their own opinions and ideas when they are engaged in informal writing online (Smith, Pacheco and de Almeida 2017:6). In addition,

students have “rich opportunities to engage in substantial reading and writing online” (Godwin-Jones 2018:1). Correspondingly, Cole and Vanderplank (2016:31) suggest that educators need to revisit their classroom-based writing approaches to include informal learning aspects that have been confirmed to motivate students. In this regard, Lehtonen (2017:57) substantiates that “the language classroom should somehow imitate learning in informal ways”. In other words, research is directing second language writing classrooms into the path of blending traditional behaviourist approaches with participation in online engagements. To this end, the current study investigates how pre-service students in a conventional second language classroom could be motivated to actively engage in knowledge-sharing practices intended to make meanings of their writings through leveraging the affordances of an emerging technology called the Wiki. However, researchers have cautioned that shifting to the novel types of technology-mediated writing may not be easy for either the educators or the students. For example a study by Shih (2011) indicate that many students resisted the practice of using their familiar online platforms, such as Facebook for language learning. In such instances, Strobl (2015:340) advises that educators need to study and gain an in-depth understanding of the specific writing context, students’ learning histories, their attitudes and beliefs, as well as the different theoretical frameworks that have informed the dynamics of second language online writing in the recent years (Godwin-Jones 2018:3). For instance, the online dialogic and collaborative writing that is advocated for in this study is viewed in the context of Vygotsky’s social constructivism realm to language learning (Kessler, Bikowski and Boggs 2012). In this sense, writing is a socially mediated action (Rish *et al.* 2015:359) involving interactions among participants in generating meanings of written texts. In the subsequent section, I highlight my motivation to engage in this study.

1.2 Personal motivation for this study

My role as a teacher-educator handling Methods of Teaching English Language courses for pre-service students at an English Language Education (ELE) unit of one university in Uganda, provided me with the opportunity to interact with the students. I thereby gained first-hand experience of the students’ fears and struggles in writing course assignments. From my interactions with the students, I was often struck by the anxieties and worries students expressed whenever I gave them an assignment to write or even asked about the progress of their other writing assignments. I was curious about these uncertainties and fears. This, in the long run motivated me to evaluate my approach towards supporting students’ writing skills on the course. It appeared to me that the feelings of uncertainty were causing many pre-service students to avoid writing their course assignments, thinking that the less they wrote, the less fear they were likely to face.

However at university level, students are required to engage in substantial amounts of writing that are of technical and advanced nature. As such, students are bound to experience more fear as the demands for writing advanced essays intensifies. My concern was that if unattended to, these anxieties might affect the prospective teachers' approaches to writing when they get into the classrooms in future.

In addition, I also observed that the students who attempted to write often produced strikingly similar essays with ideas expressed the same way word-for-word. The similarities suggested promising evidence of collaboration whereby students often held group discussions before writing individual essays. However, the similarities also illustrated the difficulties students were facing to write essays independently. As an educator, this raised concern for specific guidance and support for students' writing. In my reflections about these writing experiences, it occurred to me that perhaps my approach to teaching writing could have partly contributed to the problem. Having followed the traditional lecture approach which was the predominant method at university, several students would sit passively and impatiently in my classrooms waiting to be filled with some form of knowledge on writing texts. Although I always completed the topics stipulated in my course outlines, I felt uncomfortable about my students' learning because many of them were silent participants in the teaching and learning process. It is then that I realized that if I was to make a difference in my students' learning, I needed to try a different approach.

As a Post Graduate student of Educational Technology, I explored the affordances of several technologies including: Wikis, Google Docs, blogs, and others in promoting students' literacy skills through the various research projects we were assigned. The affordances of the various technologies I explored drew me into a more interactive and participatory world of teaching and learning. Moreover, this journey gave me a platform to renew my goals of teaching and appreciate the need to make learning more meaningful to the current generation of learners through innovative use of technology. Kong, Chan, Griffin, Hoppe, Huang, Kinshuk, Looi, Milrad, Norris, Nussbaum, Sharples, So, Soloway, and Yu (2014:71) are of the view that exposure to digital ways of communication and manipulation of digital platforms (also known as Emerging Technologies) for teaching and learning, provide opportunities for learners to engage in practices that resonate with the 21st century education. Thus, my motivation to conduct this research was driven by the desire to examine how Emerging Technologies (ETs) could be utilized to facilitate collaborative construction of meanings in writing texts among ESL pre-service students at one higher education

context in Uganda. Thus, the next sub-section focuses on the conceptualization of Emerging Technologies (ETs) in higher education.

1.3 Emerging Technologies (ETs) in higher education

The term ‘Emerging Technologies’ (ETs) is a complex one to define and many researchers have argued that it should be cautiously used because of its relative and ambiguous nature (Veletsianos 2010:8). According to Veletsianos (2010:9) the ambiguity stems from the fact that the same technology which is emerging in one context, could be prevalent or ubiquitous in another context. This means that ETs are subjective and highly context-dependent. Various researchers have conceptualized ETs differently. According to Ng’ambi, Gachago, Ivala, and Watters (2012:355), ETs are generally new, evolving, dynamic and under researched technologies whose potential to transform teaching and learning at different learning institutions is generally underexploited. Siemens and Tittenberger (2009:14) define ‘Emerging Technologies’ as any web 2.0 digital tools which are used to communicate, share, create and interact with content. These authors further argue that these tools have potential to provide students with rich learning experiences often exceeding the static experiences of a Learning Management System (LMS).

In their shared understanding of ETs, Gachago *et al.* (2013:103) consider ETs as a field of a few practitioners who have the desire for innovation in pedagogy. On the other hand, Veletsianos (2010:3) defines ‘Emerging Technologies’ as “tools, concepts, innovations and advancements utilized in varied education settings to serve varied education-related purposes”. From the various conceptualizations of Emerging Technologies, I consider Veletsiano’s (2010) and Gachago *et al.* (2013) views relevant to this study. I hold a strong conviction that if innovatively utilized ETs such as: Wikis, blogs and social media tools can serve discipline-specific purposes in different contexts. In this study, I utilize the Wikis as the emerging technologies to mediate dialogues between students, peers and their educators, with an aim of supporting joint production of texts and creating meanings out of the written texts. In line with the view above, Maloy, Poirier, Smith and Edwards (2010:1) argue that selecting a digital tool should involve a critical analysis of how that technology aligns with the learning objectives of the institution or the students’ study needs. This means that it is important to consider the discipline-specific pedagogical purposes for use of the digital tools and how these tools relate to students’ learning (as will be discussed in the chapter). In this study, the term Emerging Technologies (ETs) is synonymously used with Information and Communication Technologies (ICTs) and digital technologies/tools.

Research highlights that ETs have been frequently used in higher education, particularly in teacher education for various pedagogical purposes. In a study by Gachago *et al.* (2013) on teacher trainees' abilities to use ETs (also called ICTs) in subject teaching, it was found out that science teacher-trainees exploited digital tools to conduct simulations in their subjects, log data into the system, and for software modeling. On the other hand, Fischer, Cheung, Pickard, Chen, Cheung and Wong (2011) who investigated the use of digital portfolios at one university in Hong Kong found out that digital portfolios were integrated into the education courses to achieve various objectives. These were: development of personal growth plans, improvement of measurable standards and the creation of self-efficacy among student teachers. Similarly, Zin, Yue and Jaafar (2009) and McCall (2013) who investigated the use of video games and computer games to teach history learners in Malaysia and the US, respectively, found out that the games provided an entertaining experience in learning history as compared to the usual cram work and regurgitation of history facts commonly observed in these classrooms. Thus, these studies highlight the potential ETs to serve discipline-specific purposes.

In the English as Second Language (ESL) education discipline, Beauchamp and Kennewell (2010:759) explains that ETs have offered ESL teachers new pathways to learner autonomy. The authors further argue that ETs allow for devising more dialogic and synergistic approaches which transform learning whether as individuals or in groups. For example King (2015:119) found out that students who collaborated in writing and reviewing Wikipedia articles became deeply attached to that role, for they were "writing not as students, but instead as writers" (ibid:119). Thus, the students extended their identity beyond their usual classroom roles because they knew they were writing for Wikipedia, which is a highly public online space that can easily be accessed by anyone across the globe (Godwin-Jones 2018:3). Similarly, Miyazoe and Anderson (2010:189) exploratory study on the use of blogs among higher education students indicated that students who often engaged in writing blog entries performed better than those who received writing instruction in the classroom. Similarly, a study by Coniam which investigated the integration of Wikis into the teaching of English writing to a group of college students in Hong Kong revealed that students "produced more cogent documents than the previous groups that worked in pen-and-paper format" (Coniam 2008:52). These findings indicate that integration of ETs, such as Wikis and blogs into literacy instruction is important in improving students' literacy skills.

Subsequently, research on ICT functionalities like blogging and tweeting (Ducate, Lomicka, and Lord 2012), digital gaming (Zin *et al.* 2009; McCall 2013), Facebook (Guaman, 2012; Saeed and

Ghazali, 2017), Wikis (Coniam, 2008; Kessler, 2008, King, 2015) indicate a positive trend in getting learners to engage with the target language. Ducate *et al.* (2012:78) confirm that functionalities like tweeting allows learners to find out more about each other which helps in creation of online community bonds. Moreover, technologies like Wikis foster collaborations among learners, their peers and teachers which not only create a sense of community, but also promote reflective thinking (Lund 2008:41). Hence, embracing ETs, specifically in teacher education would not only provide meaningful learning experiences for students but also can be one way of making second language writing more relevant to the current generation of learners. Ng'ambi, Gachago, Ivala, Bozalek, and Watters (2012:220) posit that integration of ETs in higher education could be viewed as one way of making methods of engagement accessible. In addition, the integration could be another way of encouraging educators to shift from teacher-centred to learner-centred pedagogical practices in today's classrooms (Tarling and Ng'ambi 2016:554).

Although there is evidence to suggest the potential benefits of integrating ETs in higher education pedagogy in many parts around the world, it appears that educators in higher education institutions in Uganda have not fully embraced the use of ETs for pedagogical purposes (Sebbowa *et al.* 2014:25). The limited response suggests that in many educational contexts in Uganda, utilizing ETs for pedagogical purposes is still emerging. This could affect the quality of learning since today's learners are increasingly demanding to be taught using ETs which align with the way they learn or share information and knowledge (Ganapathy and Kaur 2013:359). The government of Uganda in its quest for the Vision 2040 aimed at steering Uganda into a middle income economy, acknowledges the importance of Information and Communication Technologies (ETs) especially in transforming the quality of education. Through the ICT policy (2014:5), the government mandates higher education institutions in Uganda to provide relevant, technology-driven, dynamic and sustainable quality education for all students. This is intended to increase students' levels of creativity and independent thinking. Similarly, the ICT policy (2014:9-10) highlights the high diffusion levels of digital tools (ETs) across the various economic and social spheres, including the increased adoption of social media platforms for economic, educational, and communication purposes (*ibid.*, 2014:9-10). My argument in this regard is that, it is important to establish a connection between government policies on ETs and higher education pedagogies, particularly literacy pedagogy.

Higher education institutions and educators need to exploit the abundant technologies to refocus their existing pedagogical practices to those that meet today's educational landscape, changing

learner profiles and work place expectations (Nganga and Kambutu 2017:205). In other words, instead of employing unidirectional, didactic instructional practices that limit interaction and learner engagement in the teaching and learning, educators would consider embracing the use of ETs in their classroom practices. Current literature especially in the field of literacy indicates that embracing ETs in literacy teaching not only enhances innovation and creativity, but also acts as powerful motivating factor to mediate dialogue and collective production of knowledge. The purpose of the current study is to add to the existing literature by focusing on the possible ways of using digital tools (ETs) to address the predominant use of teacher-centred approaches in the literacy classrooms. Specifically, the study contributes to the debate by investigating the use of the Wikis, (one of the ETs), to support dialogical conversations and collaborative construction of meanings among students, peers and educators in writing texts.

That said, the next section presents Wikis as preferred choice of emerging technologies for the current study.

1.4 Wikis as the preferred choice of emerging technologies

Maloy, Poirier, and Edwards (2010:68) describe Wikis as web 2.0 applications that permit several users to collaborate and generate, upload, edit and synthesize content, thus encouraging dialogues and meaning-making processes among the participating members. In this study, I engaged with Wikis for two reasons. First, Wikis contain history tracking function that allow to trace how the individual's interpretations of ideas and concepts evolve and progress into shared understandings. Second, since Wikis are collaborative authoring tools, they foster and sustain collaborative versions of content from which meanings are continuously generated and revised through dialogic processes of corroborated meanings (Sebbowa *et al.* 2014:30). This was important in creating a harmonious environment to facilitate collaborative construction of texts and shared negotiations of meanings of the written artifacts among students and educators at a specific educational setting.

Following the successful implementation of Wikipedia, Cuning Ward produced the first Wiki collaborative online platform in 1995 (Konieczny 2007:15). The Wiki is easy to work with as it does not require any technical software to install and can easily be edited by anyone- teacher or student. Coniam (2008:53) explains that a Wikis is a database web system containing a collection of pages for storing and modifying information, "with each page being easily editable by any user through a standard web browser." Lund further explains that "Wikis offer collective approach to language development and production where learners branch out from individual contributions to

collective production” (Lund 2008:35). Central to collective production of texts is a process of adjusting one’s thinking and making changes over time which according to Li (2012:18) shape how knowledge is constructed and developed. Moreover, the non-linear structure of the Wiki which allows multiple users to insert multimedia materials such as images, web links, audios, and visuals (Lund 2008:35), not only enriches the content but also increases students’ interest in writing. This suggests that Wikis can support dialogues and collective production of texts between students and educators.

However, despite the potential for Wikis to mediate dialogical conversations and support collaborative writing, studies by Cole (2009:144) and Hadjerrouit (2011:432) indicate that Wikis do not necessarily support collaboration among learners. Research recommends that there should be greater scaffolding and guidance from the educator and also creation of accompanying instructions if Wikis are to be collaborative or successfully implemented for pedagogical purposes. Moreover, Coniam (2008:64) argues that since students are involved in considerable amount of interaction with peers on a Wiki, they need to be guided on how to socialize, interact and later on co-produce knowledge in any online platform. The implication is that for a Wiki-mediated learning to produce the desired results, the roles of the educator and the students must be clearly defined. As such, educators must adopt robust pedagogical practices that can foster free dialogical conversations and productive collaborative behaviour among learners. Subsequently, Salmon’s five-stage model is considered an appropriate framework to guide the implementation of Wiki collaborative writing activities and to foster collaboration among learners in an online environment. It highlights step-by-step procedure through which the instructor scaffolds learning, provides technical support while highlighting students’ and educator roles in the process (Salmon 2002:180).

1.5 Salmon’s five-stage model

According to Wright (2015:19), the five-stage model for online learning by Salmon provides an ideal approach which can structure content and support dialogues among users basing on the systematic step-by-step progression of learning online (see chapter Five for details). Salmon’s model is considered relevant to the current study because it illustrates how participants in an online learning environment such as the Wiki can benefit from collaboration, dialogues and networking. It also highlights the roles of the educator and the student at every stage intended to improve online interactions and participation (Salmon 2013:3). The five stages of Salmon’s model (2002:11) include: “access and motivation, online socialisation, information exchange, knowledge

construction and development.” At every stage, online learning activities (also known as e-tivities), that are proposed aim to enhance participation in dialogues and conversations among participants for purposes of promoting meaningful learning.

In this study, it is possible for the educator, (also the researcher), and the students to engage in dialogical conversations mediated by the Wiki online platform which can lead to joint construction of meanings of the written artifacts. In this regard, participation in dialogue is important in attaching meanings to the texts generated by students on the Wiki platform. As such, these texts become objects of reflection in terms of receiving peer feedback, highlighting linguistic problems and encouraging modified input (Swain and Watanabe 2013:3218), as compared to the educational challenge highlighted in Section 1.1. In this study, collaborative dialogue is conceptualized as a continuous engagement in talks/discussions and negotiations that allow teachers and students to listen to one another’s views, discover ways to disagree, agree or build on each other’s ideas, while at the same time exploring new ways of thinking (Swain and Watanabe 2013:3218; Alexander 2006:35).

In the next section, I present an overview of the sociocultural theory guiding this study.

1.6 Overview of the sociocultural theory

The sociocultural theory (SCT) is associated with a Russian psychologist Lev Semenovitch Vygotsky (1896-1934). Vygotsky was a psychology professor at Moscow University and Shaniavskii Peoples’ University (Vygotsky 1978:1). His main ideas are presented in a compilation of his writings; *Mind in Society: The development of higher psychological processes* first published in 1978 and *Thought and Language* published in 1986. Just like the many researchers and practitioners who anchored on Vygotsky’s ideas to extend their research agenda, several ideas have been derived from the SCT to inform the current study. The sociocultural theoretical perspective suggests engagement in social interactions and dialogical processes between learners and ‘knowledgeable others’ mediated by online collaborative platforms such as the Wiki (Coniam and Lee 2008:64; Hadjerrouit 2011:432). In this study, I use the term sociocultural theory interchangeably with social constructivism to refer to an understanding that knowledge and meanings are generated interactively between the educator and the learners. This view alludes to learning as a unit of shared dialogue that is generated by listening to one another’s voice (Sebbowa *et al.* 2014:28). In other words, being open to meaning or multiple interpretations of the other person has potential to mediate the individual’s sense-making process.

The argument I advance in this study is that collaborative dialogues in form of discussions, negotiations, and conversations between students and educators have potential to explore students' thinking and unknown opinions and also create learning experiences that are essential in students' writing. Besides, the sociocultural philosophy considers learning as a result of social interactions, communication and collaboration between learners (novices) and more knowledgeable others (experts) whereby with the support of the 'others', learners are able to exceed their expected level of competence (Vygotsky 1978:87; Thompson 2012:92). I draw on sociocultural theoretical constructs such as social interactions, collaboration and dialogue to provide me with the conceptual tools to understand how to handle the educational challenge explained in Chapter One.

The current study closely relates with the definition of writing as a "socially distributed, mediated and dialogic action" (Rish *et al.* 2015:368), where meanings are continuously being constructed between students, peers and educators as "they interact in multiple ways in the process of generating texts". Therefore, in trying to achieve understanding, there must be a "dynamic two-way relationship between learners and the social learning system in which they participate" (Wenger and Snyder 2000:227) through which meaning is constantly assimilated and interpreted.

Therefore, following Vygotsky's views of obtaining understanding based on social interactions and collaboration within a learning environment, I conceptualize social interactions as increased learner-to-learner or learner-to-educator participation in a series of interpretations, discussions and negotiations in writing texts intended to build new meanings and understandings. I argue that anything which requires interpretation, such as writing cannot be understood as a one-off, thus making writing a cyclic and recursive process. Given the fact that learners' understanding gradually emerges when there is openness to meanings or interpretations of the 'other' person, I closely align social interactions with collaborative dialogues. My argument is that the Wiki online learning platform if carefully integrated into the teaching and learning could mediate the recursive nature of writing texts, thus opening opportunity for collaborative dialogues in which multiple interpretations from students, peers and educators is enabled. In this study collaborative dialogues are viewed as conversations that help to build new meanings of the written artifacts that students contribute to the Wiki platform. These artifacts become objects for reflection, they attract peer/educator feedback, and encourage modified input (Swain 2000:89). Subsequently, from the sociocultural theoretical constructs of social interaction and dialogue the first and second research

questions were derived, while the third research question is important in guiding the formulation of design principles for creating knowledge and meanings in ESL writing as below indicated.

1. To what extent does the Wiki intervention foster social interactions and collaborative dialogues among ESL pre-service students?
2. How do social interactions and collaborative dialogues mediated by the Wiki intervention impact on ESL pre-service students' literacy skills?
3. What design principles will guide the pedagogical framework for enhancing the literacy skills of pre-service English language students?

The subsequent section locates the study within the Design Based Research framework.

1.7 Design Based Research (DBR) Methodology

The current study is located within the four-phased Design Based Research methodology (Reeves 2006:59). DBR is considered relevant to this study because it caters for the creation of research-based solutions to pedagogical problems in authentic contexts (Reeves 2006:57; Design-Based Research Collective 2003:5; Sari and Lim 2012:2). This means that researchers and practitioners in the educational field ought to utilize the research findings from the field to address classroom problems. In this research, Design Based Research is conceptualized as “a series of approaches with the intent of producing new theories, artifacts and practices that account for and potentially impact on teaching and learning in naturalistic settings” (Barab and Squire 2004:2). Design Based Research provides for a space in which practitioners and researchers study, in an iterative manner, the students' learning processes in an authentic setting, for purposes of improving practice. Correspondingly, previous studies conducted using DBR methodology in countries such as Tanzania by Maro (2013) and Uganda by Kabugo (2017) and Sebbowa (2017) indicate promising results.

Thus, the four phases of Design Based Research (Reeves 2006:59) include: Phase One: Identifying of the problem by the researcher in collaboration with practitioners. Phase Two: Developing of solutions using the existing design principles and technological innovations. Phase Three: Iterative cycles of testing and refinement of solutions. Phase Four: Reflections to generate design principles for purposes of enhancing solutions (Reeves 2006:59). Considering the educational problem highlighted in Sections 1.1 and 1.2, Design Based Research is instrumental in providing a framework for engaging with the sociocultural theory-informed, research-based solutions. Amiel

and Reeves (2008:35) postulate that Design Based Research is ideal in providing guidance on the effective collaborative methods of learning to address educational problems and improve pedagogical practices. In addition, Amiel and Reeves are of the view that Design Based Research methodology has potential to support triangulation of data through multiple methods, thereby enhancing the quality of data collected in the study (ibid 2008:35).

In this research, the data sets from online observations on the Wiki learning environment, semi-structured interviews, students' reflective journals/Wiki-generated artifacts and researcher's field notes and blog entries were analyzed using the sociocultural theory-driven analysis. For that reason, the sociocultural theory was aligned with Salmon's model for online learning to formulate the draft design principles which were tested and refined through a systematic process mediated by the Wiki platform. To this effect, Amiel and Reeves (2008:35) are of the view that design principles empower educators and instructional designers to use researched-based ideas or guidelines in their own settings to enhance students' learning experiences.

In the next sub-section, the study contribution is highlighted.

1.8 Contribution of the study

Although recent research on literacy pedagogy conducted across the globe provides a considerable evidence-based understandings of writing texts in the second language (Kear 2011; Ganapathy and Kaur 2013; Chun *et al.* 2016; Nambi 2016; Akbari *et al.* 2016; Elola and Oskoz 2017; Zheng and Warschauer 2017), further research is needed to understand how to address the persistent use of behaviourist approaches in the ESL language education contexts in Uganda (the study problem) and Africa in general. Being guided by the Design Based Research methodology, this study intends to produce theory-grounded design principles that can offer a systematic structure to address the highlighted challenge in Uganda and Africa in general. Moreover, the design principles are subjected to a procedural process resulting in the evolvment of a pedagogical framework for enhancing learners' literacy skills mediated by the Wiki platform as a practical output.

In view of the above arguments, the possible contribution of this research is both practical and theoretical. In the practical sense, this study intends to develop a pedagogical framework for enhancing ESL pre-service students' literacy skills mediated by ETs, specifically the Wiki. This is relevant in providing guidelines for educators who wish to connect with learners in the 21st century classrooms using technology as mediating tool. Educators, pre-service and in-service tutors with

similar challenges and concerns as highlighted in the study will find the pedagogical framework relevant. The framework provides practical guidelines for supporting literacy skills in ways that resonate with the interests of the current generation of learners. The theoretical contribution, on the other hand, lies in the approach of utilizing the Design Based Research methodology to systematically implement the sociocultural theoretical constructs in specific language education context in Uganda (see Chapter 8 for details).

1.9 The structure of this thesis

It is worth reiterating that this thesis is guided by the DBR methodology as reflected in Section 1.7. Thus, Table 1.1 provides the structure of this thesis.

Table 1.1: Structure of the current study

Chapter highlight	Chapter description
Chapter One: Introduction and orientation to the study	This chapter provides the background and rationale for the study through identifying and analyzing the study problem. Further into the chapter, research questions are proposed and a DBR methodology is employed to provide a systematic procedure through which the proposed design solution to the highlighted problem is tested and refined. Salmon’s model for online learning provides the existing draft principles that are carefully aligned to the sociocultural theory to enhance the design solution. The chapter ends with the practical and theoretical contributions of the study.
Chapter Two: Understanding the research problem	In this chapter, the English second language education context from which the research arises is described. This is followed by a review of relevant literature in which gaps are identified and an engagement with various academic debates regarding literacy pedagogy is presented.
Chapter Three: The philosophical underpinnings of the study.	This chapter presents the study’s philosophical underpinnings which are based on Crotty’s (1998) framework. Being a purely qualitative study, the constructionism epistemology which is closely aligned with the interpretive perspective is deemed relevant to understand how pre-service students leverage the affordances of the Wiki technology to engage in knowledge-sharing practices intended to create meanings of their writing. Since constructionism epistemology places emphasis on constructing meanings through engagement with the social world, the DBR methodology allows for interpretation of meanings as they evolve and progress within an authentic learning environment. The suitable data collection methods proposed to this effect included interviews, observations, researcher’s blog entries/field notes and students’ reflective journals and Wiki-

	generated artifacts.
Chapter Four: The DBR methodology	In this chapter, a justification of the DBR methodology employed in this research is provided. In addition, the four phases of the DBR approach used in this study are described in detail. The chapter concludes by showing how each of the four phases is utilized in the study.
Chapter Five: Development of the design solution	The Wiki intervention is proposed as a suitable design solution to the identified educational challenge. The existing design principles that provide structure for sequencing the pedagogical activities of the Wiki design solution are obtained from Salmon's five-stage model. The chapter is concluded with an explanation of how Salmon's five-stage model is matched with the sociocultural theoretical constructs to formulate the draft design principles.
Chapter Six: The first implementation of the design solution	In this chapter, the first implementation of the learning solution is presented. Based on the formulated draft design principles highlighted in Chapter Five, the Wikispaces design solution is tested and evaluated. Lessons learnt are documented for further improvement in the second implementation.
Chapter Seven: The second implementation	In this chapter, the second implementation of the learning solution is presented. Drawing from the lessons learnt in the first implementation, the design solution is revised and improved, leading to a change in the name to 'Socio-wiki'. This name highlights a blend between the sociocultural theory guiding this study and the Wiki design solution. Further adjustments are made, leading to a new set of design principles.
Chapter Eight: Reflections on the four phases of DBR	This chapter is a reflection on the four phases of the DBR approach adopted in this study. Particular attention is given to the changes in the design principles that are based on Salmon's model. Furthermore, this chapter presents findings in line with the research questions, leading to a pedagogical framework (practical guidelines) for supporting the development of literacy among students in second language contexts.
Chapter Nine: Contribution of the study	In this final chapter, both the theoretical and practical contributions of this research are presented. The theoretical contribution is highlighted in the procedural approach of utilizing Design Based Research to operationalize the sociocultural theory in a literacy pedagogy of a particular education context in Uganda. The practical contribution of this study is in the resultant pedagogical framework aimed at providing guidelines for supporting literacy in ways that resonate with the current generation of learners. The chapter is concluded with the study limitations and suggestions for further research.

1.10 Summary of the chapter

Chapter one provides an overview and justification for a study to investigate how the affordances of collaborative online tool such as a Wiki can support knowledge-sharing practices among pre-service students intended to facilitate meanings in writing texts. This was as a result of the first

hand experiences as an educator (see Chapter Two, Section 1.2) of the struggles and uncertainties students exhibited whenever they were assigned a writing task. This raised my curiosity into the possibility of using technologies that resonate with today's learners to tackle the challenge. Subsequently, Wikis were the preferred choice of technology to engage with (see Section 1.3). The term emerging technologies was relevant to use, since the study was conducted in an educational context where uptake and absorption of technologies for teaching and learning was still emerging. Salmon's five-stage model (see Section 1.5) provides the draft design principles for the study. These were carefully aligned to the sociocultural theoretical constructs (see Section 1.6). These were tested and refined through the DBR approach (see Sections 1.7). Lastly, a description of the practical and theoretical contributions from this study is provided (see Section 1.8).

The next chapter presents a literature review aimed at understanding the nature of the identified research problem.

CHAPTER TWO

UNDERSTANDING THE RESEARCH PROBLEM

2.0 Chapter Overview

Having identified the educational challenge in Chapter One, literature was reviewed with an aim of gaining a deeper understanding of the research problem within the local and global context. Section 2.1 of this chapter provides insights into the different conceptualizations of literacy as well as the attention the notion of literacy attracts at both the global and local scenes. In addition, the assumptions and characteristics of youth literacy (or students' literacies in post-secondary institutions) are explored in order to understand what a literate student in the 21st century should look like or be able to do. Section 2.2 examines the dominant discourses in literacy pedagogy for the past three decades. The study draws on research from prominent scholars in the field to trace the successive approaches and orientations that the ESL literacy instruction has undergone and how these have impacted the literacy instructional practices. The intention is to understand the affordances and limitations of each of them so as to draw implications for writing pedagogy that is suitable for learners in 21st century classrooms.

Having highlighted that the current research on literacy instruction is focusing heavily on the sociocultural orientations of literacy, Sections 2.3 and 2.4 concentrate on examining the fundamental principles of the sociocultural theory of learning, highlighting its implications to teaching and learning of writing. This is also intended to gain understanding of how dialogues can be facilitated and meanings obtained among students who are engaged in writing of texts. Section 2.5 draws attention to the teaching of literacy (specifically second language writing), in a teacher education context in Uganda. Given the proliferation of information and communication technologies, there is a general consensus in the literature that the behaviourist lecture-driven pedagogies in teacher education in Uganda and beyond are no longer adequate to address the diverse linguistic identities, changing learners' styles, and varying literacy needs. This has provided a niche for current study in terms of utilizing the digital technologies to address learners' literacy needs as well as providing meaningful learning experiences to the learners. Furthermore, the literature highlights a gap that demands for a pedagogical framework to guide educators on how to support dialogical conversations and meaning-making among students, peers, and educators during writing of ESL texts. The chapter concludes by presenting the research questions derived

from the key issues highlighted in the reviewed literature. These include: adopting learner-centred pedagogies which encourage social interactions, the use of collaborative dialogues and Wikis as digital tools to enhance literacy skills among students.

2.1 Conceptualizing literacy

The meaning of the term literacy has proved to be both dynamic and varied in the sense that it has been interpreted in multiple ways and it is constantly evolving. The new meanings associated with the term literacy have been influenced by the different contexts in which it is used, institutional agendas, academic research, cultural values, and personal experiences (Olson and Brockmeier, 2009:4; Mashewa 2019:1). In this section, I present the various conceptualizations of literacy to illustrate its evolving nature and to derive a working definition for my study. In the traditional sense, literacy is conceptualized as the ability to read and write whereby proficiency is determined by standardized testing (Olson and Brockmeier 2009:4; Morgan, Cuskelly and Moni 2011:112). Therefore, to be considered literate had a lot to do with being schooled and having mastery of basic reading and writing skills, such as word identification, spelling, decoding and encoding of the printed text (Morgan *et al.* 2011:112). However, research highlights that such conceptualization of literacy, though prevalent in schools today, is insufficient to address aspects of social life or meet the needs of students who are struggling for different reasons, including inadequate reading and writing skills (Alvermann 2011:16).

Similarly, Morgan *et al.* (2011:112) argue that such conceptualization of “literacy may result in the marginalization of learners whose literacy practices do not conform to the school standards, such as many with intellectual disability, and also provide very limited basis for exploration of lived experiences of literacy of these learners”. Although the importance of developing the basic literacy skills cannot be underestimated, the current study argues for broader definition of literacy to include an understanding of out-of-school literacies of contemporary learners who have grown up in an era of technology proliferation. Broadening the definition of literacy for learners in the contemporary classrooms could lead to an improved understanding of what constitutes literacy of learners who come from culturally diverse backgrounds and are well exposed to a multiplicity of digital technologies. Larson (in Ganapathy and Kaur 2013:548) confirms that English language learners in today’s classrooms are exposed to a variety of technologies and thus, prefer to communicate, read and write through online digital platforms such as Facebook. As such, a broader definition of literacy that encompasses multi-modality could lead to an informed literacy

pedagogy that is relevant and meaningful in the lives of learners in the contemporary literacy classrooms.

A point worth underscoring here is that previous literacy conceptions which are closely confined to reading and writing are inadequate to address the academic and labor market demands that are rapidly becoming globalized. Students require competences in a “growing range of meaning-making systems, such as internet transactions, website critique, spreadsheets and data bases and Power Point presentations” (Ganapathy and Kaur 2013:548). These examples point to the fact that the boundaries of *literacy* have collapsed and have been extended to include multiple hybrid types of communication, such as static images, sounds, audio-visuals, and linguistic modes (The New London Group 1996:17; Jewitt and Kress 2003:12; Lankshear and Knobel 2011:21). These multiple modes of communications are important in meaning-making and, therefore, there is a need to strengthen students’ “multiliteracies” (Cope and Kalantzis 2009:164). For example, digital literacy could mean one’s ability to programme a mobile phone to suit other purposes other than making and receiving calls, such as sending a text enriched with audio and visual effects. This kind of literacy requires an individual to employ a combination of literacies, (also referred to as multiliteracies) “using signs, signals codes, graphic images” (Lankshear and Knobel 2011:21) to communicate meanings in diverse ways. The argument presented in this study is that the concept of ‘multiliteracies’ present opportunities for educators to try new approaches intended to understand how 21st century students enrich their writing and construct meanings using the different media of communication that they are exposed to on a daily basis.

In addition a definition by UNESCO (2008:18), one of the leading education specialist agencies in the world resonates with the aims of the current study. For it defines *literacy* as “the ability to understand and employ printed information in daily activities, at home, at work and in the community- to achieve one’s goals, and to develop one’s knowledge and potential”. In addition, the “renewed vision for literacy of the UN literacy decade emphasizes the importance of social context and the complex interaction between literacy and social change” (2008:18). This definition highlights the key role that literacy has to play in ensuring sustainable development in different spheres of life such as; protection of the environment, health, gender, and others. It also implies that literacy should be relevant to the individual beyond the school or classroom context. Olson and Brockmeier (2009:4) reiterate UNESCO’s definition in their argument that literacy enables one to participate actively in society. Similarly, in coining the term “multiliteracies”, The New London Group (1996:17) aimed to seek for more “equitable social and cultural participation

that connects with the real world”. Therefore, the ‘plurality’ of literacy refers to the many ways in which “literacy is employed and the many things with which it associated with in a community or society and throughout the life of an individual” (UNESCO 2006:13). In relation to the current study, this raises questions as to how the literacy practices of learners could be stretched beyond the classroom to make them relevant to their personal experiences and social contexts. Hence, it is important to explore the relationship between literacy and learner’s experiences beyond the classroom context.

2.2 The value of literacy

Research indicates that literacy leads to personal and social development. This sections highlights the value attached to *literacy* by the different organizations in Africa and globally. UNESCO highlights the importance of literacy in the statements “...literacy is a survival tool in a fiercely competitive world. Literacy leads to empowerment...an essential requirement for lifelong learning and a vital means of human development” (UNESCO 2008:9). Similarly, literacy was identified as one of the major goals in the Education For All (EFA) goals during the Dakar World Education Forum in 2000. Subsequently, Goals 4 and 6 (refer to UNESCO 2000:8) illustrate that literacy is a major indicator of educational achievement across all ages. Accordingly, 164 countries worldwide signed their commitment to achieve the established goals in the Dakar Framework for Action by 2015. The 2013/14 Millennium Development Goals (MDGs) Report (UNESCO 2014:4) indicates that some goals such as curbing extreme poverty had been achieved. However, in regard to literacy goals, the report indicates that lower literacy levels were observed among the youths especially in developing countries. Premised on this background, the current study was partly conceived to examine how students can be supported to improve their literacy abilities using approaches that resonate with their needs and interests.

Various governments and organizations across the globe have made huge investments in research in learning as well as teaching of literacy, with a focus that increased levels of literacy can bring about fundamental change. Indeed research in literacy instruction, among young adolescents and the youths especially in the global north reiterates the importance of strengthening the literacy levels among learners in preparation for tertiary learning. It also highlights the need to explore literacy instruction as an on-going process that does not only focus on the elementary levels of education. For example an organization such as the Organization for Economic Co-operation and Development (OECD) conducted transnational programmes, such as the Programme for International Students’ Assessment (PISA) for its member countries to evaluate the progress in

literacy levels particularly in reading among fifteen year old learners. The PISA report indicates that although there was an improvement in reading performance among member countries, many learners could not “conduct fine-grained analyses of texts” (OECD 2014:4). The report further adds that “countries with large numbers of students who struggle to master basic reading and writing skills at the age of fifteen are likely to be held back in the future.” (OECD 2014:9).

Similarly, The Progress in International Reading Literacy Study (PIRLS) conducts assessments and closely monitors the achievement levels in literacy skills of learners for its member countries, and thus gives regular updates of the gaps that need to be addressed. In the UK, The National Literacy Trust conducts surveys and reports on the status of literacy in the country and also provides guidelines on how to improve literacy at the different levels (National Literacy Trust 2012). In Australia, the Queensland Board of Teacher Registration provides literacy standards to inform teacher education pre-service Programmes (Board of Teacher Registration Queensland 2001). For example Standard 1.0 states that “all teachers have a direct responsibility for attending to the literacy needs of all students in their charge. Compulsory program components must therefore be developed which ensure all teachers possess highly developed personal levels of literacy competence, and a range of knowledge, understandings and pedagogy which guarantee effective literacy teaching in all classrooms” (Board of Teacher Registration 2001:86). Similarly, the [American] National Council for Teachers of English (NCTE) closely monitors the literacy practices of teachers and learners in the United States of America. Subsequently, such organizations have made research available to practitioners as to which best literacy practices could be applicable in specific educational contexts.

However, there are also challenges of aligning the views of these organizations with those of the policy makers. My argument in this research is that whereas these organizations have laid a foundation for strengthening literacy in the global north, as practitioners compare and contrast the accumulated literacy knowledge, in the global south such impact is not well felt, since many of these organizations are not well established. According to Uganda Bureau of Statistics [UBoS] (2013), education is viewed as a whole and is largely represented by statistics indicating such aspects as the number of children in and out of school. Similarly, the global reports on the subject of literacy in the global south are reflected alongside other educational goals, thus making it difficult to systematically track progress in specific contexts. Thus, the current study is timely because it aims at providing insights into the teaching and learning of literacy in a specific educational context.

For the different countries in the global south, international organizations such as the World Bank, UNESCO and UNICEF are playing a leading role in supporting host countries to strengthen literacy competences among learners at all levels of education. According to UNESCO (2012:97), these agencies usually support host governments to carry out annual or periodic assessments of literacy and provide reports to guide important decision-making and necessary interventions. For example The UNESCO (2012:97) report that students' literacy skills had not improved to the desired levels in many countries in Sub-Saharan Africa and that "countries need to monitor the acquisition of literacy skills more closely"(ibid 2012:97). In addition, the "Education for all agenda" enshrined with in the UNESCO constitution (UNESCO 2018 [1945]:5) opened up possibilities for lifelong learning (Benavot 2018:5). It also provided modalities for an inclusive model of literacy instruction especially at higher education levels (Diaz-Lauzurria and Moreno-Salinas 2019:2). This aligns with Goal 4 of the Sustainable Development Goals (SDGs), Objective 4.4 which aims to "substantially increase the number of youth and adults who have relevant literacy skills at different education levels, including university" (ibid 2019:2). Moreover, UNESCO (2012:97) highlights the possible loss of literacy skills if they are not continuously nurtured at different levels of education. It therefore, recommends a continuous process of strengthening literacy skills among learners.

The literature reviewed above has shown that to many organizations across the globe, literacy is a topic of intense research interest. Various organizations associate development of a nation with high literacy rates and therefore efforts to this end are being foregrounded. The literature also indicates that the different definitions reflect contradictions in the conceptualization of literacy as well as its roles, with some putting emphasis on specific skills such as reading over others (Cambridge Assessment 2013). In addition, the surveys and assessments conducted by the various organizations to evaluate and provide recommendations may not easily suit particular educational contexts. This calls for further research to extend the debates with regard to conceptualizations of literacy development in specific educational contexts.

2.3 Assumptions and characteristics of youth (students) literacy

Alvermann (2011:14-15) argues that "in order to open up new ways of thinking about contemporary youth and what counts as literacy, it is important to examine the assumptions and characteristics of those who are at the center of it". She further adds that "failure to scrutinize the various constructions of youth literacy, one runs a risk of prescribing solutions for a sub-population

that may or may not fit any of its members”. Subsequently, in this section, I explore the assumptions about literacies of the youth (students), especially at university level. Literacy is often categorized into stages, including: ‘early childhood literacy’, ‘primary school literacy’, ‘youth/students literacy’ and ‘adult literacy’. The expectations at each of these stages differ according to the specific contexts. Accordingly, the literacy indicators for secondary school or post-secondary (university) learners significantly differ from those of primary school pupils. Ivanic (1998:6) observes that the stages of literacy development are closely associated with cognitive development. This implies that learners are assumed to have reached a certain literacy level (Street 1995:17; Lea and Street 1998:159).

By the time students leave secondary school to join university (often at the age of eighteen onwards), they have mastered the basic literacy skills such as word recognition, spellings, decoding and encoding of the printed text (Morgan *et al.* 2011:112). In fact, students often carry their “autobiographical selves” (Ivanic 1998:6) to the act of reading or writing, which is based on their prior literacy experiences and that continue to develop and influence the ways in which they read or write. It is argued that literacy learning is a recursive process which does not end at primary level. As confirmed by the [American] National Council of Teachers of English (2006:5) “literacy is not a technical skill acquired once and for all in the primary grades”. Research highlights that many students (also referred to as the youths), especially at university are motivated by different things and engage in many literacy practices that do not relate to school literacy (Goodfellow 2011:131; Yi, Kao and Kang 2017:1). The pluralist nature of students’ literacies has been brought about by varying cultural and linguistic identities as well as the proliferation of multi-channelled communication technologies (Ganapathy and Kaur 2013:547; Calvo *et al.* 2020:3).

Ganapathy and Kaur (2013:547) and Lewis Ellison (2014:334) explain that in addition to the traditional print literacies, today’s youth (students) have much more exposure to different technologies and thus, prefer to conduct their reading and writing through online platforms such as Facebook, Twitter and others. This presupposes that the traditional deficit or skills model (prevalent in schools today), which focuses on reading and writing skills as neutral processes is no longer sufficient to address the contemporary students’ literacy needs (Alvermann 2011:15; Ganapathy and Kaur 2013:548). Educators need to rethink around their pedagogies in order to create meaningful learning experiences for their learners. Previous studies indicate that the majority of students that are currently joining Higher Education Institutions (HEIs) are those that were born after 1995 (Seemiller and Grace 2016:22; Shatto and Erwin 2016:253; Mohr and Mohr

2017:84; Miller and Mills 2019:79; Schwieger and Ladwig 2018:45). This generation of students has grown up surrounded with technologies and the internet as “a natural part of their lives” (Maurtin-Caincross 2014:564). Thus, they are commonly labelled as “Digital natives” (a term originally coined by Prensky 2001:1), “net-Generation”, “eBay babies” or “post-Millennials” (Vizcaya-Moreno and Perez-Canaveraz 2020:1 of 10); or “Generation Z” (Seemiller and Grace 2016:22; Shatto and Erwin 2016:253; Mohr and Mohr 2017:84). In the current study the term “Generation Z” will be used. Research indicates that the “Generation Z” students have a unique blend of attributes, social norms, beliefs, and attitudes that sets them apart from the prior generations (Millennials and Generation –Xers). For example, they are “savvy technology multitaskers” (Schwieger and Ladwig 2018:45) who prefer hands-on activities and experiential practices (Vizcaya-Moreno and Perez Canaveras 2020:2 of 10). They easily get bored when teachers use traditional teaching methods such as lecturing (Miller and Mills 2019:79).

Socially, this generation of students is very team-spirited, as Vizcaya-Moreno and and Perez-Canaveraz (2020:2 of 10) describes them: “the Z Generation is considered more “we-centric” than “me-centric” that is attributed to Millennials”. This suggests creating opportunities for them to interact with peers and learn in collaborative ways (Miller and Mills 2019:79). In addition, they prefer to socialize online than face-to-face (Schwieger and Ladwig 2018: 46), and often communicate in brief bits of information using social media platforms like WhatsApp, Twitter or Snapchat (Hampton and Keys 2016:112). They also have a preference for story telling as opposed to reading books, and they also like to use images/graphics as opposed to text (Williams 2019:59). Such learner characteristics demand profoundly different approaches to literacy instruction as opposed to the ‘singularity’ of the traditional teaching and learning approaches. The argument in this study is that failure to adjust to more inclusive literacy teaching methods, many “Generation Z” learners will be left out from benefiting from the literacy experiences in schools.

Research indicates that “students’ anxiety and boredom in the literacy classrooms is further exacerbated when teachers put pressure on the students to produce linguistically accurate essays without exposing them to current approaches to writing in a creative manner” (Ganapathy and Kaur 2013:548). Subsequently, a link between the cultural dimension of literacy and the contemporary practices which incorporate the social and cultural ways of knowing is critical (Street 1995:132-133; Alverman 2011:16). For example, educators need to consider how the sociocultural contexts inform literacy practices of students, as many of the students join university with diverse experiences which can be negotiated to suit the curriculum requirements. In addition,

Kaur and Ganapathy (2013:120) argue that “with the rapid transformations in today’s interconnected world, it is relevant to integrate teaching and learning of literacy skills within the electronic and digital environments”. Therefore, a literacy conceptualization which matches with increasing cultural and social diversities, technology and globalization is worth considering. This aligns with The New London Group (1996:17) aim of the concept of ‘multiliteracies’ which seeks for more “equitable social and cultural participation that connects to the real world”. It also echoes UNESCO’s (2006:13) definition of the plurality of literacy which refers to the many ways in which “literacy is employed and the many things with which it is associated with in a community or society and throughout the life of an individual”. When related to youth (students) literacy, the above sentiments arouse certain expectations of students in today’s literacy classrooms across sites of social practices and what it means to be a literate person in the 21st century (Madison 2018:2-3). Thus, according to the IRA (2012:2) and Madison (2018:2- 3) the literate youth (student) in the 21st century should be able to perform the following:

- Analyze texts critically and interpret them to obtain meaning.
- Read and write a range of texts not only in the print format but also in the digital or multimodal form.
- Author (write) texts enriched with semiotic resources in both the in the multimodal settings or in fixed domains.
- Hold dialogues with ‘others’ (peers, teachers, and the larger online communities) to create meanings out of the various texts.
- Should act as ‘information hunters’ in multimodal environments such as websites as opposed to a ‘knowledge seekers’ associated with traditional print-based texts.
- Should be digitally literate with the ability to fluently navigate various digital platforms and exploit them to their advantage.

The assumptions and characteristics above imply that viewing literacy as a social practice as well as a process which is not only limited to reading and writing, but also that which involves analyzing, responding, producing and interacting with the different modes of communication. This requires a paradigm shift on the part of teachers and educators that prioritizes high order thinking skills, self-efficacy, participation, engagement, feedback and interaction (Paddick 2016:2 of 4). Kaur and Ganapathy (2012:120) share similar views in their argument that “in today’s writing classroom, the role of a teacher is critical in providing ample opportunities for students to engage

with teaching materials that allow students to bring the people, languages, values, ideas and experiences of their lives outside the classroom into their writing repertoires”.

In conclusion, while most of the assumptions and characteristics of youth literacy are derived from literature in the global north with significantly different structural and contextual factors, they supported my understanding of students’ literacy especially at university level. Literacy has to stretch beyond reading and writing to include the social and cultural aspects. This calls for broader understanding of how literacies of such magnitude should be strengthened, followed with an integration of communication modes. That said, in the next section, the dominant discourses in literacy pedagogy are explored right from the traditional rhetoric views of writing which prioritized conventions and structure through to sociocultural views that considered the social and cultural aspects of writing.

2.4 Discourses in literacy pedagogy

In this section, I examine the various discourses that have dominated research in second language writing for the past three decades. Drawing on research from prominent scholars in the field, I attempt to trace the discourses through the successive approaches to literacy pedagogy from the period when traditional cognitive views of writing that focused on convention and structure were highly privileged to the current sociocultural views which take into consideration the cultural and social aspects of writing. The intention is to understand the affordances and limitations of each of them so as to draw implications for writing pedagogy that is suitable for learners in contemporary 21st century classrooms.

According to Raimes (1991) literacy pedagogy has undergone four dominant successive approaches basing on what is being focused on in the teaching and learning process:

- Focus on form- the rhetorical and linguistic form of the text itself.
- Focus on the writer and their cognitive processes.
- Focus on content.
- Focus on the demands made by the reader (Raimes 1991:408).

The approach which focuses on form of the text is termed as the product approach also known as the rhetorical traditional approach. According to Sun and Feng (2009:151), “the product approach focuses on writing tasks in which the learner imitates, copies and transforms the teacher’s supplied

models, with the primary goal of producing error-free, coherent texts”. As such, this approach emphasizes the linguistic accuracy and correctness of structure of the text. Focus is on the text as a completed/finished product to be corrected by the teacher. The teacher assigns writing tasks to the learners and models their behavior around appropriate use of grammatical structures, vocabulary, syntax and any other cohesive devices of interest. During correction of the finished product, that is the learner’s text, the teacher proof reads learners’ texts for linguistic errors and focuses on accuracy of the texts before moving on to the next task. This approach is commonly referred to as the product approach, because emphasis is largely on the product of composing, with strict adherence to models provided by the teachers (Sun and Feng 2009:151).

Pasand and Haghi (2013) conducted an investigation in an EFL Iranian context to establish whether the product approach to writing using model texts has an impact on learners’ accuracy in writing. The researchers based on the student’s writing performance to conclude that “product writing has a positive influence in some aspects of the EFL learners’ writing accuracy such as punctuation, capitalization, spelling, subject-verb agreement, tense, the use of connectors, using correct pronouns and possessives” (Pasand and Haghi 2013:76). Similarly, Saeidi and Sabekheir (2011:131) emphasize that since modeling is at the center of the product-based approach, modelling of students texts, if appropriately used can raise students’ awareness to the various writing aspects such as: style, structure and vocabulary. Although the product-based writing has yielded some benefits for students’ writing especially in second language contexts, it has been criticized in various ways.

According to Klimova (2014:148) the product approach perceives writing as a set of linguistic skills that are developed in classroom-confined settings and mastered through grammatical drills without much consideration to what happens during the student’s course of writing. Furthermore, product-based approaches privilege the mechanical aspects of writing over content and creativity (Ganapathy and Kaur 2013:549), where teachers draw content primarily from text books and evaluate students’ writing abilities basing on timed essays on assigned prompts (Behizader 2014:125). The teacher-centredness of the product-based approach to writing makes students totally dependent on the teacher and promotes a belief among the students that the teacher as the primary source of knowledge (Gulnaz, Alfaqih and Mashhour 2015:934). Furthermore, students’ anxiety and boredom levels in the writing classrooms are worsened when teachers pressurize students to write accurate essays without giving them adequate support to do so (Rezaei and Jafari 2014:1546; Ganapathy and Kaur 2013:549). According to Gulnaz *et al.* (2015:935), the didactic

teacher-centred approaches in product-based writing are characterized by anti-dialogical tendencies which constrain students' creativity and communicative abilities as many cannot freely express themselves.

The limitations cited above prove that the learner in the product-based writing classroom is at a disadvantage and thus more action needs to be taken. The highly teacher-controlled product-based approaches appear to be firmly grounded within the behavioral and the structural tradition of learning of Thorndike (1932); Bloomfield (1933), and Skinner (1957). In this tradition, teaching of writing was primarily viewed as a matter of reinforcing “grammatical structures, idioms and vocabulary” (Raimes 1991:412). In addition, learning to write, just like learning to speak, is “a process of habit formation that is conditioned and reinforced by correct modelling and repeated patterns” (ibid 1991:412). This was not a bad approach in itself given the times, but it should be emphasized that there is more to learning of writing than mere habit formation. A study conducted by Leki (1992) to understand whether students with good knowledge of grammar would write more creative texts when subjected to the product-based writing revealed that the students still produced “peculiar, non-English sounding texts when asked to write even somewhat more creatively” (Leki 1992:5). It is clear that the product-based approach to writing, though important in many ways, is inadequate to address issues of creativity and communicative needs of ESL learners. However, the fact that many practitioners had a strong inclination to the behavioral and structural tradition, they found it hard to shift their thinking away from the product approach. According to Leki (1992), many product-oriented practitioners attributed the problems ESL learners were experiencing to the limited understanding of structural aspects of the written forms. Leki suggests students should be drilled in the use of patterns at discourse level to supplement the product-based approach. This would provide students with opportunities to practice how to “combine sentences to form paragraphs and paragraphs to form whole essays by following prescribed structures or models” (Leki 1992:5-6). Hence, the focus of cognitive research understandings in L2 writing slightly shifted to incorporate the rhetorical aspects of the texts in which *rhetoric* is defined as “the method of organizing syntactic units into larger patterns” (Silva 1993:13).

Following this approach, writing was highly teacher-controlled. Students are not given chance to practice free writing that involves creating meanings (Leki 1992:5) because “carefully controlled and guided activities were considered essential for formation of correct habits” (Zen 2005:67). The underlying assumption for both approaches was that mastery of formalities of the language would

adequately build up ESL students' writing competences. However, as observed by Silva (1993:13) and Zen (2005:68), the focusing majorly on the grammatical aspects and the mechanical aspects of writing class is not enough to develop students' writing skills. This is because writing is "not a single act of recording thoughts in a correct linguistic form" (Zen 2005:67), but a "laborious process of discovering thoughts that involves complicated competences and skills" (Slavkov 2015:82).

In addition, using the rhetorical approach implied that the written text became a collection of sentence patterns and vocabulary items, a linguistic artifact as it were, or a vehicle for language practice (Zen 2005:68). Besides, there is negligible concern for the presence of the audience or purpose for writing. And yet ideally, audience awareness and purpose of writing are key elements in learning of writing and making it a meaningful act of communication. Consequently, the dissatisfaction with the controlled product-based writing instruction gave rise to the introduction of the process approaches. ESL writing researchers such as Silva and Matsuda posit that focusing on "surface- level correctness is of little value in helping students to learn to write and the mastery of textual structures had little to do with the creative process of writing" (Silva and Matsuda 2000:28). The approach was also criticized for constraining learner from drawing on their previous experiences to generate ideas for their writing, yet these are fundamental to the learner's process of meaning-making (Pasand and Haghi 2013:76). However, it should be emphasized that the mechanics of writing of texts cannot be ignored. In teaching writing both fluency and accuracy ought to be given due attention.

Although there were several limitations associated with the traditional approaches to writing, studies by Chisholm and Leyendecker (2008), Ssentanda (2013), Akello, Timmerman and Namusisi (2015), Nambi (2016) and Namubiru's (2019) blog reflections indicate that literacy instructional practices across all levels of education in Uganda, including university, still hold elements of the traditional product-based approach. In her reflections on 'learning to write in post-colonial Uganda' Namubiru explains that in her lower composition classes, "teachers focused heavily on English grammar and accuracy as opposed to writing essays. The teachers would thereafter use pop quizzes and in class grammar exercises to evaluate children's spellings and punctuations". Namubiru further explains that as they advanced through secondary education, they were taught how to write essays on assigned topics and summarize short story books. Namubiru's story represents the writing experiences of many students in Uganda who have gone through the traditional product-oriented literacy curriculum. Chisolm and Leyendecker (2008:197) confirm that

the model of the curriculum and instruction in Uganda have been majorly based on behaviourist models. According to Christillo (in Otukile-Mongwaketse 2016:12), the behaviourist pedagogies have been criticized for being highly teacher-centred, with a top down, hierarchal structure that promotes passive learning, rote memorization and constrain the development of higher level cognitive abilities.

Although the behaviourist product-based literacy pedagogy is a widely accepted and applied pedagogy in Uganda, there is need for teachers to take into consideration other approaches that consider writing as a creative process with varied dynamics of composing. These may include active learner engagement in the process of writing and feedback from others (who may educators or peers). My argument is that composing a text is not a straight forward, plan-outline-write activity, it is much more complex, involving generating, formulating and refining one's ideas. Zamel is of the view that "revising and revisiting ideas and thoughts should become the main component of writing and that students should view their writing as someone else's reading" Zamel (in Silva and Matsuda 2003:195). Zamel argues that second language learners of English need to be taught to write in a similar manner as their native English-speaking peers and that the focus of writing ESL classrooms should be upon "the expressive and creative process of writing" (Zamel 1987:34).

The arguments advanced above illuminate the fact that writing should not be taught by only focusing on what learners have written (the product). There is a need to understand how the product comes into being and why it assumes the form it does. In the process approach, content, ideas, and the need to communicate would determine form. In fact "composing would mean expressing ideas or conveying meaning" (Raimes in Zeng 2005:67). This approach is more in line with what is expected of writing as a communicative act, purposefully constructed and meaningfully conveyed. The learner must also have adequate mastery of language to be able to communicate.

The process approach emphasizes a cognitive perspective of the writer in trying to understand the underlying processes involved in writing. Earlier researchers that made significant contributions in illuminating the essence of writing as a collection of dynamic meta-cognitive strategies employed by writers include; Flower and Hayes (1980a, 1980b), Wenden (1991), and Arndt (1987). For example, Flower and Hayes' (1980a) illustrate that the recursive processes writers go through during composing texts which differentiate the expert from novice writers. This kind of knowledge

helps to shed some light on the types of instructional techniques that are needed to help novice writers develop effective writing skills. In a similar manner, Wenden (1991) investigated eight ESL students who were composing texts using a computer programme and she particularly focused on how these learners were employing meta-cognitive strategies in their writing. In her findings, Wenden (1991:302) reports that students use several meta-cognitive strategies such as planning, evaluation, and monitoring to mediate their understanding of writing texts. This research is useful in casting light on cognitive strategies novice writers use to accomplish their writing assignments as well as mental operations students use to regulate their learning.

Although the process approach to writing was considered “the most successful in the history of pedagogical reform in the teaching of writing” (Matsuda 2003:69), some of its dimensions present theoretical and practical deficiencies. For instance, concerns on whether this approach could single handedly prepare students for intricate tasks of writing, which have “increasingly been recognized as a socially and culturally situated” (Hyland 2007). Considering the fact that writing as a social and cultural practice implies that “writing is not simply a matter of manipulating some activities of universal cognitive processes, such as pre-writing, drafting, revising and editing, but a means of connecting people with each other in ways that carry particular social meaning” (Hyland 2007:27). This makes writing a much more complicated process than just a set of accumulated cognitive activities. This involves knowing the writing process, one’s own experience, the purpose and context of writing as well as the expectations and conventions of the written discourse of the target community (Zen 2005:67). Thus, writing instruction that limits its focus on the cognitive processes of writing is insufficient in preparing students for the types of writing tasks expected of them in the real world. Another deficiency of the process approach to writing has been that while process approach specifically paid attention to the role of the writer and the composing process, it disregarded the importance of form and correctness of structure in writing. It is true writers must have ideas to write, but they must also write them correctly and appropriately. Therefore, form and correctness of structure must not be ignored.

It is also questionable as to whether the process approach adequately equips students the necessary skills for their discipline-specific work where much of the writing is not a form of involved self-expression but a hard effort undertaken in order to fulfil the reader’s expectations. Horowitz aptly observes that the process approach, “creates a classroom situation that bears little resemblance to the situations in which students’ writing will eventually be exercised” Horowitz (in Zen 2005:67). The process approach puts much emphasis on “the individual’s psychological functioning and

neglects the sociocultural context, yet the writer should be seen as part of the wider context” (Street 2015:111). The argument is that individual cognitive processes do not function independently, but are influenced by social, cultural, and historical contexts. This implies that “writers do not just write, they write in different ways, in different contexts for different purposes” (Dysthe 2001:6). This draws attention to conventions of particular text types used in different social contexts (genres). As such, learners need to be supported to understand why they are writing the text (purpose), who they are writing the text for (audience), what information should the text contain (field) and how to structure or present the text (mode) (Badger and White 2000). Thus, the intention of genre approach to writing is to enable student writers to participate efficiently in the world outside the classroom.

The development of approaches and perspectives to second language writing instruction still goes on, hopefully moving towards a more enlightened understanding of writing in second language. As Silva (1991:89) observes that the approaches seem to transition through “a rather unproductive vicious cycle” with five distinct phases. The first phase being, an approach is “conceptualized and formulated in a rather limited fashion” (Silva 1991:89). In the second phase, it is “enthusiastically promoted” and in the third phase, it is accepted uncritically. In the fourth phase, it is rejected prematurely and in the fifth phase; “a shiny new (but not always much improved) approach” takes its place (ibid 1991). This succession of approaches may impact negatively on the writing discipline because there is inadequate synthesis of the available knowledge to improve on the writing instruction practice and evaluation of approaches could also be limited. There is need for a research in approaches to writing instruction that consider the key elements in second language writing as a purposeful and contextualized communication, involving both the construction and transmission of knowledge.

In line with the above arguments on writing approaches, Troia’s (2014) poses the following questions that are relevant in guiding the development of a pedagogical framework for supporting learners’ development of writing skills:

- Is the writing approach supported by valid, reliable research? That is, to what extent have writing instruction programmes based on the approach been shown to be efficient and effective in improving students’ writing? (Troia 2014:9 of 67).
- Is the given approach informed by an appropriate and adequate theory of second language writing? (Troia 2014:9 of 67).

- Does the second language writing instruction approach help students to understand and use elements that appear in the text and make the text pleasurable, informative and provocative for the reader? (Troia 2014:10 of 67; Graham *et al.* 2012; Olinghouse and Wilson 2013).
- Does the writing instruction approach encourage utilization of the available technologies to prepare students for 21st century writing tasks and to facilitate effective text production? (Troia 2014:11 of 67; MacArthur 2006).
- Does the writing instruction approach encourage broadening of students' knowledge about global issues, natural phenomenon, human relations, social, cultural and political events? (Troia 2014:12 of 67).
- Does the writing instruction approach promote independent and reflective writing practices among students? (Troia 2014:12 of 67; Graham *et al.* 2012; Rogers and Graham 2008).

As such, feasible approaches to the supporting of second language writing need to be based on a clear conceptualization of what writing in the second language involves. It is evident from the literature reviewed above that there has been limited consistence and follow up in coordinating and applying the theory and research on writing instruction in actual practice. This calls for more research and interventional studies to establish the effectiveness of a given approach when applied in a specific educational context. It is in this light that the present study draws on arguments from the sociocultural and cognitive writing research to conduct an intervention aimed at supporting students' meaning-making processes as they write texts on a Wiki platform.

That said, the study is anchored in the social constructivism ideology in general and Vygotsky's (1978) sociocultural theory in particular.

2.5 Social constructivism

The constructivism epistemology is rooted in the works of philosophers, such as Jean Piaget's (1896-1980) and Dewey (1859-1952). According to Hung (2001:282) constructivism views "learning is an active process of constructing rather than acquiring knowledge". Similarly, Dewey viewed knowledge as not just a mental state but as an "experienced relation of things" Dewey (in Hohn 2013: 25). Building on these ideas, Vygotsky came up with the notion of 'social constructivism' in which he argues that people's relations and experiences with others are influenced by their cultural and social context (Hung 2001:282). Vygotsky (1978:88) argues "human knowledge is socially constructed, and that the interpretation of knowledge is dependent on the cultural and social context through which knowledge is constructed". In other words, social

constructivism views “human knowledge as socially constructed” (Dagar and Yadav 2016:3 of 4) and that learning is intrinsically supported by sociocultural factors and events.

To this end, Dagar and Yadav (2016) highlight four main tenets of social constructivism:

- Learning is an active process of constructing rather than acquiring knowledge (that is, focus is on knowledge construction rather than knowledge transmission).
- New learning builds on prior knowledge.
- Learning is enhanced by social interaction.
- Meaningful learning develops through authentic tasks (Dagar and Yadav 2016:3 of 4).

Thus, social constructivism provides an overarching ideology from which the sociocultural theory (Vygotsky 1978) was derived. The current study is particularly informed by the sociocultural theoretical perspective.

In the next section, I examine Vygotsky’s fundamental principles of sociocultural theory of learning, highlighting its implications to teaching and learning of writing. This is intended to shed some light on how meaning-making can be enhanced among students who are engaged in writing of texts in an ESL context.

2.6 The sociocultural theoretical principles

The sociocultural theoretical approach to education is largely attributed to Lev Vygotsky (1896-1934), a Russian psychologist. Vygotsky’s arguments about cognitive development are diverse and specifically focus on understanding the development of higher mental functioning in children. However, his views and arguments have resulted into varied implications for instruction across many fields including education and have led to practical applications for learners across ages. Poll, Allyman, Casto and Norwood (2018:1) confirm “interpretations of Vygotsky’s and other sociocultural scholars’ works have led to diverse perspectives and a variety of new approaches to education”. Subsequently, research to respond to Vygotsky’s ideas has resulted into many assumptions and concepts regarding students’ learning and construction of knowledge as explained below.

The role of social interaction in learning

Vygotsky argues that “human learning presupposes a specific social nature and a process by which children grow into intellectual life of those around them” (Vygotsky 1978:88). This idea presupposes the importance of collaboration and social interactions in human learning. In other words, knowledge is socially constructed through continuous interaction with others and the environment. This perspective considers “learning and development as continuous processes embedded within social events as learners interact with other people, objects and events within the environment” (Vygotsky 1978:89). Consequently, learners transform the knowledge learnt from their sociocultural environment into personal understanding. Vygotsky explains that the process of internalization occurs at two levels, namely the social level and psychological level:

Every function in the child’s cultural development appears twice: first on the social level, and later, on the individual level; first between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals (Vygotsky 1978:56-57).

It thus follows that learning is reinforced when meanings are constructed jointly between learners and their peers or teachers (social plane) and then later they transform the knowledge obtained from their social engagements by internalizing it into personal values (psychological plane). Therefore, writing instructors and educators in second language writing classrooms need to create ways for learners to participate in interactions and collaborations with others in order to develop mental processes (intrapsychological), which they can later use to gain personal understanding. According to Britton (1987:4), the interaction can be in form of “teacher to student, student to student interactions, peer tutoring, or group activity- as well as, in the give and take of social cooperation in and out of school”. Such interactions can open what Vygotsky (1978:88) refers to as the “Zone of Proximal Development” (ZPD) where learners construct new ideas through socially mediated actions (Brown 2000:287). They can also strengthen the quality of students’ learning experiences as Palloff and Pratt explain:

By participating in a learning community, students have the opportunity to extend and deepen their learning experience, test new ideas by sharing them with a supportive group, and receive critical and constructive feedback (Palloff and Pratt 2005:8).

In this study, social interactions and collaboration are considered to be closely aligned and hence feed into each other. Therefore, I view collaboration as a major aspect in facilitating dialogues and interpretations of written artifacts mediated by the Wiki platform. Collaboration in this study is understood as shared classroom practices among a group of learners to maximize their own and each other's learning (Abrami *et al.* 2016:86). Having conceptualized writing as a social as well as a socially mediated practice involving distributed, mediated and dialogic processes of invention (Rish *et al.* 2015:359), it is important for students to have interactive and collaborative engagements in order to build new understandings in writing of texts. Since writing is a highly subjective discipline, students, peers, and educators need a collaborative space in which they can communicate and negotiate meanings basing on their social cultural backgrounds. This makes Vygotsky's theoretical principle of dialogue (talk) an important sociocultural tool in this study.

Talk as a sociocultural tool

In his work, *Language and Thought*, (Vygotsky 1986) advances the importance of language in a form of talk as an enabler of social interactions and cognitive development. According to Vygotsky "The child's intellectual growth is contingent on his mastering the social means of thought, which is language" (Vygotsky 1986:94). In other words, the learner's consistent interaction with others through talk or dialogue leads to a gradual accumulation of information in the learner's mind. This information is transformed into inner thought that the learner can use to handle a similar situation or challenge if it arises at a later time. Vygotsky's views highlight the importance of language in form of dialogue in supporting the learning process. He further elaborates that "thought development is determined by language, that is, by the linguistic tools of thought and the sociocultural experiences of a child" (Vygotsky 1986:94). In other words, social interactions mediated by psychological tools such as language are important in promoting knowledge co-construction and for supporting the individual and social functioning (John-Steiner and Mann 1996:192). This perspective suggests that as learners engage in a range of activities with others through talk, they internalize the information obtained from the joint efforts. Learners also tend to acquire new knowledge of the world and problem-solving skills which they can deploy independently at a later time in future when similar situations arise. Similarly, in his views about symbolic mediation, Vygotsky highlights language among other tools as the greatest cultural tool at every one's disposal in which thinking and learning, "takes place, first, at the social level and then at the individual level" (Vygotsky 1978:56). Language plays two critical roles, that is, communicating with others and negotiating meanings. This, therefore, suggests the need for teachers/educators to guide learners on how to use the already existing tools within their

environment to make sense of their learning and of their world. This will enable the learners to use the accumulated knowledge across a variety of situations to solve new problems (Scot and Palinscar 2013:2).

The use of talk as a strategy to promote learners' cognitive development in classroom contexts has been widely researched under different cognates, such as: 'classroom talk', 'dialogic teaching', 'dialogic pedagogy' and 'dialogic education' (Bakhtin 1981; Wegerif 2006; Alexander 2008; Lyle 2008; Littleton and Mercer 2013). According to Oxford English Dictionary, 'dialogic' is an adjective used to describe anything 'relating to or in the form of dialogue'. Dialogue, at the basic level, relates to any "kind of social interaction where words or other signs are exchanged between people" (Wegerif 2006:2). The 'dialogic' approach to education is attributed to the philosopher Bakhtin in his collection *The Hoquist* (1981; 1990), particularly, in his essays '*The Dialogic Imagination*' best known in the literary theory field. In '*The Dialogic Imagination*', Bakhtin makes elaborate comparisons between the 'dialogic' and 'monologic' work of literature (Bakhtin 1986) from which ideas about 'dialogism' spread to other fields, including education. In his arguments about 'dialogic education' Bakhtin shares similar views with Vygotsky in relation to language. He viewed language "as a social practice; all language and all thought as dialogic" (Bakhtin in Wegerif 2006:2). Similarly, Bakhtin's constructs, such as "dialogicality, social language, and speech genre provide concrete mechanism for extending Vygotsky's arguments about the social origins and social nature of human mental functioning" (Wertsch and Smoka 1993:70-71).

Bakhtin conceptualizes the notion of 'dialogism' by making a comparison between the dialogic and monologic talk. He explains that a teacher who is inclined towards monologic talk is majorly concerned with transmitting knowledge to the passive learner and often controls the objectives of the talk (Bakhtin in Skidmore 2008:285). Thus, the monologic talk disempowers the learner since it limits their conversations and interactions. Bakhtin concludes that "monologic talk precludes genuine dialogue" (ibid 2008:285). In contrast, "a dialogic talk is concerned with promoting communication through authentic exchanges, where there is genuine concern for the views of talk partners and effort is made to help participants to share and build meanings collaboratively"(Lyle 2008:225). Similarly, Wegerif explains that "a dialogic talk creates opportunity for multiple voices that challenge the asymmetrical power relations constructed by monologic practices"(Wegerif 2006:3). From the views above, it is clear that Bakhtin's views about 'dialogism' sharply contrast with the traditional monologic discourses that are increasingly identified as prevalent in today's classrooms (Lyle 2008:225; Mercer and Howe 2012:367). Garcia-Carrion, Lopez de Ageileta,

Padros and Ramis-Salas 2020:2) confirm that the “traditional forms of monologic discourses in many classrooms today are still preventing learners from benefiting from productive forms of dialogue and interaction”. Hence, Bakhtin aimed at offering insights into how practitioners can harness the potential of dialogue to actively involve learners and provoke their thinking for purposes of encouraging knowledge production (Alexander 2008:37).

Bakhtin’s conceptualization of ‘dialogue’ is not necessarily restricted to “just talk or texts, but includes a more general idea that the inter-animation of different perspectives can lead to mutual illumination” (Bakhtin in Wegerif 2006:2). According to Bakhtin (1986:168) “If an answer does not give rise to a new question from itself, it falls out of the dialogue” This means that having varying opinions, ideas or perspectives among participants engaged in the dialogical encounters creates tensions which could lead to new understandings. The assumption in this conceptualization of dialogue is that knowledge building and new understandings are aspects that people build together as opposed to being individual possessions. Lyle (2008:225) confirms, through the process of “dialogic exchanges, learners are provided with an opportunity to play an active role in developing a personally constructed understanding of the curriculum” as well as creating meanings together. Researchers, such as Alexander (2001; 2006; 2008; 2018) who have been heavily influenced by Vygotsky’s and Bakhtin’s ideas about ‘dialogism’ and ‘dialogic teaching’ assert that the dialogic approach aims to move away from traditional teacher-centred approaches to “engage students in sustained stretches of talk which enable speakers and listeners to explore and build on their own and one another’s ideas” (Alexander 2008:37).

Alexander’s (2001) study on classroom talk in the various countries, indicates that some schools, particularly in Russia, teachers used the dialogic method of question and answer to stimulate students’ thinking. Garcia-Carrion *et al.* (2020:3) confirm that Alexander was influenced by Bakhtin’s idea that “if an answer does not give rise to a new question from itself, it falls out of the dialogue” to contribute empirical evidence on the dialogic approach which employs the question and answer method. The above assumptions about dialogue as being open to the other’s voice, which in this case could be discussions, questions and answers and also the willingness to listen to the ‘other voice’ other than our selves (Bakhtin 1986:168) make an important connection with this study. This is because dialogues allude to the process of understanding that is attained through listening to the other’s views within a shared dialogical space. This view is clearly highlighted in Vygotsky’s statement:

“the most significant moment in the course of intellectual development, which gives birth to the purely human forms of practical and abstract intelligence occurs when speech (dialogue) and practical activity converge” (Vygotsky 1978:24).

In other words, dialogues act as enablers of communication, discussions, negotiations or expression of inner most ideas that people may have and by sharing these ideas, cognitive development of an individual is enhanced (Alexander 2008:37). Moreover, dialogues in form of questions and answers, discussions and negotiations of meanings between students and educators or students and peers have potential to explore students’ thinking, unknown opinions and new experiences that are vital in ESL writing classrooms (Najjemba, Cronje and Kafui-Aheto 2018:515). Recent research highlights the potential of dialogue in enhancing learners’ cognitive development and knowledge construction. For example, Alexander (2008:37) reveals that dialogic engagements between learners, peers and their teachers encourages students to think, explore new points of view, and question ideas, leading to knowledge construction. Similarly, Teo (2019:171) posits that through “fostering dialogic interaction in the classroom, dialogic teaching does not only promote wider and deeper thinking and learning among students, but also it transforms classroom relationships readjusting the traditional power relations between teachers and students”. This research illuminates the centrality of dialogue in shaping action in the classroom, leading to meaning-making and knowledge construction. In other words, it is important to teach students to learn how to construct knowledge with others, so that they can participate more fully and effectively in ongoing dialogues than to teach them lists of fixed knowledge or so called facts (Wegerif 2006:2; Lyle 2008:225). Knowledge is something that people do together as opposed to being an individual possession (Lyle 2008:225).

The views above align with Alexander’s (2008) core argument of dialogic teaching which draws students into the process of shared construction of knowledge. Correspondingly, when Mantero (2002:440) maintains that “our mental functioning are dependent upon our interactions and communication with others, which are also affected by our environment, context and history”, he emphasizes the importance of collaboration and dialogue in human cognition. Similar sentiments are shared by Johnson, Johnson and Holubec (1998:3) in their suggestion “when individuals interact and cooperate within a social context, socio-cognitive conflict occurs, thus creating cognitive disequilibrium, which in turn stimulates perspective-taking ability and cognitive development.” Bakhtin (1986:168-169) argues that meanings can be created out of tension or conflict of ideas between conversants or between the ‘self’ and others as one voice ‘refracts’

another. It is precisely these tensions and competing voices that give shape to all discourse, hence forming a base for the meaning-making process as a dynamic socio-cognitive event. These views suggest openness to meaning which is consistent with keeping oneself open to what the other has to say and detaching oneself from own pre-understandings (Wegerif 2013:31). Thus, one has to learn to adjust from paying attention to not only the familiar ideas, but also learn to accommodate what is different from one's ideas. The implication here is that a learning environment where learners freely interact with the others, share ideas, and engage in open debates in which they argue and question issues will most likely increase the possibilities for meaning-making, as opposed to one where all those aspects are constrained. Thus, learning does not only happen inside an individual's mind, it also occurs when individuals are socially engaged with others.

To re-echo the problem in the current study, there are limited interactions and constrained dialogues in many ESL writing classrooms especially at universities in Uganda, stemming from the predominant use of behaviourist teacher-centred pedagogies. These limit communication and engagement with others during the writing process, making it a lonely and less-meaningful activity for the learners. Therefore, the argument for embracing dialogical assumptions as put forward by Vygotsky and other neo-Vygotskian researchers espouses a continuous process of dialogical conversations in which learners engage in open discussions and interpretations of meanings with peers and teachers. According to Vygotsky, "genuine understanding emerges when we begin to see what is questionable in new ways and open ourselves to dialogue with others" (Bakhtin 1981:168). In this study, collaborative dialogues are viewed as conversations, discussions, negotiations or talks that arise among participants as they endeavor to make meanings of their writing. I therefore argue that these dialogical conversations between educators and students or students and peers need to focus on constant revising and attaching meanings to the written artifacts mediated by Wikis.

Another sociocultural aspect that is of interest to this study relates to 'dialogical meaning-making' that alludes to understandings obtained if there is a reciprocal relationship where each of the participant is able to listen to what others have to say (Bakhtin in Wegerif 2006:2). This implies that meaning-making will occur if learners and their knowledgeable others are willing to engage in productive dialogues that are aimed at achieving a specific goal. The negotiations and arguments posed in these collaborative dialogues must be open, and "should confront popular opinions that are often arrogant and closed to the possibility of being wrong and that participants must put aside or suspend their own opinions" (Sebbowa 2017:47). This can be achieved through carefully

planned interactions and dialogues that involve discussions and negotiations, question and answer sessions between learners, peers and their educators, aimed at reaching understanding.

However, researchers emphasize that not all classroom talk and interactions can lead to learning or meaningful processes of meaning-making. Mercer and Littleton (2007:58) highlight three types of classroom talks (dialogues) which may or may not promote meaning-making, including “disputational”, “cumulative”, and “exploratory” talk. For example, “disputational” talk has been found to limit dialogue and collaboration, because it involves competition, disagreement, and personalized decision-making among participants (Garcia-Carrion *et al.* 2020:4). On the other hand, “cumulative” talk encourages participants to be more receptive of each other’s ideas than the “disputational” talk. However, research indicates, “it still lacks a critical evaluation of these ideas” (Garcia-Carrion *et al.* 2020:4). Unlike the two types of talks mentioned above, “exploratory talk is the most productive sort of dialogue through which learners share and challenge one another’s ideas critically” (Garcia-Carrion *et al.* 2020:4). In agreement with this view, Vrikki (*et al.* 2019b) confirm that “exploratory” talk has been found to be the most productive type of dialogue in contributing to meaning-making and improvements in students’ achievements in several domains, including mathematics, science and problem-solving (Vrikki, Wheatley, Howe, Hennessey, and Mercer 2019b.). Therefore, educators are called upon to groom learners in the skills needed to engage in exploratory dialogues and “by setting ground rules which can make this kind of talk truly dialogic and collaborative” (Garcia-Carrion *et al.* 2020:4). It is worth noting that although the research reviewed on talk as a sociocultural tool focuses on primary education particularly in the global north (see Alexander 2008; Mercer and Littleton 2007; Mercer 2013), it offers relevant insights into how educators at higher education levels can interactively involve learners in dialogic learning. Moreover, researchers such as Alexander (2008), Mercer (1995; 2013), Marcum (2006), and Wegerif (2006) whose research is heavily informed by Vygotsky’s sociocultural perspective emphasize that context plays an important role in knowledge construction. Marcum has this to say about the role of context in learning:

Information is basically discrete and objective; it exists whether or not we are aware of it. Knowledge, on the other hand exists primarily in our minds, or our being. It must be processed and placed into context for it to have meaning. Information may or may not have meaning, but knowledge does (Marcum 2006:25).

Marcum emphasizes that context is very important in creating meanings and generating knowledge. It is within context that individuals engage with multiple perspectives and interpretations of one another's ideas, not only for the purposes of creating meanings but also validating it. On the other hand, Mercer points out that the meanings or knowledge created "carries with it echoes of conversations in which it was generated and which can be seen as a social, historical process" (Mercer 1995:84). The implication is that there is no interpretation that does not bring one's own biases or prejudices into play and that there is a need for self- understanding and awareness of these biases in order to obtain true understanding (Wegerif 2006:2). Thus, I strongly believe in the subjective views of constructing of meanings in writing ESL texts as endless.

Rish *et al.* (2015:359) argue that writing should "not be viewed as a solitary but a distributed act, where meaning is continually being constructed as writers (students) interact in multiple ways and levels in the process of invention and transcription". The current study strongly relates with neo-Vygotskian theorists' views of subjectivity in obtaining meanings, given the fact that writing texts is not a linear, one-off activity, but it is subject to continuous and recursive interpretations based on who is interpreting, the context, the time as well as the events of the time therein. Langer (2011:10-11) describes this as exploring "horizons of possibilities" where one considers different perspectives, feelings, intentions, life situations, and cultures in order to make interpretation of the texts. Langer (2011) adds that understandings one has about a text are "subject to change at any time as new evidence emerges and new ideas come to mind" (Langer 2011:10). From this point of view, meanings are dynamic and are obtained through openness to multiple conversations relating to the world as well as the participants who act as validation points from which collective, and informed conclusions can be drawn.

Newmann (1990) refers to the above conversations to as 'substantive conversations' whose aim is to provide a space for validating students' contributions to learning. Such conversations are often feature "authentic questions". According to Nystrand and Gamoran (1991:261), "authentic questions are questions without pre-specified" answers whose purpose is not to check what students know or do not know but to prompt critical analysis and joint construction of knowledge. This is done in such a way that the questions asked during this interaction can be picked up by any of the participants, student or peer and elaborated on; or they can trigger off other related discussions. So, the discourse arising out of such classroom engagement is "less predictable or repeatable because it is negotiated and jointly determined- in character, scope, and direction by both teachers and students" (Nystrand and Gamoran 1991:261). Hence, this study is aimed at

engaging students in collaborative construction of meanings in writing texts, while pursuing continuous process of validation through the repetitive cycles of testing and refinement on the Wiki learning environment. The argument presented in this study is that meanings in ESL writing are achieved through listening to multiple views as well as engaging participants in open dialogues.

Although Vygotsky offered valuable insights into how knowledge and meanings can be jointly constructed, his perspectives have been criticized for being relativist and thus failing to provide foundation that is objective to support understanding and endorsing the continuity of meaning (Wertsch 1998:115). According to Johnson and Johnson (2009), Vygotsky relies majorly on the possibility of understandings and agreements among participants, but fails to recognize the dramatic differences in participants' understandings. Bryman (2001) also points out that the pre-set conditions facilitating understanding that Vygotsky anchors on, such as "tradition", "culture", "history", and "context" cannot be easily evaluated. To this end, I closely align with the sociocultural thinking that recognizes on going dialogical conversations and multiple interpretations of meaning in ESL writing from different sources of evidence and voices. That is, that there is no objective or subjective understanding (Vygotsky 1986), but rather being open to conversations among people who socially interact, from which multiple perspectives continue to arise. This means that learning (understanding) is an endless process between conversants (talk partners) that could be mediated by technologies especially the Wikis. The current study, therefore, aims to examine how pre-service students construct meanings of their writing through engagement in dialogical conversations mediated on the Wiki platform. This is aligned to Bakhtin's view that "understanding is obtained through exchanging ideas with others, and being aware of one's biases inherited from personal histories to arrive at the true understanding" (Bakhtin 1981:81).

Having discussed the sociocultural theoretical arguments supporting the use of talk or dialogical conversations in supporting meaning-making among learners, it is relevant to reflect on the role of mediation particularly interaction and collaboration. This is because to be able to engage in effective dialogical conversations, interaction and collaboration have to happen.

Mediation: the role of collaboration in learning

The most important concept of Vygotsky's (1978) sociocultural theory is *mediation*. The Oxford English Dictionary meaning of *mediation* relates to intercession, intervention or conciliation. In other disciplines such as psychology, the term mediation takes on additional qualities like verbal mediation, semiotic mediation and peer mediation (Turuk 2008:244). In sociocultural research,

mediation is defined in reference to elements and process, with human and symbolic mediators as the major elements of mediation. In this sense, Kozulin defines *mediation* as “human or symbolic intermediaries placed between learners and the object to be learned enabling them to achieve higher mental functions so that they be able to later transform their learning” (Kozulin, in Abdul Rahim, Hood and Coyle 2009:1). On the other hand, Aljaafre and Lantolf (1994:467) posit that *mediation* is a process in which learners sharpen their mental processes by engaging in collaboratively constructed dialogic activities or socially constructed artifacts, the most pervasive of which is language. In other words, the mediator uses tools, signs or artifacts, such as language and other activities to encourage social interaction and collaboration where learners jointly create meanings with the assistance of others.

The current study largely aligns with Aljaafre and Lantolf’s conceptualization of mediation because in a classroom context, the collaboratively constructed dialogic activity happens between the educators and students or students and peers. This process requires the participating individuals (teachers, students, and peers) to use the psychological tool (Vygotsky 1986) which is language to engage in dialogue regarding a specific writing tasks aimed at making meanings out of their writing. Although Vygotsky majorly focuses on the psychological and symbolic tools, this study employed the physical tools such as Wiki tool and the face-to-face collaborative to mediate ongoing dialogic conversations among students, peers and educators. This is in line with Wilson’s argument that:

...learning and thinking are social activities that are structured by constant interpersonal interaction; therefore, human thinking is supported by interaction within the environment and that the available tools within the particular situation significantly guide an individual’s ability to think and learn (Wilson in Johnson and Aragon 2003:38).

These sentiments suggest that learning is embedded within “social events and it occurs as a learner interacts with objects, people or events in a collaborative environment” (Vygotsky 1978). Consequently, the importance of social interactions and collaborations is critical for human cognitive development in the current study.

It thus follows that learning is reinforced when meaning about subject content is constructed jointly between learners and their peers or teachers. Learners transform the knowledge learnt from their social engagements by internalizing it into personal understandings. Therefore, educators ought to

create interactive environments through which knowledge emerges as a result of exchanging information or ideas among participants of a specific learning community. According to Abdul Rahim *et al.* (2009:3), a learning community involves interaction between students, peers and their educators who are working towards a common goal of enhancing learning through an environment that fosters collaborative talks as well as individual efforts. To conceptualize the term interaction in this study, I base on Tudge's conceptions of interaction which can be in form of "teacher to student interaction, student-student interaction, peer-tutoring or group activity- as well as, in the give and take of social cooperation in and out of school" (Tudge 1998:4). In this study, the term *interaction* is closely aligned with collaboration, which in this sense, is a critical in facilitating interpretations of written artifacts on the Wiki learning environment.

Since writing in this is conceptualized following the sociocultural theoretical lens, this study's argument is that writing is a highly subjective discipline that is influenced by the writer's interests, personal histories, cultural, political, and social beliefs as people create texts. Therefore, students need to collaboratively work through these subjectivities by engaging in continuous shared conversations and negotiations on the Wiki platform. Bakhtin (1981:81) emphasizes that true understanding will emerge when people begin to see what is debatable in new ways and open up to dialogue with others. The sociocultural perspective focuses on how language, cultures, and imaginations influence the ways people think, experience, and make sense of the world (Vygotsky 1978). Therefore, a collaborative environment which harnesses the power of dialogues and open conversations during learning process not only stimulates learners' thinking, but also has potential for ensuring new understandings (Tudge 1998:167).

To conclude this section, it is worth noting that the sociocultural theoretical perspective discussed above presents important principles for understanding how meanings in L2 writing can be jointly constructed. These are: the importance of social interaction and collaboration in human cognitive development, the relevance of learners' interactions with 'others' in the learning process, the significance of classroom talk or collaborative dialogues as well as providing a supportive learning environment. These ideas formed a background against which the research questions in this study were crafted. Having examined the key sociocultural theoretical principles and their effect on learning, it is also important to focus on the various sociocultural manifestations of literacy particularly in second language writing drawing on research from prominent scholars. This is for purposes of understanding what meaningful writing instruction looks like and how it feeds into today's contemporary L2 writing classrooms.

In the next section, I will begin by examining the sociocultural theories of writing.

2.7 The sociocultural theories of writing

The literature reviewed in Sub-section 2.4 above reveals that for a long time writing was viewed and practiced as an individual cognitive activity. However, until recently, attention has shifted to the sociocultural orientation of writing which involves literacy as a social practice. This encompasses a plurality of practices, including active participation in literacy events, engagement with different modes of communication, critical engagement with texts, construction of meanings, dialogues, and collaborative engagements. These approaches to literacy instruction advocate for a shift from a deficit of skills model to literacy development that focuses on individual cognitive processes to more inclusive models that put the learner at the forefront of the learning process. Such inclusive models to literacy instruction include: the sociocultural theory of learning which incorporates social and cultural ways of knowing (Alvermann 2011:23). In addition, the constructivist model emphasizes “learner-centred, learner-directed and a collaborative style of teaching and learning supported by teacher scaffolds and authentic tasks” (Dagar and Yadav 2016:2 of 4).

2.7.1 Writing as a collection of sociocultural practices

There is evidence from literature to indicate that research on literacy (writing in particular) has been in continuous state of evolvement, shifting from the traditional cognitive views (Lei 2008:218) to the sociocultural theories of writing (Behizader 2014:126) most recently. The shift to the sociocultural considerations to writing did not mean that the mechanics and cognitive processes are no longer important aspects of writing, but rather the conceptions of writing were broadened to include “the sociocultural background of the writer as well as the context in which the act of creating a text is happening” (ibid 2014:126). Prior clearly points out that the cognitive paradigm is “too narrow in its understanding of context and was eclipsed by studies that attended to the social, historical, and political contexts of writing” (Prior 2006:54). Thus, the sociocultural theory, in its very essence, views writing as a contextual process which takes into consideration the different contexts in which it (writing) occurs. As the name “sociocultural” suggests, these contexts encompass cultural and social characteristics.

In her review of the sociocultural literacy perspectives, Perry categorizes literacy practices into three sub-divisions; “literacy as a social practice”, “multiliteracies”, and “critical literacy” (Perry

(2012:50). To which she adds, that all these categories have their have “their affordances and limitations, but significantly contribute to the field by explaining how people relate to the world and make meaning multi-modally” (Perry 2012:50-51). However, considering Perry’s categories of literacy, the argument I present is that viewing “literacy as a social practice” provides ground for all sociocultural theories related to literacy. This is because a growing body of ethnographic studies in sociolinguistics and discourse practices indicates a common occurrence “literacy varies depending on the particular context in which the reading or writing occurs” (Behizader 2014:127). In other words, people engage in literacy practices in their everyday lives for various reasons. These reasons may include the intended audiences or the people they relate with, and all these “are grounded in specific contexts and are inextricably linked to cultural and power structures in society” (Street 1985:433).

Perry (2012) illustrates this concept in her ethnographic study of Sudanese refugees in the US who regularly engaged in literacy practices of reading the Bible, as opposed to the Quran. This was for various purposes, such as following “a church service, for bible study classes, and for guiding personal prayers” (Perry 2012:54). These practices were heavily influenced by the church as a social institution, whose cultural and power dimensions privileged reading the Bible more often as opposed to the Quran. This is because in the US which is a predominantly Christian community, the practices of reading the bible are much more valued than the practices of reading the Quran (Perry 2012:54). Thus, the refugees had to adjust to a more valued culture in the US, although they were originally from Sudan, a predominantly Muslim country. This is what Gee, Hull, and Lankshear (1996) meant when they stated that language can never function independently from its sociocultural context. It always comes “fully attached to other stuff: to social relations, cultural models, power and politics, perspectives on experience, values and attitudes, as well as things, and places in the world”. Gee *et al.* (1996:vii). Hence, communicative acts are nothing else but “facets of the cultural values and beliefs, social institutions and forms, roles and personalities” (Hymes 1994:12). These sentiments suggest the critical role played by the sociocultural context in determining people’s literacy practices.

Perry further notes that literacy as a social practice is about “what people do with reading, writing and the texts in the real world” (Perry 2012:54). Such practices involve more than just actions with texts and they are better understood as “existing in relations between people, within groups and communities, rather a set of properties residing in individuals” (Barton and Hamilton 2000:7-8). Therefore, following this sociocultural perspective to literacy, writing in this study is viewed as a

“set of practices which can be inferred from discrete events mediated by written texts” Dabrowska’s (2019:35). This view clearly aligns with Rish *et al.* (2015) conceptualizations of writing adopted for this study. In other words, the literacy events that are reflected in students’ written artifacts will inform about the students’ literacy practices and the values, attitudes, and power structures that are embedded within. As earlier argued that many of the students in today’s classrooms have grown up using various digital technologies for communication, entertainment and socialization. Thus, they come to the writing classrooms with diverse global identities both linguistically and culturally. These students need to be supported to express their linguistic competences in ways that resonate with their needs and the literacy practices they engage in during out-of-school hours (Behizader 2014:127).

Furthermore, this study argues for writing that is socioculturally relevant to the students in terms of purpose and outcome. Behizader (2014:127) emphasizes that writing should be about “texts people create for authentic contexts and purposes”. In the context of this study, part of the writing that students at higher education levels engage in, should be that which resonates with their lives and about real-life issues in real contexts. Students should write about topics that are intended to cause change or transform their own lives or communities. For example, students can write persuasive essays about global issues such as human rights, poverty, epidemics or local community issues that affect them. According Behizader (2014:128) writing for sociocultural purposes should be about communicating ideas, values, attitudes, or beliefs intended to cause change in societies. Similarly, Dabrowska (2019:36) reiterates that meaningful writing where learners write essays that they perceive as connected to their lives or their communities, is as an aspect of sociocultural writing. These views also align with the UNESCO (2008:18) conceptualizations of literacy which puts emphasis on the importance of “social context and the complex interaction between literacy and social change”.

In addition, the sociocultural perspectives of “multiliteracies” and “multimodality” are considered relevant for the current study to illuminate an understanding of the many ways students in today’s classrooms can be considered literate. These include “diverse multilingual and multimodal forms of literacy” (Cope and Kalantzis 2009:166). The two concepts are interconnected and some researchers use them synonymously. However, several researchers have tried to elaborate on the relationship between the two. According to Cope and Kalantzis (2000:5) multimodality suggests that meaning-making occurs through a variety of communication channels in which “written-linguistic modes of meaning are part and parcel of visual, audio, and spatial patterns of meaning”.

According to Dabrowska (2019:38), multimodality is a writing system that is inseparable from cultural organization in which meanings act as semiotic features. Print literacy that is privileged in school contexts is just one of the forms of representations and meaning-making. In addition, ‘text’ stands for more than print and it includes a variety of print matter and systems (Godhe and Mangusson 2017:848). Therefore, literacy should be considered as semiotic organization appearing in different realizations (Kress 2010:99). Conclusively, Rowsell and Walsh explain “multimodality comes first, in that it informs how we make meaning and multiliteracies is the possible pedagogy that gives us tools for doing. So multiliteracies as a possible pedagogy accounts for linguistic diversity and the use of multimodalities in communication.”(Rowsell and Walsh 2011:56).

In relation to the current study, focus is on a group of ESL pre-service students assumed to belong to “Generation Z” (Shatto and Erwin 2016:253; Mohr and Mohr 2017:84). Having been born after 1995, this category of students have grown up surrounded with technology and heavily depend on it for socialization, entertainment and information. Given their exposure to the internet, and engagement with various technologies, these students come to the writing classrooms with a variety of out-of-school literacy experiences, such as playing video games, creating and maintaining social media accounts, and creating YouTube video content (Talmon 2019:S9). This implies that there is a need to adopt pedagogies that are consistent with the experiences, interests, and needs of this generation of learners (Najjemba, Cronje and Kafui 2018:514). According to Cope and Kalantzis (2000:4), the notion of multiliteracies attempts to respond to issues of the “changing world and new demands placed upon people as makers of meanings in their changing school systems, and workspaces”. The implication is that because of the new existing landscape involving the exponential growth in information, technologies and practices akin to changing contexts (Lankshear and Knobel 2003), there have been acknowledgements and acceptance of the new ways in which students’ literacies unfold.

Several studies acknowledge the potential of today’s students to engage in multimodal literacies in which they use multiple modes, such as images, sounds, and audio-visuals to compose a variety of artifacts (Behizader 2014; Hashemi 2014; Lewis Ellison 2014; Yi, Kao and Kang 2017). With regard to multilingual literacies, Hashemi’s (2014) study explores the virtual cross-border meaning-making practices in the inter-Scandinavian comprehension class of students from Denmark, Norway and Sweden. A combination of ethnographic and multimodal forms of semiotic analysis were used to interpret the content, students’ explications and the change in meanings across sign systems, including words, images, and sounds. Findings indicate that students exploited

the affordances of the cross-border virtual classroom to engage in real time meetings, collaborative sharing of knowledge and multimodal productions leading to enhancement of their linguistic, cultural and digital competences (Hashemi 2014:1).

Similarly, Lewis Ellison (2014) examines how two African American adolescents who used an online computer game ‘The Sims 2’ to construct their identities and extend their understandings of literacies. Results demonstrate how the adolescents took on student-centred roles to co-construct knowledge and meanings that contributed to the ways they would like to have their identities represented in society (Lewis Ellison 2014:1). These studies among others prove that in today’s technologically-mediated society, students’ multimodal literacy practices that most commonly happen outside of school can no longer be ignored in the contemporary classrooms. To this end, a growing body of research is urging educators to acknowledge students’ engagement with digital tools in communal spaces (out-of-school practices), in shaping their in-class literacy practices (Cope and Kalantzis 2009:165; Ganapathy and Kaur 2012:547; Lewis Ellison, 2014:334; Hashem 2014:1). Additionally, research suggests that the new literacies should not be solely about new ‘technological stuff’. They are also about “a new ethos” in which literacy practices are viewed as “participative, collaborative and multimodal” (Lankshear and Knobel 2011:184-185). Bowden is of the view that these understandings should involve “engaging with meanings in intensified digital environments” (Bawden 2008:19)

The views above imply that acknowledging the new ways in which literacy unfolds “enables new ways of being and accomplishing things” (Lankshear and Knobel 2007:14). Therefore, participating in networked society mediated by technologies has potential to open new possibilities and new spaces, including “multiple spaces, re-made hybrid spaces or travelling across them, which are accessible if appropriate principles of collaboration, and participation are followed” (Lankshear and Knobel 2007:6). In line with such global changes, this study argues that it is important for educators to exploit the affordances of technologies in the teaching and learning of literacy to help improve students’ ability to participate and collaborate with others in making sense of their learning. The traditional literacy instruction models characterized by pen and paper, text-book centered methods, with the teacher as the primary source of information can no longer match the global trends of ‘literacies’. Learners need to be prioritized in the learning process and also be supported to make sense of their learning through the ‘multiple and hybrid spaces’ created by the new trends of technology. Thus, the current study investigates how students in a technology-emerging teacher education context can be motivated to actively engage in knowledge construction

and meaning-making of their writings through leveraging on the affordances of the Wiki collaborative online learning space.

The next section examines how writing is taught at a pre-service teacher education context in Uganda.

2.8 Teaching writing at a pre-service teacher education context in Uganda

This study was conducted at an English Language Education (ELE) unit of one public university in Uganda. The choice of this study context was largely influenced by my experiences as a teacher-educator handling a methods course entitled “Methods of Teaching English Language” to third year pre-service students. This course equips students with the skills and knowledge of how to teach English language at secondary school level. The course units are spread out through the four out of the six semesters pre-service students spend on the programme. The course covers aspects such as: developing the four language skills (that is, listening, speaking, reading and writing), methods and strategies of teaching the four language skills, professional issues in language teaching, materials development among others. Thus, in this course, pre-service students are prepared to become competent at each of the aspects mentioned above, in order to effectively teach same aspects to their future learners. The course unit on writing on which the current study is based, covers a variety of aspects of writing including; fundamentals of sentence and paragraph structure and the whole composition, the four types of writing (e.g. description, narration, argumentation and exposition), practical writing (e.g. personal and business letters, adverts, notices and resumes), book report writing, summary writing among others. The methods used to teach this course include; lecturing, question and answer, guided discovery, group and whole class discussion, case studies and project work (Makerere University n.d.).

Students are required to write essays on specific topics which they hand in for assessment at a specific point in time. The criteria for assessing the students’ written assignments majorly focus on mechanical aspects such as; coherence of ideas, spellings, sentence patterns, accuracy of grammar and rules of the language system in general (Kyeyune 2011:89; Makerere University n.d.). However, it is worth noting that the way writing (literacy) is taught at teacher education contexts in Uganda is largely through traditional lecture-driven pedagogies (Sebbowa, Ngambi and Brown 2014:24; Mulumba 2016:2; Kabugo 2017:15; Muganga and Senkusu 2019:16). Similar findings are revealed in other teacher education contexts in Sub-Saharan African contexts such as Kenya (Nganga and Kambutu 2017:200), Botswana (Otukile-Mongwaketse 2016:12) and South Africa

(Boyinbode, Ng'ambi and Bagula 2013:2). Although these traditional lecture-driven approaches play a critical role in the pedagogical process, they have several limitations. According to Boyinbode *et al.* (2013:2), lecture-driven methodologies have proved to be “unidirectional” in a manner that they promote a one way communication, that is, from the teachers to the passive learners, with limited interaction among students that can support meaningful learning experiences. They further argue that such methodologies lack “persistence” in that when students fail to understand the one-off face-to-face lecture, there is no opportunity to play back the lecture” (Boyinbode *et al.* 2013:2).

Similarly, Ng'ambi and Johnston (2006:244) and Kyeyune (2011:89) postulate that face-to-face lectures commonly used at universities are inadequate to support students' academic writing skills as they inhibit “deep and meaningful” learning. According to Ng'ambi and Johnston (2006:244), deep and meaningful learning relates to learning where students build meanings or understandings from their exposure to learning materials and experiences. Similarly, I argue that deep learning largely depends on student's level of engagement, that is, between student-teacher, student-student and student with learning content. Speaking specifically from the Ugandan perspective, Mamdani (in Muganga and Senkusu 2019:18) states that the continuation of traditional teacher-centered approaches at post-secondary institutions in Uganda have not succeeded in engaging students in ways that create meaningful learning experiences or the desired outcomes. Subsequently, the inadequate learning outcomes create skills gaps in many areas of the job market Mamdani (in Muganga and Senkusu 2019:18).

Following from above, the argument presented in this study is that the didactic approaches to teaching writing that characterize the literacy classrooms in Uganda, constrain deep learning, active learner engagement and make students incapable of exercising their own creativity. The monologic writing tasks set by educators usually focus on covering authoritative content majorly from text books and emphasis is put on producing linguistically accurate print-based texts. Shidrah (in Ganapathy and Kaur 2013:549) state that students' boredom and anxieties in the writing classrooms are worsened when teachers exert pressure on the students to compose linguistically correct essays without giving them chance to exercise their creativity. Linguistic accuracy is important in writing but as Eskey (1983: 319) notes “it is not an end in itself, but it helps to get the message across”. The argument presented in this study is that there is need to reconsider the writing pedagogies in teacher education, since the current ones appear to alienate many students from meaningful writing experiences. The traditional monologic classrooms that are teacher-

centred prevent learners from gaining from the dialogic and interactive ones that can “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (Garcia-Carrion *et al.* 2020:2). The biggest challenge facing the teaching of writing in Uganda today is to find an alternative to the conventional teacher-centred lecture-driven approaches. Educational institutions ought to address this challenge by shifting from all those pedagogical practices that exclude learners from meaningful learning experiences.

According to the Education Sector Strategic Plan [ESSP] (2004-2015) several efforts are made to transform education in Uganda to meet the 21st century demands. For example, in 2017, the Ministry of Education and Sports (MOES) through the National Curriculum Development Centre (NCDC) embarked on the curriculum reform program for all the subjects offered at lower secondary school level in Uganda. Similarly, the National Council for Higher Education (NCHE) which is the university regulatory body in Uganda embarked on the process of reviewing the current programmes at universities to make them relevant to the 21st century learners and the current global trends. The curriculum review particularly focuses on areas, such as the content, pedagogical methods, and assessment. These efforts are re-echoed in the guidelines by the NCHE and the various University Strategic Plans. For example the NCHE Report (2018) guided that higher education institutions in Uganda provide relevant, technology-driven, dynamic and sustainable quality education for all students. This aimed at making learning relevant to the current global trends as well as increasing learners’ levels of creativity and independent thinking.

Similarly, The Makerere University Strategic Plan 2008/9-2018/19, one of the public universities in Uganda, was developed with a quest to provide quality education that takes into consideration the learner-centred pedagogy in which learners are encouraged to constantly challenge assumptions and to seek better ways of doing things through creativity and innovation.

Although the initiatives mentioned above are very broad with limited clear direction on how they can be translated into actual classroom practice, they provide a background for educators at higher education to embrace learner-centred methodologies that promote creativity and collaborative construction of knowledge between students, peers, and educators. The argument advanced in this study is that through re-focusing learning from unidirectional processes of knowledge transmission to “encompass a broader spectrum of initiatives that advocate for re-defining the role of students in education” (Cook-Sather 2006:363), will not only give students the opportunity to cultivate their agency (ability to think, create and problem solve), but also will create highly employable, critical,

and adaptable individuals (ibid 2006:363). This closely relates to UNESCO's (2012:18) view of quality education that ensures sustainable development through enriching the individual and the society. The individual has to have the potential to question information in ways that benefit his home, work and the community.

Although technology-driven pedagogies are mentioned in the proposed curriculum reforms in the teacher education programmes, there is very little that is said about how these pedagogies can be employed by educators and students to enhance second language writing. Moreover, research has indicated that "Generation Z" students process information, and learn differently from the previous generations (such as the 'Millennials', and 'Generation -Xers'), and therefore, require alternative approaches to learning (Shatto and Erwin 2016:254; Mohr and Mohr 2017:85; Miller and Mills 2019:79). As a response to this challenge, this study highlights the need for systematic guidelines in form of a pedagogical framework to guide educators on how pre-service students can create meanings out of their writing through engagement in social interactions and collaborative dialogues mediated by digital tools such as the Wikis. Since the current generation of students especially at university are highly engaged with digital tools for their interactions communication, and access to information (Tapscott and William 2010:18), educators can still take advantage of these technologies to motivate the pre-service students to engage in dialogical conversations and meaning-making in writing of ESL texts.

That said, the next section focuses on attributes of pre-service students in the contemporary writing classrooms.

2.9 Pre-service students

In this study, the term 'pre-service students' is used interchangeably to mean learners and participants. It is worth noting that most of the pre-service students in today's Higher education classrooms are in the "Generation Z" category (Mohr and Mohr 2017:86; Schwieger and Ladwig 2018:45). This generation of learners has grown up heavily surrounded with the internet, and also actively engaged with digital technologies. The third year pre-service students who took part in this study were in the age bracket of 19-23 years. According to Schwier and Ladwig (2018:45), the generation born after 1995 have grown up in the explosion of digital tools and the internet. As a result, they have become proficient users of digital technologies, and they heavily depend on the internet for socialization, curation of information, and communication with others. This paints a clear picture as to why this category of students is commonly labelled as the "mobile generation",

“digital natives” or the “net-generation” (Ozkan and Solmaz 2015:477; Mohr and Mohr 2017: 86; Vizcaya-Moreno and Perez-Canaveraz 2020:1 of 10). Furthermore, Vizcaya-Moreno and Perez-Canaveraz 2020:2 of 10) observe that today’s learners are unique, they are immersed in technology and have the necessary digital skills. However, these digital skills and learner styles are not catered for by the current instructional methodologies in many Higher Education Institutions around the world. In fact, Mohr and Mohr (2017:85) suggest that instructors need “to rethink who their current students are, and what they need and want as learners”. This calls on educators to consider using pedagogical approaches that resonate with the learners’ changing profiles, changing learning styles as well as study interests. Ganapathy and Kaur (2013:548) emphasize that “it is imperative that these changes are addressed in the educational settings to help improve students’ ability to understand a range of social and scientific issues” and also to meaningfully affect their learning experiences.

Similarly, Larson (in Ganapathy and Kaur 2013:548) point out that in addition to the traditional print literacies, ESL learners in today’s classrooms are heavily engaged with a wide range of technologies and therefore, “prefer to read, write and communicate through online platforms, such as Facebook, Twitter, Tumblr, YouTube, Instagram, and BlogSpot” (ibid 2013:548). It can be argued that pre-service students in today’s classrooms learn in more radically different ways from their predecessors (teachers/educators). They also have more opportunities to access and use technologies for rapid interpretation of the world as it unfolds (Mohr and Mohr 2017:86). As such, today’s students expect their educators to integrate technology into the teaching and learning process (Ganapathy and Kaur 2013:549). Similarly, Sebbowa *et al.* (2014:27) argue that contemporary or “Generation Z” learners need to be supported to use a variety of learning strategies that exploit the abundant technologies we currently have today. Moreover, a growing body of research highlights the need for educators to take advantage of the digital tools used by “digital natives” in their daily lives and exploit them to improve the teaching and learning practices (Ganapathy and Kaur 2013:548; Sebbowa *et al.* 2014:27; Shatto and Erwin 2016: 254; Mohr and Mohr 2017:85; Godwin-Jones 2018:1; Miller and Mills 2019:79; Vizcaya-Moreno and Perez-Canaveraz 2020:2 of 10).

In relation to second language writing, previous studies indicate positive results of incorporating students commonly used digital technologies to support literacy development. Ganapathy and Kaur’s (2013) investigated an ESL teacher’s use of a multi-literacy approach to teach writing to Chinese students mediated by digital tools. The ESL teacher was interviewed, while students’

progress in writing was evaluated using the teacher rating sheets. The findings indicate that the performance of students in writing dramatically improved as they engaged with digitally-mediated activities at the various stages of writing. Similarly, Akbari, Naderi, Simons and Pilot (2016) investigated the influence of Facebook social network on students' engagement and motivation in learning to write in English as a Foreign Language (EFL). Through comparing the performance of the control group using face-to-face methods and the experimental group using Facebook site, Akbari and colleagues found "significant differences between the two groups in terms of motivation, engagement and learning". The Facebook group exhibited higher outcomes in the TOEL post-test as compared to the face-to-face group. In addition, the Facebook group manifested significantly higher engagement and motivational levels after the course than the face-to-face group (Akbari *et al.* 2016:1 of 22).

Although previous studies have provided empirical evidence on the potential of students' commonly used digital tools to improve the learning and teaching, many educators in higher education in Uganda are still skeptical about the use of these tools for their pedagogical practices (Sebbowa *et al.* 2014:27; Kabugo 2017:15; Mayanja, Tibaingana and Muyinda 2018:178). Consequently, there is relatively a small body of empirical research on the use of digital technologies for enhancing students' literacy skills in Uganda and Africa in general. This study seeks to add to the existing research by investigating the potential of Wiki-mediated writing intervention to support pre-service students' meaning-making processes in writing of ESL texts.

Since many of the pre-service students in this study are active social media users, it is anticipated that they would be interested in using these technologies to accomplish their educational tasks. Moreover, when pre-service students join the teacher education Programme, they are taken through an introductory course in the use of computers and other digital tools for educational purposes (Sebbowa *et al.* 2014:27). Thus, having been exposed to the various digital platforms, it is assumed that the pre-service students have the necessary digital skills to engage in collaborative sharing of multiple interpretations of the written artifacts hosted on the Wiki online platform. Following the popularity of Wikis in other fields, teachers and educators of writing across the globe, are considering ways of using this online tool to get students more involved in the teaching and learning process (King 2015:119). In doing so, educators are trying to transform learning to one that is relevant to the contemporary learner styles and responsive to the real-life challenges. Hadjerrouiti (2011:432) explains that Wikis provide educators with plenty of opportunities to create socially engaging tasks for their learners.

That said, the proceeding section highlights the prior studies that have engaged with Wikis in educational contexts.

2.10 Utilizing Wikis for educational purposes

According to Coniam and Lee (2008:54) Wikis are part of the computer-mediated technologies often referred to as web 2.0 which closely align with the social constructivist perspectives. Wikis are examples of second-generation web tools that facilitate collaborative writing activities (Alghasab 2014:2). Franklin and Van Harmelen (2007:5) define a Wiki as a “system that allows one or more people to build up a corpus of knowledge in a set of interlinked web pages, using a process of editing pages”. In other words, Wikis are editable sites that are progressively created by groups of people working together in a collaborative manner. Wikis have the potential to revolutionize collaborative pedagogical activities (Arnold, Ducate and Kost 2012:432), such as providing platform for groups to conduct projects and facilitate exchanging of ideas. The growing popularity of Wikis in education is attributed to the fact that they easily allow users to create and revise content more easily than any other web 2.0 technologies (Konieczny 2012:6). Wikis also encourage learners to work together in new ways as editors and authors (King 2015:119). Wikis have been used for collaborative production of knowledge (Fleta, Sabateur, and Carmen 2011), achieved through reading and editing one another’s texts, thus strengthening learners’ capabilities to assess each other texts (Coniam and Lee 2008:53). Wikis have potential to support the teaching and learning given their various characteristics highlighted in the literature.

- Wikis provide teachers with plenty of opportunities to create socially engaged tasks that require active students’ involvement and teamwork (Hadjerrouti 2011:431).
- Wikis enable participants to “collaboratively generate, mix, edit and synthesize subject specific knowledge within a shared and openly accessible digital space” (Wheeler, Yeomans and Wheeler 2008:989).
- Wikis allow students to jointly work together to develop content on the web, which gives them a sense of how writing can be carried out collaboratively (Hadjerrouti 2011:431).
- Wikis allow groups of learners to put their ideas and opinions in a common pool, which are used in later stages of the writing to improve the written artifacts (Ajjan and Hartshorne 2008).
- Wikis “can challenge the practice of single authorship and help to overcome the spatial and temporal hurdles to productive collaborative writing” (Lundin 2008:438).

- Wikis are a source of motivation since users often work towards a common goal of producing polished texts for an audience (Ajjan and Hartshorne 2008; Mak and Coniam 2008).

Having highlighted the potential of Wikis to serve educational purposes in general, it is relevant to focus on the studies that have highlighted the possibilities of Wikis in fulfilling some discipline-specific aspects. Macdonald and Black (2010) investigated the use of Wikis to support analysis of sources and presentation of history arguments among tutors of distance education at the Open University in the UK. Results indicate that the difficulties of argument presentation and source analysis experienced by students in a distance education history course could be addressed using the affordances of Wikis. This is because Wikis support a flow of ideas between educators and students working remotely at a distance. Although the said study was relevant to the history discipline, it creates an edge for the current study which seeks to investigate the construction of meanings in writing ESL texts mediated by the Wiki technology.

On the other hand, Bin, Xiang, and Jeaco (2012) investigated the use of Wikis in an English-Chinese exchange Programme where a Wikispaces platform had been set up between one university in China and another in the UK. The aim of the project was to enhance students' experiences in learning English in China and those learning Chinese in the UK. The topics under discussion on the Wiki platform included: Chinese and British food, culture, travel, and popular music. The students were encouraged use the target language during the discussion of these topics and to correct one another's error. The findings indicate an improvement in students' target language proficiency. The results also showed that the involvement of language tutors in choosing the topics of study and developing the learning tasks is essential in fostering students' collaborative learning experiences on the Wikis.

Similarly, Mak and Coniam (2008) examined the use of Wikis to support collaborative writing among 7th graders in ESL Programme. The study's aim was to establish the effects of collaboration on students' written products. The results showed that students produced cogent texts in the Wiki platform. This arose out of students' engagement in correcting, expanding and reorganizing of the texts leading to improved coherence. However, the same study highlights that peer reviewing was a novel experience for many of the students which affected their levels of engagement. It is worth noting that while Wikis provide opportunities for students' engagement in collaborative activities with others, it is important to provide constant support and guidance on

how students can interact and work with others within the new environment. Studies by Lund and Smordal (2006) and Lund (2008) about interactive writing in a Wiki environment indicate tensions between the “individual and collective ownership”. The two studies highlight the need to guide students to embrace collective ownership when writing. It is imperative that empirical studies be conducted to produce research-based guiding principles that can be used by educators to support the development of students’ knowledge production as well as literacy skills.

Furthermore, Bin *et al.* (2012) posit that one way to make a Wiki tool effective in any online learning engagements is to provide participants with a forum to dialogue and coordinate. Similarly, Coniam and Lee (2008) emphasize that support and preparation of students to collaboratively write during on a Wiki platform is very important. The implication is that both the educators and students must possess substantial administrative, technical and educational skills and support to enable successful Wiki online engagements. Previous research further indicates that while Wikis possess features that support collaborative activities, they are not inherently collaborative and that “students do not automatically become active to participate and collaborate with others when they use Wikis for educational purposes” (Hadjerrouti 2011:432). This is attributed to challenges such as; lack of experience in using Wikis among students (Hadjerrouti 2014:81), the cost of technology and the time it takes to implement it in a course (Sheane 2015:25) as well as the lack of motivation and incentives (Cole 2009:142).

Cole’s (2009) study involved designing a publishing course in which students were asked to create and upload material on a Wiki platform. After five weeks into the course, students had not posted anything on the platform. When probed, the students cited pressure from other courses, limited interest, and technology-related challenges as their major hindrances. Therefore, Cole recommends that there should be continuous training and instructional scaffolding of students engaging with online learning through the use of pedagogically sound methodologies that can foster open conversations and productive collaborative behavior among learners. Pifame and Li (2011) adopted Cole’s suggestions in a science project in primary education in which they embedded a Wiki to demonstrate ways in which teachers can scaffold students to work together and engage in dialogue for purposes of learning science. The study indicates that collaboration on a Wiki platform can be realized through carefully designed pedagogical strategies that take into consideration the nature of collaborative learning tasks as well as the pedagogical roles of educators and students.

Research highlights Salmon's (2002) model for online learning as a potential framework for ensuring appropriate educator scaffolding processes as well as emphasizing the roles of learners in a Wiki learning environment (Su and Beaumont 2010). Studies by Kovaic, Bubas and Zlatovic (2008) and Wright (2014) investigate the use of Salmon's five-stage model (activities) in fostering ESL writing and developing Community of Inquiry among learners on the Wiki platforms respectively. Results indicate that Salmon's model is an ideal framework for supporting in-depth engagement with English writing content, and appropriate course component designs. Although the studies above offer research-based advantages of using Salmon's five-stage model to structure content and support interactions on the Wiki, none of them relates this model with the sociocultural theory to enhance dialogues and joint meaning-making of written artifacts among students, peers, and educators on a Wiki platform.

The motivation for utilizing the Wikis technology in this research is because of their affordance to foster and sustain the various versions of students' writing from which meaning can be continuously reviewed. Here, students are afforded an opportunity to constantly engage in dialogue, negotiations and discussions with peers or educators. Bonk, Lee, Kim and Lin (2009:135) clearly point out that "Wikis represent a prime example of writing as thinking and a place where such thoughts can be revisited, reused and repurposed". Wikis provide students with a participative way of writing texts and also allow for interaction amongst students, teachers, and the content they are writing (Hadjerrouti 2011:432). This gives learners opportunity to exchange, expand, and enrich ideas, something which would be more difficult to achieve individually (Coniam and Lee 2008:54). Therefore, using Wikis in the current study paints a picture on how pre-service language education students at one university in Uganda negotiate and make sense of their ESL writings. These views speak to the dialogical exchanges and joint construction of meanings of written artifacts between students and their peers or students and their educators. Vance (2012:482) suggests that instead of having fixed web pages where users simply view or read information, Wikis can support uploading of information and enriching with images, videos or sounds, all of which are aligned to the way today's learners learn, communicate and access information.

2.11 Summary of the chapter and research questions

In the current chapter, the key argument that literacy is a gate-way to both social and personal development has been presented. This calls for a broader conceptualization of literacy to involve a collection of skills that stretch beyond the mechanical skills associated with print-based texts.

Research has shown that students especially in post-secondary institutions come to the literacy classrooms with autobiographical selves of out-of-school literacy practices related to the proliferation of information and multi-channeled communication technologies. This then suggests that the behaviourist teacher-centred pedagogies that are prevalent in in Uganda are no longer sufficient to address the changing learner profiles, linguistic identities, and diverse cultural differences. They only focus on reading and writing as neutral processes. Most importantly, contemporary learners who have grown up surrounded and highly engaged with communication technologies, expect their teachers to weave technology into the teaching and learning process. Literature shows that persistent use of traditional approaches which pressurize students to produce essays which are linguistically accurate without exposing them to creative approaches to writing, heighten students' boredom and anxieties in the writing classrooms. Today's learners learn and derive meanings out of their study experiences in a different way from their predecessors (teachers/educators). The study argues that one way to facilitate understandings and new meanings out of students' writing is to utilize the digital technologies that students are familiar with. Digital technologies, such as Wikis have the potential to mediate shared dialogue and joint construction of meanings of written artifacts between students, peers, and educators. Therefore, literature above has specifically highlighted three important aspects that work together to affect dialogical engagements and meaning-making processes of students' writing.

1. Experiences of learners and their prior knowledge (out-of-school practices), play a critical role in the use of digital technologies to support literacy.
2. Educators are powerful agents in mediating social interactions and collaborative conversations among participants engaged in Wiki-supported literacy activities.
3. Educators' willingness to change from the conventional teacher-centred to learner-centred pedagogies that utilize technologies has potential to foster open dialogues and productive collaborative behavior among learners engaged in Wiki activities.

Thus, the above issues informed the formulation of this study's research questions. These include:

1. To what extent does the Wiki intervention foster social interactions and collaborative dialogues among pre-service students?
2. How do social interactions and collaborative dialogues mediated by the Wiki intervention impact on ESL pre-service students' literacy skills?

3. What design principles will guide the pedagogical framework for enhancing the literacy skills of pre-service English language students?

CHAPTER THREE

PHILOSOPHICAL UNDERPINNINGS

3.0 Chapter overview

Writers of literature on research emphasize that researchers ought to have a clear vision of the paradigms to work with in their research, as these (paradigms) are critical in shaping the philosophical, theoretical and methodological decisions that can enable successful undertaking of the research process (Dills and Romiszowski 1997:11; Grix 2004:59; Neuman 2007:41). In general, there are several philosophical positions that underpin the researcher's decisions to use a particular paradigm (Guba 1990; Crotty 1998; Creswell 2003; Grix 2004; Descombe 2007). Creswell (2003) presents the philosophical assumptions under frameworks along the structures of qualitative, quantitative or mixed methods research. While other authors such as Descombe (2007) presents assumptions in form of strategies to research or according to the systematic connection among the different philosophical elements of research (Crotty 1998). It is therefore important to establish a systematic framework whose philosophical underpinnings provide a sense of direction with regard to the theoretical grounding of the research, the methods to adopt and also to guide the data collection process and analysis. For this purpose, I adopted Crotty's (1998:4) research framework with an argument that social research rotates around four elements namely; epistemology, theoretical perspective, methodology and methods. Furthermore, Crotty proposes that it is important to establish how these elements relate to one another "rather than setting them side by side as if they were comparable or even competing perspectives". In this chapter, I describe how I worked with the four elements of Crotty's (1998) research framework to construct my research design. In addition, I briefly explain the rationale for choosing the specific elements of the research framework despite the short comings they may present. Therefore, this chapter presents the philosophical assumptions that guided the selection of the research paradigm, theoretical perspective and methodological considerations of my study.

3.1 Paradigms, theoretical and methodological considerations

Neuman (2007:41) defines a paradigm as "set of assumptions, beliefs, models of doing good research, and techniques for gathering and analyzing data". According to Alghamdi and Li (2013:2) literature on research indicates that the "main educational paradigms consist of positivism (objectivism and realism); interpretivism (constructivism, naturalism, idealism and rationalism);

critical theory (transformativism and relativism); and pragmatism (functionalism)” (Lincoln and Guba 1985; Grix 2004; Henn, Weinstein and Foard 2006; Mackenzie and Knipe 2006; Neumann 2007; Saher 2015). Dills and Romiszowski state this about paradigms:

Paradigms define how the world works, how knowledge is extracted from this world, and how one is to think, write, and talk about this knowledge. Paradigms define the types of questions to be asked and the methodologies to be used in answering them (Dills and Romiszowski 1997:11).

This means that the paradigm (for example, positivism or interpretivism) that the researcher chooses to work with, determines the theoretical underpinnings to adopt, choice of the methodology, and the methodology in turn informs of the research methods (Henn, Weinstein, and Foard 2006:18). From this perspective, Crotty (1998:4) presents a pictorial and textual annotation of the interconnection of the four research elements which include: “epistemology”, “theoretical perspective”, “methodology”, and “methods” (see Figure 3.1). Crotty maintains that these four elements characterize any research paradigm (ibid 1998:4). Although social research authors such as Grix (2004:59) emphasize that ontology is “the starting point of all research”, Crotty combines ontology with epistemology, explaining that the two elements mutually depend on each other and are difficult to differentiate. He states; “to talk about constructing meaning [epistemology] is to talk of the construction of a meaningful reality [ontology]” (Crotty 1998:10). Epistemology provides a “philosophical grounding to decide the kinds of knowledge that are possible and to ensure they are both adequate and legitimate” (Maynard 1994:10). It is related to ontology, “the study of being” (Crotty 1998:10) or “the nature of reality” (Lincoln and Guba 1985:37).

Creswell (2003) whose research framework is highly influenced by Crotty’s (1998) model, suggests that the four decision-making elements characterize any research process which “may be qualitative, quantitative or mixed in nature, depending primarily on the researcher’s initial stance towards the nature of knowledge”. From this perspective, the epistemological assumptions that I hold as a researcher in this study were that “reality is subjective and that knowledge is relative and socially constructed” (Namasasu 2012:89). That is, various knowledge patterns emerge when I (the researcher) interact with participants in their real world context. By studying participants’ both online and physical classroom practices at a language education unit of one university in Uganda, allows to obtain a holistic picture of how students and educators construct realities within their natural world context. The assumption is that analyzing theories provided by participants would

unearth the meaning-making processes during writing of texts on a Wiki learning environment. Subsequently, I align with the interpretivism stance (to be discussed in detail later), to derive an epistemological position, where knowledge is considered as an individual sense making through which participants “continuously create, interpret, define, give meaning to, justify and rationalize their actions” (Bhattacharjee 2012:18). Moreover, the social constructivism epistemology (Creswell 2013:36) utilized in this study is intended to enable me as a researcher to make sense of the processes participants engage in as they generate texts on the Wiki learning platform. This is because social constructivism provides for co-construction of multiple realities “between the researcher and the researched, shaped by individual experiences and methodological beliefs” (ibid 2013:36). In other words, social constructivists consider subjective meanings that are not simply attached on the individuals but are constructed through engagement with others (Creswell 2009:8). Similar to this is the symbolic interactionism (to be discussed in detail shortly), where the researcher obtains a sense of identity by engaging with the participants and the literature. The symbolic interactionism aligns with the sociocultural theory proposed in this research, since they both make use of ‘negotiated’ understandings or ‘negotiated’ behavior of reality where complexity is a way of life (Saunders *et al.* 2009:290).

Although interpretive research has several advantages, it is often criticized for its inherent biases, and therefore, objectivity is not possible, because the researcher’s and participants’ values/biases are always present (Holloway 1997:3). This raises questions on the predictability and generalizability of the research findings (Crotty 1998:67). However, my argument is that participants’ meaning-making processes in writing texts on a Wiki platform cannot be viewed as fixed concepts (as it is in the objective sense), but rather participants respond to the research depending on the situation or questions at hand. Ruby (1980:154) encourages researchers to “stop being ‘shamans’ of objectivity” and “assume value-free positions of neutrality”. Besides, reflexive practice was exercised in this research (see chapter 9, section 9.5), to account for how my researcher positioning and assumptions may have influenced this research and its findings. Levy (2003:94) states, this is “not to suspend subjectivity, but to use the researcher’s interpretive framework consciously as the basis for developing new understandings.”

A detailed analysis of the basic elements of Crotty’s (1998) research model is presented next, focusing particularly on how each of them encapsulates the philosophical features of a research process. It also provides a basis for the general methodological directions relevant to this research.

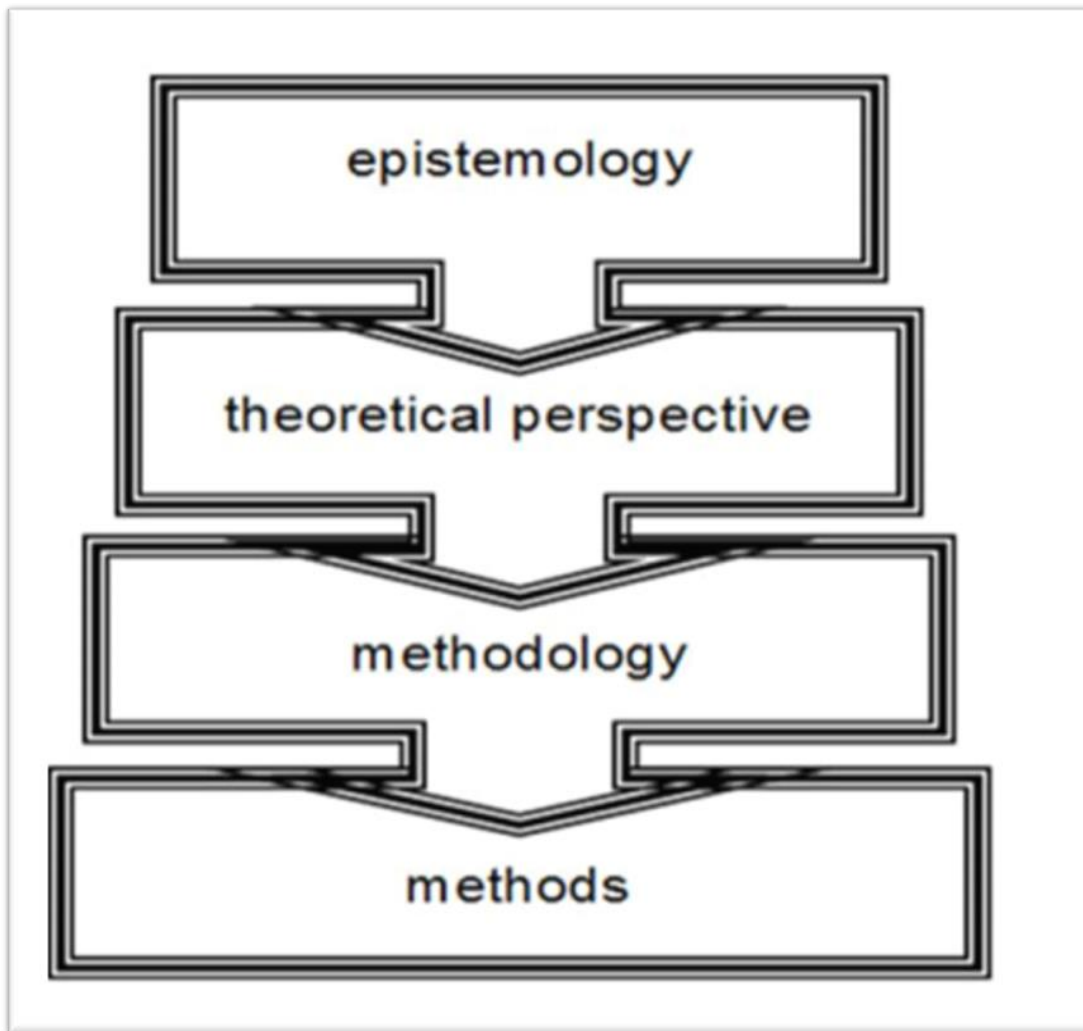


Figure 3.1: Basic elements of the research process (Source: Crotty 1998:4)

As can be seen in Figure 3.1 above, epistemology is the first element presented in Crotty's research model. According to Crotty (1998:8), epistemology in research is "the way of understanding and explaining how we know what we know". Epistemological assumptions provide understandings behind the various kinds of knowledge and how they can be made practical in society. Crotty explains that epistemology provides a justification of the direction the researcher takes in making meaning of the research context (Crotty 1998:3). He highlights three basic paradigms through which meaning in research is constructed including; "objectivism", "constructionism" and "subjectivism" (Crotty 1998:5). According to Crotty (1998:5-6) objectivism posits that "things exist as meaningful entities independently of consciousness and experience, that they have truth and meaning residing in them as objects- 'objective truth' - ...and that careful scientific research can attain that objective truth and meaning". Constructionism, on the other hand, emphasizes that "how get to know what we know" is by constructing it. As such, meaning does not exist independently

waiting to be discovered, people have to construct it through their engagement with the world (Crotty 1998:8). Lincoln and Guba (1985:37) assert that “the knower and the known are inseparable”, researchers interact with participants in ways that lead to multiple constructed realities. Lincoln and Guba further explain that research participants need to be in their ‘natural settings’ (for example, the language education context in this study), since “realities are wholes that cannot be understood in isolation from their contexts” (Lincoln and Guba 1985:39). Thus, it is through carrying out research on life experiences that knowledge is constructed.

On the other hand, subjectivism maintains that it is the “subject or researcher that attaches meaning on the object” (Crotty 1998:9). Meaning in subjectivism originates from the individual without much interaction between the object and the subject (Crotty 1998:9). Contrary to the objectivists, subjectivists have no belief in existing truth waiting to be discovered, rather the researcher relies on acquired skills to construct meaning from the research context. This aligns with the assumption that “reality is subjective and that knowledge is a socially constructed, as people engage with realities in their natural world contexts” (Namasasu 2012:89). However, as discussed in Chapter Two, the concepts from which the research questions in this study are derived, clearly explicate the sociocultural nature of this research. Literature indicates that social factors impact on students’ meaning-making processes during writing texts. This means that there is need to engage with the research context in a more interactive manner, rather than studying the research context from a detached position.

The second element presented in Crotty’s model is the theoretical perspective (see Figure 3.1). According to Crotty (1998:3) theoretical perspective is “the philosophical stance informing the methodology.” In other words, a theoretical perspective is an approach that guides on interpreting society in order to make sense of it. Thus, the theoretical perspective necessitates researchers to declare the assumptions they come with into the research context and the philosophical positions behind the methodologies they choose (Crotty 1998:7). These assumptions closely relate to our speculation or understanding of the world in general and the research context in particular. For example, the positivist theoretical perspective posits that research should be based on scientific observation (Crotty 1998:10), while the interpretivism “world view”, takes consideration for “culturally derived and historically situated interpretations of the social world” (Crotty 1998:67). The interpretivism ‘world view’ is closely associated with Weber’s concept of ‘Verstehen’ which means “understanding something in its context” (Holloway 1997:2).

Weber resisted the practice of applying positivist approaches to the social sciences, since people's actions cannot be directly linked to the general laws of nature. This is because people's actions are "very complex and they depend on emotions, habits, beliefs and rationales" (Weber 1978:3). Thus, unlike the experiments in positivist research, people respond to particular stimuli in various ways, since their actions are bound by context and they depend upon time, location and the emotions of those involved (Holloway 1997:3). This argument is aligned to Orlikowski and Baroudi's (1991:5) view that "people create and associate their own subjective and intersubjective meanings as they interact with the world around them" and therefore interpretive research "attempts to understand phenomena through accessing meanings participants assign to them." Subsequently, researchers cannot easily replicate the research participants' experiences (Charmaz 2006:330) or be completely detached from the phenomenon they are studying (Holloway 1997:5). From the views above, the language education context of one university in Uganda was viewed as a sociocultural context with human beings who participate interactively to make meanings in their specific setting. The interpretive 'world view' closely associates with interpretation of meanings or multiple realities involved in a particular setting. Therefore, the interpretive 'world view' is suitable for this study to understand pre-service students' engagement in collaborative engagements intended to create meanings of written texts mediated by Wiki online learning platform.

In an attempt to explain how 'the world view' influences the research process, Kuhn (1962) introduced the notion of 'paradigm' which was further elaborated on by Neuman (2007). According to Neuman (2007:41) a paradigm is a "set of assumptions, beliefs, models of doing good research, and techniques for gathering and analyzing data shared across a discipline". Dills and Romiszowski (1997:11) explain that "paradigms define the types of questions be asked and the methodologies to be used in answering them". This follows that paradigms represent assumptions as well as the methodological choices made by researchers. Basing on this view, the third element of methodology in Crotty's framework is presented. Crotty (1998:3) defines methodology as the "strategy, process or design underlying the choice and use of particular methods leading to the desired outcomes." Literature on research processes highlight that there is a wide range of research methodologies that bear interpretivism as the basic theoretical perspective. However, each research methodology may be applied using different research methods. For example, Crotty (1998:12) categorizes grounded theory as a research methodology just like ethnography and experimental research methodologies. Similarly, van Manen's (1990) phenomenology, Gadamer's (1976) hermeneutics and Lincoln and Guba's (1985) constructivist naturalistic inquiry are regarded as a research methodologies. All these methodologies emphasize the importance of the social world and

the use of interactive methods in varying degrees. Phenomenologists just like the constructivists recognize that the social world has multiple meanings to offer. However in phenomenology approach, focus is on individual experiences than the social context as a whole (Van Manen 1990:177), making it unsuitable for my study. This is because in this study it is necessary to explore participants' experiences as they interact with the Wiki learning platform to generate texts and with each other to make meanings of the written texts. Hermeneutics, on the other hand, majorly focuses on the social meanings within the text or a situation through deep analysis. Emphasis is placed on interpretation more than explanation, description or the processes (Crotty 1998:12) which makes the methodology unsuitable to examine participants' meaning-making processes on the Wiki online learning platform as they generated texts. While some aspects of phenomenology and constructivist inquiry were incorporated into the current study such as interpreting research participants' meanings as they engaged with their natural world context [that is, the Wiki online learning environment] (Charmaz 2006:126), this study largely employed the Design Based Research (DBR) methodology (see details in Chapter Five). This followed my desire to improve the teaching and learning both from the practical and theoretical sense. Plomp (2007:12) suggests that if education researchers are to accomplish different purposes and functions for their research, they ought to select appropriate research methodologies. Thus, research methodologies seek to illuminate the underlying theoretical perspectives, and explain the research procedure in relation to the choice of context or research questions in order to validate the rationale of the research methods.

Accordingly, methods is the last element of Crotty's (1998) framework (see Figure 3.1). Methods are "techniques or procedures used to gather and analyze data related to some research questions" (Crotty 1998:3). Research methods are essential in guiding the data collection process and providing answers to the research questions. There is an array of possible methods that may be used with a particular research methodology, though some methods may be more suitable than others in adhering to a specific theoretical perspective guiding the methodology. For example, I found it appropriate to use semi-structured interviews because they closely relate to interpretivism and constructionism thinking in this study. To understand how pre-service students engage in collaborative building of meanings in their writings on the Wiki platform, it was suitable to use a continuous interactive approach such as interviews as opposed to using a one-off method like a questionnaire. Other methods of data collection employed in this research include: observations, analysis of students' reflections and Wiki-generated artifacts and researcher's field notes and blog entries (see Chapter Four, Section 4.8).

That said, the section below describes how Crotty’s research framework was adapted for the current study.

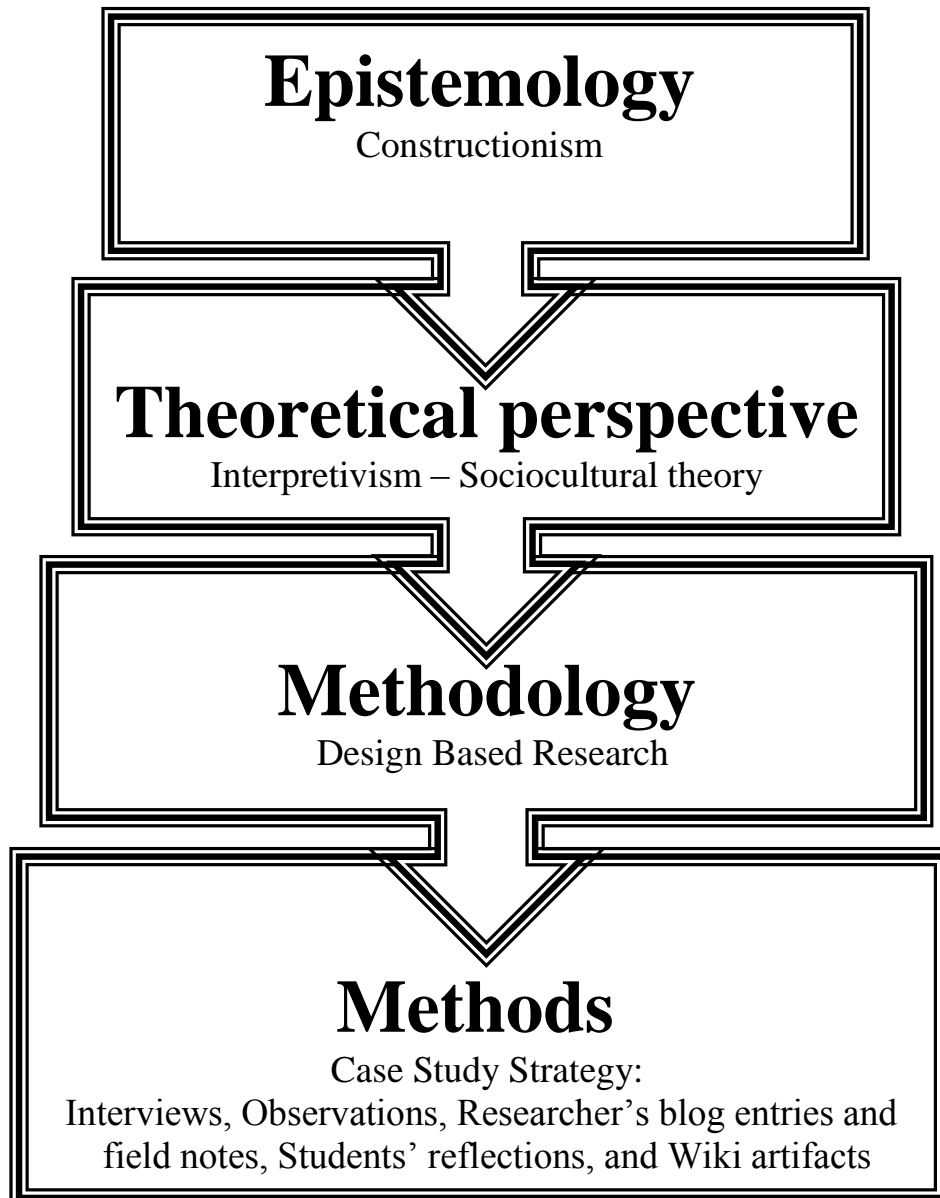


Figure 3.2: Elements of the current research process (modified from Crotty 1998:4)

3.2 Epistemology: Constructionism

As mentioned earlier, Crotty (1998:5) argues that it is through three basic processes; “objectivism, constructivism and subjectivism, that people construct meanings about the research world”. The current study relates with the constructionism stance which posits that “we know what we know by constructing it” (Crotty 1998:5). Meaning does not exist independently waiting to be uncovered,

people must construct it by engaging with the world (Crotty 1998:8). Constructionism is the suitable epistemology to understand how pre-service students construct meanings of their writings through collaborative engagements mediated by a Wiki platform. For constructionism holds that:

...all knowledge and therefore all meaningful reality as such, is contingent upon human practices being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context (Crotty 1998:42).

The statements above suggest that meanings in writing ESL texts are created through interactions and dialogues between students, peers and educators. The current study aims to understand how pre-service students (contingent upon human practices), jointly create meanings of their writing in Wiki learning environment, first, by my interaction with them and second, through their interaction with one another other. In addition, the three research questions in this study underpin the assumption that the setting of language education unit at one university in Uganda, is a social context that can facilitate continuous conversations and interactive activities among students, peers and educators.

Constructionism as a social phenomenon maintains that meanings are not only created through social interactions, but also are constantly being revisited (Bryman 2012:34). This suggests that through dialogues between students, peers, and educators (social interactions), interpretations of meanings of writings on the Wiki platform can continuously be edited and updated. In describing how Wikis support collaborative meaning-making in writing, Bonk, Lee, Kim and Lin (2009:135) confirms “Wikis represent a prime example of writing as a thinking and a place where such thoughts can be revisited, reused and repurposed”. Hence, collaborative construction of meanings on a Wiki platform is not presented as a reality happening externally, but as an emerging reality that is being continually constructed and deconstructed (Crotty 1998:3) to relate with the demands of 21st century.

The epistemological assumptions behind constructionism suggest that students do not acquire ideas from the vacuum, instead they build their ideas and concepts by actively engaging in experimentation with the world (Mayes and Fretas 2004: 4 of 43). This view resonates with the focus of the current study of engaging pre-service students in collaborative conversations to support meaning-making of written artifacts tested and refined on the Wiki platform. In this study,

constructionism is a response to the predominant teacher-centred modes commonly highlighted in many language education classrooms in Uganda (Najjemba, Cronje and Kafui-Aheto 2018:515).

The notion of constructionism on the other hand, is criticized for lack of a clear structure to the process of interaction or collaboration. For example, Crotty (1998:16) asks “for whom and what do we interact?” Besides, multiple realities are constructed as people engage with their contexts (Orlikowski and Baroudi 1991:5) and the knowledge accumulated often relates to specific social contexts (Charmaz 2006:330). Subsequently, “we can no longer talk of objectivity, validity or generalizability in social research” (Crotty 1998:16). Following these arguments, I posit that while there may be a variety of interpretations emerging from different participants and the research context in general, pre-service students’ meaning-making processes in writing texts are not static concepts waiting to be uncovered. They are generated over a period of time and are influenced by participants’ biases, beliefs and attitudes. These need to be socially and historically negotiated through interaction with participants in their social context for a prolonged period of time (Creswell 2013:25). This is intended to gain useful insights into how meanings are collaboratively constructed in a specific literacy pedagogical context. As such, constructionism provides an important baseline from which the theoretical perspective guiding this study is derived.

In conclusion, it is relevant to state that constructionism is different from constructivist theory that closely relates to the sociocultural philosophy guiding this study (see discussion in Chapter Two). Constructionism emphasizes the social nature of the interaction in the research process. While constructivism relates to cognitive processes of learning of the individual interacting with peers (Charmaz 2006:330). The key insight between the two theories is that interaction leads to construction of knowledge. This is a relevant foundation on which I assembled the current study’s theoretical perspective and research design.

3.3 Theoretical perspective: interpretivism

The interpretive theoretical perspective tasks researchers to declare the research assumptions they carry into the research which influence their methodological choices (Creswell 2013:18). Constructionism posits that meanings are not just discovered but are interpreted and constructed by researchers and participants as they engage with the realities of the world (Crotty 1998:3). This means that the constructionism epistemology closely aligns with the interpretive theoretical perspective adopted in this study. The interpretive perspective holds the belief that the “subjective world of human experience starts with individual persons who then seek to make meaning of the

world around them” (Creswell 2013:15). The interpretive perspective is relevant to the current study because it not only supports the principle of social engagement which is important in this research, but also allows for adoption of the sociocultural theory (Vygotsky 1978) proposed for the study. This theory attempts bring interpretation and understanding of written artifacts, texts, events and situations through socially mediated practices (see Chapter Two, Section 2.4). Second, the interpretive perspective closely relates to the assumptions in this study that constructing and interpreting meanings of written artifacts through social interaction mediated by Wiki platform has potential for transforming literacy pedagogy. Moreover, interpretive theoretical perspective makes research assumptions like; evidence is always socially accumulated and largely dependent one’s culture, personal histories, and context (Crotty 1998:3; Creswell 2013:22). In this study, these characteristics are illuminated in the joint construction of knowledge and meaning-making processes of ESL writings among pre-service students from various cultural backgrounds (see Chapter Seven, section 7.10).

Crotty (1998:12) notes that interpretive perspective is a wide term covering various strands like; phenomenology, hermeneutics, realism and symbolic interactionism. All these elements place emphasis on the importance of using interactive methods with the social world, though to varying degrees. For example, while the phenomenologists recognize that the social world has multiple meanings to offer, their focus is more on the individual experiences than the social context as a whole (Creswell 2013:79). As such, phenomenology was not suitable for this study because it was necessary to examine participants’ experiences as they interact with each other (student-student), with the educator (student-educator), with the content (student-content) and with materials and environment (student-environment) as they create meanings of their writing on the Wiki platform. On the other hand, the hermeneutic approach focuses on the social meaning within a text or a situation through deep analysis (Robinson and Kerr 2015:777). In other words, emphasis is placed on interpretation more than description, explanation or the processes which makes it an unsuitable approach to examine the online interactions and collaborative dialogues that informed participants as they create meanings of their writing on the Wiki platform. Subsequently, the symbolic interactionism approach was found suitable for my study.

3.4 Symbolic interactionism

Symbolic interactionism originated from the works of George Herbert Mead and Herbert Blummer and other theorists like John Dewey (Gray 2014:24; Redmond 2015:3). Symbolic interactionism

holds that meaning is created through human interaction with the world and it provides the following essential principles:

- People interpret meanings of objects and actions in the world and then act upon these interpretations.
- Meanings arise from the process of social interaction.
- Meanings are handled in, and are modified by, an interactive process used by people in dealing with the phenomena that are encountered (Gray 2014:24).

In the context of this study, objects or symbols include: the online learning environment (Wiki) and the Wiki-generated artifacts, such texts, images, photos, videos, internet links and resources that students continuously interact with to make meaning of their writing. It was thus important to observe how participants utilize the various affordances of the Wiki tool to attach or negotiate meanings of the shared artefacts. It was also important to explore how meanings evolve as participants interact with each other on the Wiki platform in order to understand how literacy practices may be fostered. This also contributed to my choice of research methodology- Design Based Research approach (see details in Chapter Four), because it provides for iterative testing and refining of the design solution in a specific authentic context. In my study, the Wiki online environment is the design solution which has impact on the students' experiences of enacting both the digital and non-digital literacy practices in the language classroom.

In addition, symbolic interactionism suggests that to understand participants' views about literacy development or literacy in general, it is necessary to observe the meanings they attach to their actions during the interaction process. Social interaction in online contexts can be in form of actions among participants where the educator and learners interact online with the literacy materials or curriculum content, or among learners as they jointly work with texts (Abrami, Bernard, Bures, Borokhovski and Tamim 2011:86). Since symbolic interactionism relates to "a way of understanding why teachers [and others] do what they do" (Hargreaves 1995:10), it was important that participants are studied both in the online and face-to-face context as a social world and all the other possible elements that could influence their practice (Yang, Yeh and Wong 2010:288). Thus, I observed participants as they interpreted and modified their realities basing on how they interacted with each other, with the online artifacts and with the researcher. Subsequently, symbolic interactionism advocates for continuous presence of the researcher in the

“field” (whether physical or online), in order to observe the various forms of interactions, modifications and the likely meanings that participants attach to them.

Although symbolic interactionism allows for broader interpretation of the research context, it does not delineate the extent or the process of social interaction (Charon 2001:63). For example, if teachers or students decide to change their views about literacy development as they interact with people in their context, then, how trustworthy would their views be? Second, some researchers have questioned how the selected participants could be expected to know everything about the phenomenon being researched (Creswell 2013:155). To mitigate these weaknesses, I employed the DBR methodology to obtain meaningful interpretations about reality in a given context. The DBR methodology advocates for validations with various sources, and experts as a means of scrutinizing the shared information in order to obtain true meanings (Herrington, McKenney, Reeves and Oliver 2007:4090).

Additionally, Crotty (1998:75) notes that language is a major tool for interaction: “only through dialogue can one become aware of the perceptions, feelings and attitudes of others and interpret their meanings and intent”. Consequently, the semi-structured interviews selected for this study is intended to take account of the way participants communicate their ideas using language specifically in relation to their online writing experiences and literacy development. Cohen (1985:17) notes that using the symbolic interactionism lens can sometimes create “imprecision, inexactitude of match and ambiguity idiosyncrasy” that crop up from the various interpretations of a similar situation. Conversely, viewing the multiple interpretations of literacy meanings as an ongoing process from which meanings are continuously scrutinized and validated is critical. In addition, the various interpretations could be controlled by designing research instruments that allow the researcher to obtain genuine interpretations about a given research context.

That said, the following chapter provides a detailed description the DBR approach and methods employed in this study and rationale for their choice. This was nestled on the understanding that if the study was interpretivist in nature, investigation had to be conducted in a natural social context using interactive methods.

3.5 Chapter summary

In this chapter, the philosophical underpinnings of the current study are highlighted. Premised on Crotty’s (1998) research framework, the constructionism epistemology is relevant in guiding

understanding of how meanings in writing texts are jointly created on a Wiki platform. The interpretivism theoretical perspective which closely aligns with constructionism thinking in this study, is also useful in providing insights on how humans access meanings through their engagement with the social context. It also provides for interpretations and understandings of literacy events, texts and situations through socially mediated practices. Apart from being closely aligned to the interpretive perspective, the symbolic interactionism approach is relevant to this study because it focuses on communication, descriptions, explanations and interpretation of processes of interactions intended to create meanings of given phenomenon. The final part of the chapter highlights the limitations of symbolic interactionism and how they are mitigated in the study. That said, the next chapter presents a description of the DBR research methodology and methods employed in this study.

CHAPTER FOUR

DESIGN BASED RESEARCH METHODOLOGY

4.0 Chapter overview

As part of Crotty's (1998) basic elements of the research process introduced in Chapter Three, chapter four provides a description of the methodology and methods employed in this study. A detailed explanation of the Design Based Research (DBR) methodology as used in this study is presented together with its characteristics and the reasons for employing this approach. Furthermore this chapter presents the data collection methods within the case study strategy used in the study. The chapter is concluded by describing how the sociocultural analytic framework was applied in this research. The chapter also describes how ethical issues in this study were addressed.

4.1 Design Based Research Methodology

As earlier mentioned that the research methodology adopted in this study was influenced by the desire to improve the teaching and learning both from the theoretical and the practical sense (see Chapter Three, Section 3.1). The DBR approach (Reeves 2006) was considered relevant for the current study for various reasons. Unlike the traditional educational research which stop at understanding existing educational problems, DBR in education goes beyond studying the existing problems to develop, test, and refine solutions to such challenges. Alghamdi and Li (2013:3) point out that “educational research is often divorced and alienated from addressing educational issues and daily classroom practices”. One of the reasons cited by Juuti and Lavonen is that educational research mainly concentrates on “research about education” as opposed to “research for education” (Juuti and Lavonen 2006:54). The two authors further explain that “research about education” aims to understand the educational problems, while “research for education” aims to bridge the gap between the theoretical and the practical aspects of research within the educational settings. Akker, Bannan, Kelly, Nieveen and Plomp (2013:9) are of the view that the main objective of educational research should be to develop research-based solutions that are informed by theory to address complex problems in educational practice. DBR has potential to generate research-based solutions in education through linking theory to practice. Reeves (2006:57) posits that the educational technology field has attempted to utilize the DBR methodology to explore how theories of learning can inform interventions in education which are then tested and refined over time to prove that lead to improved learning (Akker *et al.* 2013: 9-10).

The term ‘design research’ was coined by Ann Brown and Allan Collins in 1992 to refer to the study of “learning in context through design and development of instructional strategies, and innovative educational environments based on theoretical principles derived from prior research” (Collins, Joseph and Bielaczyc 2004:15). DBR was conceived with the expectation that practitioners would in a systematic manner, modify the various components of the learning context to improve practice. So that each adjusted component would serve as an experiment that allows for iterative testing and refining of theory in the authentic contexts (Barab and Squire 2004:3). Literature on research methodologies agree that DBR in education has its origins in the “pragmatism paradigm” (Barab and Squire 2004; Reeves 2006; Bakker and Van Eerde 2014). The term ‘pragmatism’ is “derived from two Greek words ‘pragmein’ and ‘prag ma’ (thing and fact) which means ‘to do.’ The emphasis is on what is done or outcomes rather than ideas or ideals” (Mouton 1996:8). According to Given (2008:671-672) ideas about “pragmatism” were originally introduced by Charles Sanders Peirce (1839-1914), and later expounded by William James (1842-1910), and John Dewey (1859-1952). These philosophers developed the pragmatic paradigm in which they argue that “in order to provide an answer to the mind-body-problem; our immaterial mind can acquire knowledge of a material world” (Juuti and Lavonen 2006:57). In other words, pragmatists hold a belief that “truth is found in ‘what works’ and that the truth is relative to the prevailing situation” (Given 2008:672). Subsequently, there are several principles of pragmatism summarized by Creswell (in Alghamdi and Li 2013: 2-3) that resonate with the DBR methodology employed in the current study. These include:

- Pragmatism is not committed to any one system of philosophy or reality.
- Individual researchers have a freedom of choice. They are ‘free’ to choose the methods, techniques, and procedures of research that best meets their needs and purposes.
- Pragmatists do not see the world as an absolute unity.
- Truth is what works at the time; it is not based in a dualism between reality independent of the mind or within the mind.
- Pragmatist researchers look to the ‘what’ and ‘how’ to research based on its intended consequences – where they want to go with it.
- Pragmatists agree that research always occurs in social, historical, political contexts.

- Pragmatists have a belief in an external world independent of the mind as well as those lodged in the mind. But they believe that we need to stop asking questions about reality and the laws of nature (Creswell in Alghamdi and Li 2013:2-3).

Thus, the principles above suggest that research innovations in educational settings ought to be flexible and engage with a variety of techniques, procedures and methodological approaches that form strong collaborations between researchers and teachers in order to achieve the targeted purposes (Barab and Squire 2004:3; Creswell 2007:23). To this end, my choice of the DBR methodology was influenced by the procedural process that was required to design a joint meaning-making learning environment that would address the highlighted educational challenge in Chapter One, Section 1.1 and 1.2.

The next section provides a conceptualization of Design Based Research methodology.

4.2 Conceptualization of Design Based Research (DBR) methodology

Researchers have used different terminologies to mean the same as Design Based Research such as “formative research” (Newman, 1990), “design experiment” (Brown, 1992), “development research” (Kelly 2003; Oh and Reeves, 2010), or “educational design research” (Mckenney and Reeves, 2012). Thus, throughout this study, I use the term Design Based Research (DBR) instead of any other term because it is a common term used in the literature on educational research. As Design Based Research Collective (2003) states, “using DBR terminology helps to prevent confusion with studies of designers” (cited in Alghamdi and Li 2013:3). The concept of DBR is defined in various ways by the different writers of literature on research methodologies. For example, Barab and Squire (2004:2) define DBR as “a series of approaches with the intent of producing new theories, artifacts and practices that account for and potentially impactful learning and teaching in naturalistic settings.” Similarly, Wang and Hannafin (2005:6-7) define DBR as “a systematic but flexible methodology aimed to improve educational practices through iterative analysis, design, development, and implementation based on collaboration among researchers and practitioners in real-world settings, and leading to contextually-sensitive design principles and theories.” From the above conceptualizations of DBR, it appears that Wang and Hannafin’s definition is the most appropriate for the current study because it describes DBR from a range of perspectives. Moreover, Wang and Hannafin’s definition is supported by Mckenney and Reeves (in Sebbowa 2017:55-56) who view DBR as a “genre of research in which the iterative development

of solutions to practical and complex problems provide context for empirical investigation, and yields theoretical understanding that can inform the work of others”. As earlier mentioned that the current research closely relates with the educational standpoint of DBR because it closely relates to the aspects of pedagogy aimed to differentiate this research paradigm from other fields such as human-computer design (Mckenney and Reeves 2012:7). The fact that the conceptions of DBR are constantly changing (Anderson and Shattuck 2012:16), a more nuanced understanding of this methodology can be obtained through an explanation of its various characteristics.

4.3 Characteristics of Design Based Research

The characteristics of DBR as summarized by Wang and Hannafin (2005:8) drawing from previous research indicate the potential of DBR to support the designing of educational interventions aimed to address pedagogical challenges in authentic contexts.

Table 4.1: Characteristics of DBR (Source: Wang and Hannafin 2005:8).

Characteristic(s)	Description
Pragmatic and theoretically-oriented	DBR’s practical goal is to refine both theory and practice. The design is driven by theory and is firmly rooted in related literature. DBR is applied in authentic contexts where participants have possibilities to interact with one another.
Interventionist	Focus is on developing interventions in real-world educational settings.
Collaborative, iterative and flexible	Researchers and practitioners jointly work together to generate solutions that can address pedagogical challenges. Lessons learnt during iterative cycles of analysis, design and implementation are used to revise or redesign processes. The processes of DBR are flexible, thus it is always possible to effect changes whenever need arises.
Integrative and utilizes mixed methods	DBR utilizes a range of approaches and research methods to obtain an in-depth understanding of the generated design solution.
Contextual	Findings from DBR studies are closely related to the specific design processes of the context in which research is carried out. DBR aims to develop and test a specific intervention, and understand ‘how’ and ‘why’ an intervention works or doesn’t work in a specific context in which it is implemented.
Evolution of design principles	Design outcomes (guidelines or principles) gradually emerge basing on what has been successful, and also critical reflections are done regarding how the design

This study views DBR through a pedagogical lens aimed to improve the teaching and learning of literacy. Therefore, it is relevant to focus specifically on the educational traits of DBR. Herrington *et al.* (2010), Mckenney and Reeves (2012) and Barker and Eerde (2014) project DBR as an intertwined process consisting several pedagogical principles as explained below:

- DBR entails designing of learning tasks as the guiding components of this research.
- The design of educational interventions is largely informed by theory and is interwoven with cycles of testing and refinement.
- Learning outcomes and solutions in DBR are revealed in the processes and end-products of education.
- DBR encourages partnerships and teamwork between researchers and practitioners to test and refine design solutions leading to production of design principles or pedagogical frameworks.
- DBR incorporates a range of research methods at the design, implementation and development phases to enhance credibility of results and support an in-depth understanding of the design solutions.

4.4 Rationale for using Design Based Research methodology in this study

Educational research has often been criticized for failing to align theory with practice in order to solve pedagogical challenges within authentic educational contexts (Van de Akker 1999:2; Design Based Research Collective 2003:5; Juuti and Lavonen 2006:54; Amiel and Reeves 2008:34; Akker *et al.* 2013:9). From this perspective, my decision to engage with DBR as a research methodology sprang from my classroom experiences as a teacher-educator and a student of ICTs (see Chapter One, Section 1.2), and the desire for an educational intervention that can address pedagogical needs of the learners in contemporary classrooms. Thus, DBR proved a viable approach to understand the research problem, develop an intervention, test and refine it within an authentic educational environment. Thus, the intervention is intended to address real classroom problems affecting students and to advance deeper understandings of theory. This is in response to the consistent arguments by authors such as; Akker *et al.* (2013:9), Van de Akker (1999:2) and the Design Based Research Collective (2003:5) that research in educational settings is often disconnected from addressing pedagogical issues. This creates an opening for research to address

classroom challenges leading to production of new knowledge. As such, DBR presents possibilities to develop interventions that offer possibilities for meaningful pedagogical insights as the research progresses.

Contrary to other types of research methodologies, DBR connects research to educational practices by encouraging collaboration practitioners and researchers to address real classroom challenges (Amiel and Reeves 2008:34). This is of particular relevance to the current study as practitioners that involved: language educators, literacy teachers/instructors and curriculum developers collaboratively explored the pedagogical challenges related to English as Second Language (ESL) and literacy development basing on their expertise and lived classroom experiences (see Table 4.2).

Since practitioners of DBR are typically context-bound who have first-hand experiences of the pedagogical challenges in their classrooms, emphasis in this study was placed on adapting a design solution to suit a local context. Accordingly, the Wiki intervention aimed at supporting meaning-making in writing of ESL texts was developed, applied, tested and refined at a specific teacher education context in Uganda. Abdallah (in Sebbowa 2016:58) acknowledge that “pre-service teacher education contexts where prospective teachers continuously develop their teaching and learning skills, are ideal for conducting research using DBR”. Moreover, since DBR was initially utilized to develop models to address emerging innovations in the field of educational technology (Herrington, McKenney, Reeves, and Oliver 2007: 4089), the Wiki intervention in this study provides an ideal frame of such innovations. That said, the next section presents a description of the DBR phases.

4.5 Phases of Design Based Research methodology

This study was structured within the four phases of DBR stipulated in Reeves’ model (2006:59). These four phases are; Phase One: “Analysis of practical problems by researchers and practitioners in collaboration”. Phase Two: “Development of solutions informed by existing design principles and technological innovations”. Phase Three: “Iterative cycles of testing and refinement of solutions in practice”. Phase Four: “Reflections to produce design principles and enhance solution implementation” (Reeves 2006:59). According to Sebbowa (2016:58) each of these phases informs “the other through an iterative, cyclic process of refining problems, solutions, methods and design principles” as indicated in Figure 4.1.

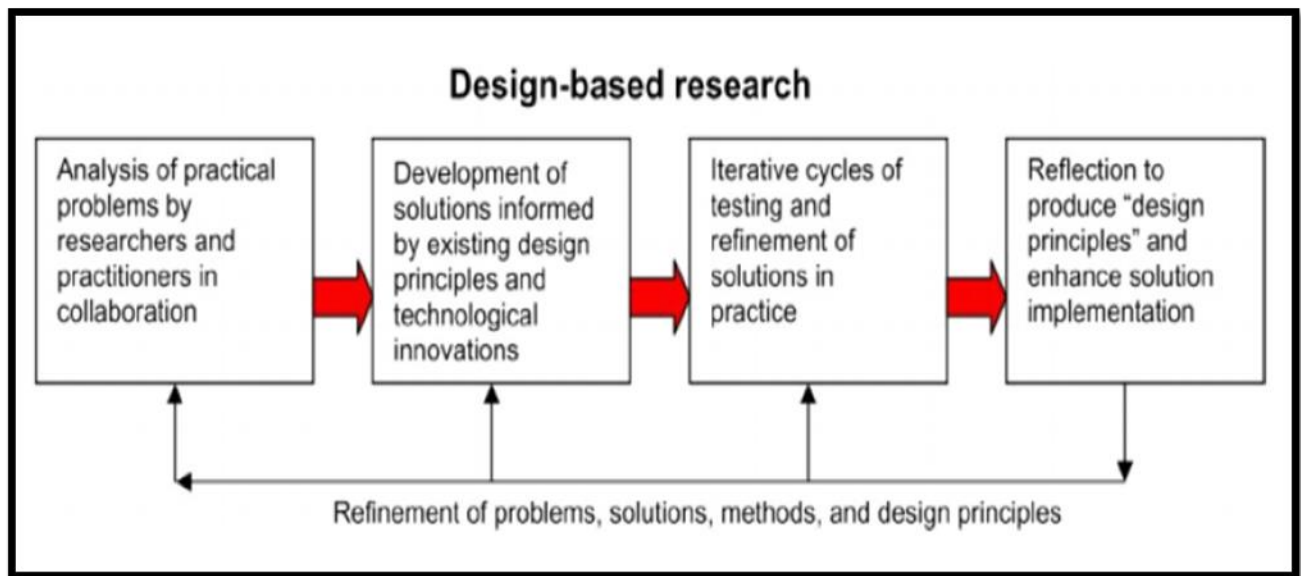


Figure 4.1: The four phases of DBR (Source: Reeves 2006:59)

In Figure 4.1, phase one of DBR involves “identification and analyzing of the educational challenge through collaboration between researchers and practitioners” (Reeves 2006:59). According to McKenney and Reeves (2013:131), the educational challenge ought to be an authentic classroom problem faced by students or teachers which can be obtained through consulting with the practitioners. During this phase, a review of literature is important to refer to the work that has already been done and also to specifically focus on how a similar problem is addressed in other contexts (Herrington 2010:5; McKenney and Reeves 2012:188). Phase two involves the “development of solutions informed by existing design principles and technological innovations” (Reeves 2006:59). This phase entails proposing solutions to the problem identified in phase one which can be implemented in the classroom setting (Kenedy-Clark 2013:29). The proposed solution must be theoretically-informed by the available literature. This can be done by exploring the existing design principles to ascertain how a similar problem might have been addressed other contexts (McKenney and Reeves 2013:131). In addition, the learning solution ought to be mediated by a suitable technology which has to be tested to determine how it functions in real life practice (Reeves 2006:58).

Phase three entails “iterative testing and refinement of solutions in practice” (Reeves 2006:59). During this phase, the problem clearly defined, and methods or theories to address are tested and improved over a period of time (ibid 2006:59). Subsequently, what works and what does not work at every phase needs to be clearly documented to paint a clear picture of how theory informs

practice (Design Based Research Collective 2003:8). Thus, assessing the successes and limitations of the design solution is important to improve the outcomes of the teaching and learning process (Plomp 2007:15; McKenney and Reeves 2013:131). Phase four of DBR entails making “reflections to generate design principles and enhance solution implementation” (Reeves 2006:59). This final phase involves producing guidelines (or design principles) that can be used by practitioners in other contexts to inform further educational intervention decisions (Kenedy-Clark 2013:30). Thus, the outcomes of DBR include practical artifacts, such as pedagogical frameworks, curriculum packages, lesson approaches, websites, software packages, mobile applications, or professional development programmes (Herrington in Sebbowa 2016:60).

Having explained the DBR phases as suggested by Reeves (2006), the proceeding section describes how each of the four phases was implemented in this study.

4.6 Design Based Research phases applied in this study

The sections below describe how the phases of Design Based Research approach were implemented in the current study (see Figure 4.1). They include: “Phase One: Identification of the problem by researcher and practitioners in collaboration. Phase Two: Development of solutions informed by existing design principles and technological innovations. Phase Three: Iterative cycles of testing and refinement of solutions in practice. Phase Four: Reflection and documentation to produce design principles” (Reeves 2006:59).

4.6.1: Phase One: Identification of the problem by researcher and practitioners in collaboration

The steps suggested by Vesper and Herrington (2011:595) are adopted to inform the implementation of phase one of DBR in this study. These include:

- Identification and exploration of the pedagogical challenge
- Consultation with researchers and practitioners in collaboration
- Preliminary review of literature
- Creation of research questions (Vesper and Herrington in Sebbowa 2016:60).

4.6.1.1: Identification and exploration of the pedagogical challenge

According to Reeves (2006:59) a significant step to kick-start the DBR process in any educational context is the identification and exploration of the pedagogical challenge. Therefore, a proper

examination of the educational problem is necessary to plan for a solution. In the first step of exploring and analyzing and the pedagogical challenge (Reeves 2006:59), I present a background to the research problem and share my inspiration for the study, highlighting my experiences as an educator handling some of the pre-service language/literacy classes (see Chapter One, Sections 1.1 and 1.2). Thus, an analysis of context surrounding the study problem is necessary to paint a clear picture of the trends and discourses that have had a major impact on literacy development at a global, national and local levels. The analysis also illuminates the present status of literacy pedagogy in Uganda, by tracing it from the behaviourist approaches of transmitting knowledge from the educator to the learner, (see Section 2.8), to the sociocultural theories of literacy that are prevalent in the current research agenda (see Section 2.7). Following from above, Anderson and Shattuck (2012:18) argue that exploration of the pedagogical challenge in DBR should involve working closely with practitioners in sharing ideas and experiences in order to understand the problem better, while also thinking about the possible solutions. Since practitioners have direct experiences of the classroom challenges, they are in a better position to suggest potential solutions. Thus, the next section provides details of the conversations I held with practitioners to clarify the research problem.

4.6.1.2: Consultations with researchers and practitioners in collaboration

According to Anderson and Shattuck (2012:18) educational challenges might be better understood through consultations with teachers or educators who deal with these problems on a daily basis. Thus, I had several informal conversations with practitioners to explore the problem at a deeper level, while also considering the possible solutions. The consultations and informal conversations were held with three ESL teacher-educators with a teaching experience of 5-10 years and one ESL curriculum developer and consultant with thirty years' experience of handling language pedagogy courses at university level. The purpose of these consultations was to understand the nature of the problem, seek for practice-based advice (Pool and Laubscher 2016:5), and increase the chances of finding the best solution to the problem. The discussions involved exchanging ideas about the behaviourist, teacher-centred methods commonly used in literacy pedagogy in teacher-education in Uganda, while also exchanging views of what the solution might be. Some of the voices obtained during the practitioners' consultations are highlighted below:

'I teach my students the way I was taught at high school as well as at the University. In my opinion, there are several advantages of using teacher-centred approaches in teaching of ESL writing. First, these approaches give the educator authority over the class. Second, the

fact that at University, we deal with classes of mature students who are capable of doing their own research in order to complete the writing assignments, it saves the educator time of responding to individual students, they simply have to follow instructions and write essays. However, I am also aware that this approach makes learners passive and reluctant to actively engage with the writing tasks assigned to them’ (Educator A1).

While another educator responded:

‘I cannot really comment on other educators’ authority and control over their writing classes because my case is different. The writing I have learnt and carried out over the years was not as a result of direct instruction but through a slow process of acculturation from the various writing communities I was part of and also through experiences of using computers and the internet for learning. I personally guide my students to search the internet for support they can get to improve their writing’ (Educator A2).

Similar views were raised by another educator who stated:

‘I mostly use the lecture method because at university, students are considered to be mature and can conduct their own research to enhance their understanding of the writing tasks. However, my assessment of the written assignments is that most students reproduce similar essays, expressed in the same way, word for word with exactly the same errors. An indication that students engage in discussions about their writing tasks, but again, when writing individual essays, they end up making very thin interpretation of their written essays’ (Educator A3).

The sentiments above were substantiated with responses from the language expert of thirty years’ experience in teaching language pedagogy at university who stated:

‘The writing instruction in school education in Uganda and the related teaching approaches are generally examination-oriented or are aimed at completion of de-contextualized academic tasks that do not necessarily relate to the needs of today’s learners. This therefore limits opportunities for learners to engage in meaningful problem-solving activities and interactions with others as they learn the art of writing. As teacher-

educators, we need to re-think our teaching strategies and approaches way beyond these traditional models’ (Educator A4).

Consequently, the practitioners’ responses are presented in Table 4.2 and analyzed in terms of themes emerging as well as the suggested solutions.

Table 4.2: Analysis of responses from practitioners

Emerging themes	Examples of practitioners’ responses	Solutions suggested to improve the situation
Teacher-centred approaches (didactic writing instruction)	<p>I teach the way I was taught at high school and university.</p> <p>Teachers have authority and control over the class.</p> <p>Students simply have to follow my instructions and write essays.</p> <p>The approaches make students passive and reluctant to engage in writing activities.</p>	<p>Generate opportunities for learners to interact and actively engage in writing tasks they are likely to find in real-world contexts.</p> <p>Guide students to collaborate and collectively interpret through group discussions and debates to increase students’ engagement in learning.</p>
Examination-oriented or task-based writing instruction	<p>Limits learners from actively engaging with content.</p> <p>Students make very thin interpretation of their written artifacts.</p> <p>Focus on completion of de-contextualized academic tasks which do not relate to learners’ needs.</p>	<p>Design tasks which meet learners’ needs or interests and relate to their future work aspirations.</p> <p>Design tasks which can attract learners to deeply engage with content and to increase their interest and motivation.</p> <p>Search the internet for support and multiple sources of evidence to improve students’ writing.</p>
No alignment between writing instruction and learner needs	<p>Limited chances for students to participate in meaningful problem-solving activities and interactions with others as they learn the art of writing.</p> <p>Students are unable to solve current problems in reflection of what they are taught.</p>	<p>Adopt teaching strategies blended with educational technologies that place emphasis on stimulating learners’ creativity and independent thinking.</p> <p>Use available technology to create a ‘third’ space where</p>

		learners can freely interact, and collaborate with others and have their anxieties about learning reduced.
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Following Table 4.2, the key pedagogical problems highlighted by educators include; the predominant use of teacher-centred approaches when teaching writing where students become passive and reluctant to engage in writing essays. The examination-oriented or task-based writing instruction which focuses on completion of de-contextualized writing tasks that have little relevance to today’s learner needs. In addition examination-oriented instruction which constrains learners from engaging deeply with the subject content. As such learners make very thin interpretations of their written artifacts. Subsequently, practitioners suggested ways through which the educational challenges explained above could be addressed. First, by creating opportunities for students to interact and participate in writing tasks they are likely to encounter in real life. Second, by involving students in discussions where students can jointly interpret and make meanings out their writing and to arouse their interest in learning. Third, by designing writing tasks which learners can easily relate to, in terms of their current and future work aspirations and which can encourage deeper engagement with content. Fourth, by adopting teaching strategies that place emphasis on stimulating learners’ creativity and independent thinking. Lastly, using the available technologies to create a ‘third’ space where students can freely interact, collaborate with others and have their anxieties about learning reduced. The suggestions and recommendations made by practitioners resulted into a better understanding of the educational problem and the subsequent formulation of the possible solutions (Pool and Laubscher 2016:5).

According to Herrington (2010:7), given their everyday classroom experiences, practitioners are in most cases better informed about educational challenges, therefore their views and suggestions may provide new insights on how to cope with similar problems. These may also provide background for formulating draft design principles. It is also important to note that the practitioners’ views and suggestions highlighted above are in line with the learner-centred pedagogy and the sociocultural theoretical constructs such as the social interactions and dialogical conversations advocated for in this study. Having acquired insights from practitioners, an initial literature review was carried out to establish what has already been done the area of literacy and literacy development, while drawing insights on how similar literacy challenges were addressed (Herrington 2010:8).

4.6.1.3: Preliminary literature review

It is noted that there are several similarities between the practitioners' responses in Table 4.2 with the research in the field of language education in general and literacy pedagogy in particular. Research shows that behaviourist, teacher-centred approaches that are predominant in higher education institutions present significant limitations for literacy development especially in the second language. These approaches constrain deep learning because they rely on mechanical practices such as rote memorization and de-contextualized application and production of correct linguistic forms and structures in the finished essays (Compernelle and Williams 2013:277). According to Gulnaz, Alfaqih and Mashhour (2015:934), teacher-centred approaches constrain active participation in the process of learning as they simply require students to passively reproduce correct linguistic forms in both the written or spoken forms. Consequently, students are less likely to obtain a deeper understanding of concepts or retain linguistic knowledge acquired through these types of structured practices (Gulnaz *et al.* 2015:934). The research highlights are closely related with the current academic debates in the field in literacy education, particularly in teaching and learning of writing in ESL (see Chapter Two, Sections 2.4 and 2.8). The initial review of literature is conducted to clarify on the practitioners' ideas and to determine how theory enhances the proposed design solution (Herrington 2010:8). Thus, the sociocultural theory provided the theoretical constructs and language to conceptualize the problem and to guide in the formulation of the research questions (see Chapter Five, Section 5.3).

4.6.1.4: Creation of the research questions

Following the identification and exploration of the educational problem through consultations with practitioners as well as identifying the gaps in related literature, the sociocultural theoretical constructs, such as collaboration, dialogue and social interaction provided ground to formulate the first two research questions (see Section 2.9). Research question three was generated basing on the outcome of the DBR process reflected in design principles (pedagogical framework). The research questions include;

- To what extent does the Wiki intervention foster social interactions and collaborative dialogues among pre-service students?
- How do social interactions and collaborative dialogues mediated by the Wiki intervention impact on ESL pre-service students' literacy skills?

- What design principles will guide the pedagogical framework for enhancing the literacy skills of pre-service English language students?

The first research question aimed to establish the extent to which the Wiki writing intervention supports social interactions and collaborative dialogues among pre-service students, while the second research question aims to understand how students' engagement in social interactions and collaborative dialogues mediated by the Wiki platform impacts their literacy skills. Therefore, the two research questions were intended to obtain a clear picture of the structured processes used to derive the solution to the problem identified in the study. On the other hand, the third research question aimed at obtaining the resultant design principles in form of a framework as a practical contribution of this study.

That said, next is DBR phase two- development of solutions informed by existing formulated design principles and technological innovations (see Figure 4.1).

4.6.2: Phase Two: Development of solutions informed by existing design principles and technological innovations

In line with the previous sections, the steps presented by Vesper and Herrington (2011:595) provide a continuous guidance on the systematic application of the DBR phase two, these include;

- Creation of draft design principles.
- Consideration to implement technological innovation and developing the prototype of the learning solution (Vesper and Herrington in Sebbowa 2016:66).

4.6.2.1: Creation of draft design principles

In this study, the design principles were created by aligning Salmon's model for online learning, (existing design principles), with Vygotsky's sociocultural theory as applied to L2 writing (see details in Table 5.1). According to Vesper and Herrington (2011:595), the existing design principles are utilized to guide the development of the design solution to the identified research problem. In other words, since this study was conducted in a blended format, it was important to utilize Salmon's model, (existing design principles), to provide guidance on the experiences of online learning, the roles of e-moderators and students in an online learning engagement as well as effective online scaffolding (Wright 2015:18). On the other hand, the sociocultural theory provided the theoretical constructs to guide the choices and actions behind the social interactions and

dialogical engagements between students and educators or students and students mediated by the Wiki online learning environment. Herrington and Reeves (in Sebbowa 2016:66) argue that “the development of draft design principles to guide the design of an intervention requires a critical analysis of relevant learning theories together with existing principles, while also integrating ideas from practitioners”. Subsequently, the draft principles were utilized to inform practice. Similarly, (Herrington and Reeves 2011) are of the view that the design principles must be presented in a way that each individual principle can easily be related to an action in the design situation (see Table 5.1). Thus, in Phase two of DBR, the formulated design principles provided guidance in designing and developing an intervention to address the identified educational problem.

The proceeding section illustrates how technological innovation was determined and implemented in this study.

4.6.2.2: Consideration of implementation of technologies and development of the prototype learning solution

Having formulated the design principles from both literature and practitioners’ views, the first attempt at an innovative learning solution focused on integrating web 2.0 technology (particularly the Wiki technology), into Methods course to enable pre-service students interact and engage in collaborative dialogues with each other and their educators as they engage in writing texts. Reeves (2006:58) posits that DBR methodologies employ interventions that are technologically-mediated in order to in support interactive and collaborative learning processes. Having analyzed the affordances of the various technologies such as Wikis, Google Docs, blogs, and discussion forums in fulfilling serving multiple educational functions (see Chapter Five, Table 5.4), Wikis appeared as the most suitable choice of Emerging Technologies (ETs) to mediate interactions and collaborative engagements between students, peers and educators. Subsequently, the Wiki intervention was developed and aligned to the identified draft design principles (see Table 5.1). The Wiki intervention was tested and evaluated at the first implementation, from which the lessons were documented. Thereafter, recommendations were made towards the improvement of the second implementation (see Chapter Six, Sections 6.8). Consequently, at the second implementation, the Wiki intervention was re-adjusted and re-named the ‘Socio-wiki’, a short form for sociocultural theory informing this study and Wiki design solution (see Section 7.3).

Having completed designing the Wiki intervention in phase two of DBR, the next phase was to implement and evaluate the proposed design solution in practice (Reeves 2006:59). Thus, Phase Three of DBR involved cycles of implementation and improvement of the learning solutions.

4.6.3: Phase Three: Iterative cycles of testing and refinement of solutions in practice

According to Herrington, Reeves, and Oliver (2010:176) and Vesper *et al.* (2013:974), the aim of this phase is to implement the design solution and evaluate it to suit the requirements of a working prototype. This study involved two implementations which involved testing, evaluating, and improving the proposed design principles. The first implementation one was a pilot study which involved forty-eight ESL pre-service students (see Chapter Six, Section 6.1). It involved testing the proposed design principles through a joint process making meanings in writing texts on the Wiki platform. To start off the implementation process, participants engaged with the topic '*School practice experiences of a novice teacher*' (see Chapter Six, Table 6.1). The data collection methods employed at this stage were; online observations, analysis of students' reflections and Wiki artifacts, and interviews. Lessons learnt from the first implementation were documented basing on the design principles that worked and those that did not work well (see Section 6.8). Consequently, the design principles that did not produce the desired results were used as a basis for improvement in the second implementation.

The Design Based Research Collective (2003:7) explain that "after the initial implementation of the design solution in practice and observations are made, the solution is tested again and modified in a continuous cycles of design". Thus, I engaged with the next iterative cycle of the design solution (see Chapter Seven). This involved twenty pre-service students who participated in an online role play. They debate upon a topic unanimously agreed on '*Mobile phone policies in schools*' (see Section 7.4.5). Thus, at the second implementation, I engaged with the students' reflective journals, researcher's blog site and field notes, Wiki-generated artifacts, observations and interviews as the data collection methods. At the second implementation, students actively engaged with constructing meanings of their written artifacts and also drew lessons from their constructed texts as well as their lived experiences to propose solutions.

Each cycle of implementation resulted into further modifications of the design principles and the Wiki intervention. These changes were guided by what was successfully achieved as well as what was not successful in the two study implementations. Having completed the third phase of DBR,

Phase Four is the final phase which involves carrying out reflections to produce guiding design principles (Vesper *et al.* 2013:978) as explained below.

4.6.4: Phase Four: Reflection and documentation to produce design principles

Phase four of DBR is the reflection and documentation phase. Vesper *et al.* (2013:974) explains that this phase aims to produce design principles that could guide future interventional choices and decisions. Thus, the data that was obtained in the third phase of DBR was analyzed and critically evaluated in order to generate the final guidelines (see Chapter Eight, Table 8.1). It is envisaged that these guidelines could be used by literacy practitioners to address similar educational problems in various educational contexts. Therefore, the practical contribution of this study lies in the final guidelines formulated into a pedagogical framework for enhancing students' literacy skills (see Chapter 9, Table 9.2). Having explained how the four phases of DBR were applied in this study, Table 4.3 presents a summary to this effect.

Table 4.3: DBR phases as applied to the current study

The four phases of DBR applied in the study	Titles of the chapters
Phase One Identification of the research problem	Chapter One Introduction to the study Chapter Two Understanding the research problem
Phase Two Development of solutions informed by existing design principles and technological innovations	Chapter Three Philosophical Underpinnings of the study Chapter Four Design Based Research Methodology Chapter Five Development of the Design Solution
Phase Three Iterative cycles of testing and refinement of solutions in practice	Chapter Six First Implementation of the Design Solution Chapter Seven Second Implementation of the Design Solution
Phase Four Reflection to produce design principles and enhance solution implementation	Chapter Eight Reflections on the four Phases of DBR Chapter Nine Research Contribution

Having presented the application of the four phases of DBR as applied to the study, the proceeding section describes how a case study was employed as a systematic strategy for data collection. Referring back to Crotty's model guiding this study (see Chapter Three, Section 3.1), the final element of the research process is "methods" (Crotty 1998:4). Crotty defines "methods as the techniques or procedures used to gather and analyze data related to some research question or hypothesis." (Crotty 1998:3). Literature on research methodologies indicates that methods of data collection in DBR studies "are not necessarily different from those in other research methodologies" (Van den Akker 1999:9). As stated in Section 4.1, DBR is anchored within the pragmatic paradigm, and so from the pragmatic point of view, a researcher "should use whatever works." (Fraenkel and Wallen 2009:559). In support of this view, Macdonald (2008:430) posits that DBR "pragmatically employs qualitative [and/or] quantitative research methods that are congruent with research questions." This implies that a researcher who employs DBR can use any research method as deemed suitable to answer the research questions or to achieve the specific purposes or functions of the study. To this effect, the case study strategy is considered suitable to guide data collection in this study.

4.7 Case study strategy

The case study strategy is considered suitable for this study for two reasons. First, a case study is an "empirical inquiry that examines a phenomenon in-depth within its naturalistic context, especially when the boundaries between the phenomenon under investigation and the context are not clearly defined" (Yin 2009:18). Second, case studies allow for interventions to be conducted (see details in Table 4.4). In addition, the descriptive type of case study encourage the use of theory to inform practice which may lead to improvement of the theory (Shavelson and Towne 2002:3). These principles are consistent with the DBR methodology used in this study whose focus is to establish theory-based solutions to address real-life educational problems. In a similar way, Miles, Huberman and Saldana (2014:28) view a case as "some sort of phenomenon which occurs in a bounded context". In other words, a case is considered as a unit of analysis. From this perspective, the ESL pre-service students enrolled for a Bachelor of Arts with Education Degree at one university in Uganda bounded by particular time (2017- 2019), are primarily regarded as the unit of analysis in this study.

Research indicates that case studies can be categorized according to their nature or distinct features, such as their theoretical aims, number and units as summarized in the table below.

Table 4.4: Types of case studies

Criteria	Type of case study	Authors
Nature of the case	Intrinsic: unique and undertaken for better understanding of a particular case but not to generalize Instrumental: examined to give insight into an issue seeks to generalize and claims to be representative Collective: conducted at one site by examining a number different sites	Stake, (1995), Punch, (2009)
Theoretical aims	Descriptive: requires theory to guide data collection Exploratory: data is collected before the theory Causal: looks out for cause and effect relationships	(Yin, 2009)
Number	Single-focus is within a case Multiple-focus is within and across cases	Yin, (2009), Punch, (2009)
Units	Embedded: more than one sub-unit Holistic: global	(Yin, 2009)

Referring to Table 4.4, a case study strategy is “proposed to prove, disprove or modify theoretical frameworks” (Yin 2009:18). In the current study, the sociocultural theoretical framework was specifically implemented at an authentic context using the Wiki technology. In other words, the current study closely aligns with the descriptive case study strategy that “requires theory to guide data collection” (Yin 2009). Descriptive case studies fit well within the DBR methodology because DBR approach utilizes theory-based solutions to address real life educational challenges (Vesper *et al.* 2015:245). Besides, the focus is at one specific university in Uganda, thus providing a ‘naturalistic’ context within which pre-service students’ dialogical conversations and social interactions can be explored for deeper understanding. It is also noteworthy to state that while findings from a case study may not easily be generalized to other contexts (Yin 2009:19), they illuminate some aspects that may be transferable to different contexts. As such the design principles from DBR studies can guide the development of educational interventions in a range of contexts (Alghamdi and Li 2013:7). This implies that findings on how meanings in writing texts are jointly constructed and validated on a Wiki platform could provide insights on how pre-service second language students in other universities with similar challenges could be supported to master their literacy skills.

Stake (1995:16) explains that “case studies can be utilized to examine the ‘how’ and ‘why’ questions focusing on existing events in authentic contexts”. In the current study, this is reflected in the research question with an objective to understand the implications of social interactions and

collaborative conversations in constructing meanings of written texts on a Wiki. Thus, employing a case study as a strategy allows for use of multiple data collection methods which may be qualitative in nature (Yin 2009:19) as explained in the next section.

4.8 Methods of data collection

Van de Akker (1999:9) and Alghamdi and Li (2013:9) posit that DBR methodology allows for utilization of multiple data collection methods to seek for confirmation. Thus, I engaged with several methods of data collection in the two cycles of implementation of the design solution (see Chapters Six and Seven). These include: semi-structured interviews, online observations, researcher's field notes and blog entries, analysis of students' reflective notes and Wiki-generated artifacts. The use of all these methods was important for two reasons. First, there was need for triangulation of data for 'thick description' (Lincoln and Guba 1985:39) in reporting of findings as a way to determine the success of the intervention and to achieve validity. Second, to ensure that the data sets obtained would provide answers to the research questions. Below is an explanation of how each method of data collection was used in this study.

4.8.1: Semi-structured interviews

Sharma (2013:51) argues that "the interview method takes the form of a dialogue in which the researcher seeks to elicit information from the participant about how the latter thinks". This dialogic manner in which interviews are conducted makes this method a more personalized form of collecting data. This is because researchers have opportunity to record the exact words spoken by the respondents, observe their behavior and attitudes as they answer questions (Bhattacharjee 2012:78). Thus, the interview method gives the researcher opportunity to probe responses from respondents aimed to obtain information that is adequate basing on the actual words spoken, attitudes and behavior displayed. The semi-structured interviews were a preferred method of data collection in this study as opposed to the unstructured interviews. This is because unstructured interviews often lead to unsystematic data, since they are usually conducted without specific guiding questions (Mason 2002:62). On the other hand, the semi-structured interviews "provides for flexibility in probing of participants' views, while at the same time offer opportunity for the researcher and the participants to engage in open questioning and answering" (Mason 2002:62). Moreover, semi-structured interviews allow researchers to explore interpretations of meanings made by participants in relation to phenomenon under study as well as their social cultural significance (Denzin and Lincoln 1994).

In this study, two sets of interviews were conducted. The first one was at the end of the first implementation of the intervention, and the second at the end of the second implementation. The first cycle of implementation of the learning solution was a pilot study (see Chapter Six, Section 6.1). The interview questions aimed to obtain answers to the first research question about students' engagement in social interactions and dialogues during the Wiki intervention. So focus was on participants' experiences of engaging with the Wiki platform, the opportunities and challenges faced during the Wiki intervention (see Chapter Six, Section 6.2). This was for purposes of refining the research process leading to a better understanding and improvement of the research problem and the proposed solution. As such, responses from the interviews were collected within the month of December 2017, when the first implementation of the learning solution had been completed. The responses were reflected upon and lessons learnt were documented (see Chapter Six, Section 6.4) and used as a basis for refining the second cycle of implementation of the design solution.

Subsequently, the second set of interviews was conducted in April 2019 when the second implementation of the learning solution had been completed. The questions in the interviews aimed at providing answers to the second and third research questions. As earlier mentioned, components of the research questions were derived from literature as well as the sociocultural theory guiding this study. Thus, the questions asked during interviews probed participants' experiences of using the Wiki online platform to construct ESL texts and jointly construct meanings out of them as opposed to the traditional pen and paper writings, the technologies they used to access the platform, and the literacy practices they engaged while engaging with collaborative writing on the Wiki platform. In addition, the interview questions aimed to find out how social interactions and collaborative dialogues influenced students' literacy skills and their general understanding of the assigned topics. The overall aim was to collect data that would lead to generating of the guiding principles (or a theory-driven pedagogical framework), that literacy practitioners can use for the development of literacy skills using digital tools. Some interview questions were about traditional literacy practices and their deficiencies in the contemporary classrooms vis-à-vis possible alternatives, while others were about using digital tools in dealing with the challenges, learner practices, and the change agents in the direction of alternative literacy practices (see appendix A). In order to ensure creditworthiness of the interviews (Sharma 2013:53), the participants were interviewed at my office which is located at one of the faculty blocks, in a university setting, where there is less disruptions and minimum noise. The case study strategy guiding the collection of data in this study, requires that collecting of data should be conducted with participants in their natural settings. The natural setting of participants engaged in literacy practices such as writing ESL texts

are the schools or institutions. The interviews lasted for about 60 minutes each and were audio-recorded with permission from the participants to maintain accuracy and richness of data.

Sharma (2013:55) emphasizes that researchers must not intimidate or “present an authoritative attitude in what is being researched on because the participants have their own experiences in the phenomenon under study”. Therefore, throughout all the interviews, I listened attentively to the responses provided by the participants and offered encouragement using both the verbal and non-verbal cues in order to create a relaxed environment for the interviews to run smoothly. While the students were given opportunity to express their thoughts on their Wiki experiences as they jointly constructed meanings of their writing. The interview transcripts were later analyzed in line with the study questions. For purposes of corroboration of data, participant observations another data collection method was used in this study.

4.8.2: Participant observation

It is worth mentioning that the Wiki intervention was conducted in a blended format, with some sessions done face-to-face while the rest of the work was conducted online as students interacted, collaborated and generated artifacts on the Wiki platform. Observing participants was relevant for two major reasons. First, it allowed for flexible interaction between the students and the educator during the Wiki intervention. Second, participant observation provided opportunity to obtain a direct experience with online participants as they engaged with constructing meanings in their writing on the Wiki platform. Besides, during the face-to-face sessions, I jotted some observation notes regarding contextual aspects in the lecture rooms, such as participants’ interactions and collaborations during group tasks, their moods, and sitting arrangement. Furthermore, as a participant observer, I conducted online observations to view and analyze students’ online presence, postings and comments made as well as the issues they encountered while participating in the Wiki activities. This was done on a daily basis to obtain deeper insights into how students were exploiting the Wiki learning platform for their meaning-making processes. To complement the data collection methods explained above, the researcher’s blog site and field notes were employed.

4.8.3: Researcher’s blog site and field notes

Having conducted research with my own students, I took on the role of both the educator and the researcher. The DBR methodology requires researchers to take part in the intervention activities such as designing online learning platforms, setting the learning tasks and encouraging

participation. At the same time, I played the role of a participant observer taking part in observing students' online activities such as the comments they posted, texts they uploaded as well as viewing their presence online. Participating in the activities of the intervention, while making general observations throughout the entire study made it difficult to make systematic notes on the project. Subsequently, I created a research blog site which I referred to as my 'Daily Reflections' (see Figure 4.1), where I systematically recorded, on a daily basis, all issues that were relevant to the study as they emerged. On the other hand, I jotted field notes in which I made personal observations that were not recorded elsewhere during the course of the two study implementations. These observations were useful for me to make informed decisions regarding the types of changes I should make in the implementations as well as interviews and observation guide. Therefore, while the field notes were a direct account of events as they happened during the research, the research blog site had entries that reflected the key insights on the research process.

Hong (2008:34) describes blog sites as "regularly updated web 2.0 websites that are managed by small groups of people or individuals and are often written in a rather casual, dialogical style". In the current study, research blog site is conceptualized as written explanations of experiences, and observations made during the process of data collection. Accordingly, in my research blog site, I presented descriptive material of what happened at each procedural step of the Wiki intervention and also posted reflective content which sought to make sense of what worked and what did not work. By so doing, I would plan for further improvements in the next implementation. This relates to application of DBR in a real world context where cycles of testing and re-defining the design solution often results in ongoing changes (Kenedy-Clark 2013:29). Similarly, taking account of the research activities and reflecting upon them on a daily basis supports recollection of events which is of particular importance to a qualitative study. Thus daily reflections were an important strategy in keeping the data free from distortion as opposed to relying on my memory. Subsequently, research blog site served as tool for triangulation of data as well as of record of insights and observations made during the course of each implementation. Figure 4.1 below provides an example of the daily reflections documented on my research blog site.

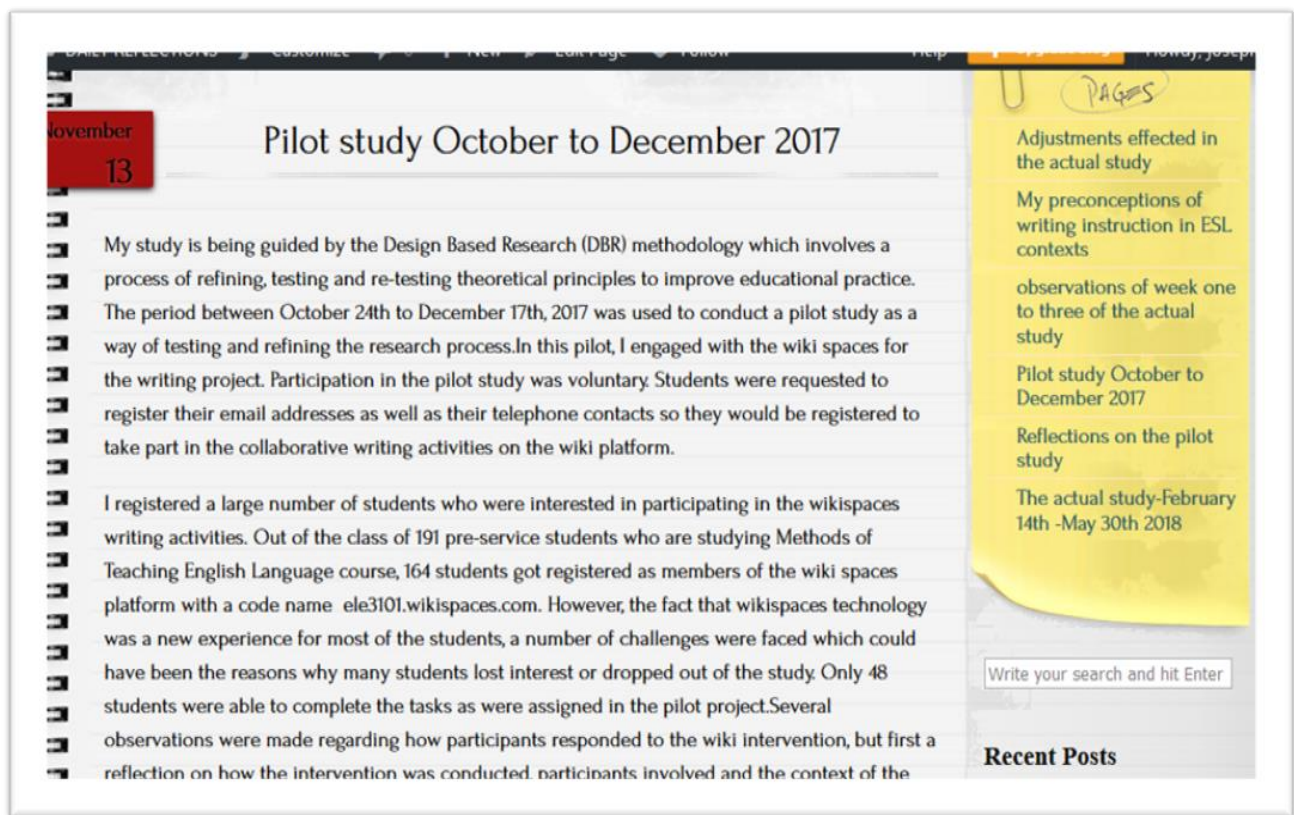


Figure 4.2: Example of the Researcher’s daily reflections posted on the research blog site

4.8.4: Analysis of students’ reflective journal entries

Reflective journaling/making reflective journal entries involves describing a recent learning experience and unpacking salient aspects such as interactions with people, resources, activities or events that affect learning, and doing so in a continuous manner for a specific period of time. Analysis of students’ reflective journal entries, as a method of data collection in qualitative research, has potential to serve several purposes. Research indicates that reflective journals enable educators who research their own practices to learn about themselves. According to Phelps (2005:40) “reflective journals allow students to record their interactions with others and the meanings they personally construct from these interactions”. Phelps adds that reflective journaling permits students to record what most considerably affects them as learners (Phelps 2005:40). In other words, qualitative data collected by means of reflective journals provide useful insights that may not always be obtained through other ways of data collection such as interviews. Analyzing Students’ reflective journal entries was considered a relevant method of data collection in this study as it created opportunity to obtain useful insights into students’ beliefs and attitudes of learning using the Wiki online platform. In addition, the journal entries reflect students’ salient

aspects such as their tensions/contradictions or willingness/unwillingness to work with others online to jointly construct meanings of their writing. In addition, it was envisaged that through individual written reflections, students would feel more comfortable to express certain critical aspects regarding the Wiki intervention that they would otherwise not be able to articulate during interviews. These aspects include: what students did not like about the Wiki writing intervention or who they disliked working with in their collaborative writing activities on the Wiki platform.

From the perspective of DBR that is guiding this study, both the researcher and the research participants (that is, students), are viewed as co-participants in seeking knowledge and sharing meanings constructed from a shared experience (Barab and Squire 2004:3). In other words, focus is on research “with” participants as opposed to research “on” participants (Phelps 2005:40), whereby researchers shift from “the role of objective observers into a collaborative relationship” where knowledge production becomes a shared product (Barab and Squire 2004:3). Thus, both the researcher and research participants through their interactions over time, play active roles in constructing knowledge. Reflective journals closely relate with the DBR principles in that they allow “a dialogue between students, teachers and researchers and hence a co-emergence of new understandings and knowledge that is of benefit to all participants” (Phelps 2005:42). Moreover, since the students engaged with the reflections as the implementations of Wiki learning solution were going on, there was opportunity for gathering useful insights on the learning solution, which would serve to improve the subsequent iterations and to enhance the interviews. As such, written reflections served as means for students to prepare for interviews. The aspects that students reflected on followed the same order as the procedural steps of the Wiki intervention and focused on participants’ daily experiences of writing texts mediated by the Wiki tool (see Appendix C, guidelines to writing reflective journals). That said, the final data collection method used in this study was the analysis of participants’ Wiki artefacts explained in the next section.

4.8.5: Analysis of students’ Wiki-generated artifacts

During the two implementations of the study, students were required to create texts and upload relevant materials such as images, photos, videos, internet links and resources on the Wiki learning platform. These were referred to as students’ Wiki-generated artifacts. In the first implementation, students were asked to jointly plan, create, upload and collaboratively edit texts on the topic ‘school practice experiences of a novice teacher’ on their group pages on the Wiki platform (see Chapter Six, Section 6.1.3). There were six groups of eight members who engaged with writing texts on the Wikispaces platform (see Figure 6.3). Six out of the eight groups managed to jointly

create and upload texts on the Wikispaces platform. Using the history tracking function of the Wiki, the texts were analyzed and reflected upon for insights on the nature of students' engagement, the types of revisions and feedback done and the nature of collaborations students engaged in. Basing on the analysis of what worked and what did not work, recommendations for improvement in the second implementation were made. Similarly, in the second implementation, students engaged in an online role play on the Wiki in which they were required to generate artifacts on the Wiki platform in form of argumentative texts enhanced with photos, images, links and videos on the topic '*Mobile phone policies in schools*' (see Chapter 7, Figure 7.7). It is these artifacts that participants were encouraged to read, post comments and exchange views about with an intention of creating new meanings and understandings on the topic. Transcripts of students' writings/postings and uploaded material were archived and later analyzed prior to carrying out interviews at the end of the second iteration.

That said, the section that follows illuminates data analysis procedure employed in this study.

4.9 Data analysis

Creswell and Clark (2003:43) argue that decisions regarding analysis of qualitative data “ought to align with the methodological as well as the philosophical choices on which the study is based”. In line with the methodological choices of data collection presented above, this section describes how the different but complementary data analysis techniques suggested by Miles, Huberman and Saldana (2014), Crabtree and Miller (1999), Creswell and Clark (2003) and Patton (2014) were used to analyze data generated in this study. The purpose of using different but complementary techniques of data analysis was to provide alternative ways to access and manage data in a systematic way. In addition, the techniques supported deeper immersion into data through encouraging in-depth study (reading and re-reading) of data for emerging patterns that would address particular critical aspects of the study. As Creswell and Clark (2003:43) argue that data should not be regarded as separate entities belonging to specific participants, but rather as sources of information to give insight into the phenomenon being studied. The data analysis techniques were not used in a rigid step by step approach, but rather were a continuum of actions involving a back and forth approach. It is noteworthy to state that I used the “interpretive qualitative data analysis” which Bogdan and Biklen (1982:145) define as “working with data, organizing it into manageable units- deconstruction of data- synthesizing it, searching for patterns, discovering what is important and what is to be learned-interpretation of data-, and deciding what you will tell others- reconstruction of data-” (Bogdan and Biklen 1982:145).

In the initial stages of data analysis, I read and re-read text data from interviews, observations, researcher's field notes and blog entries, students' reflections and Wiki artefacts in order to obtain an understanding of the data. The process of reading and re-reading the text data was intended to achieve 'data immersion' and to obtain a sense of the whole (Taylor-Powell and Renner 2003:2; Creswell and Clark 2003:35). I then relied on the template organizing technique described by Crabtree and Miller (1999:163) to organize and code data. The template organizing approach was considered suitable in determining early categories of data that would relate to the research questions and other critical aspects of the study. Subsequently, a template was generated in which I captured information verbatim from the researcher's blog site and field notes, students' reflective journals, observations, and interviews alongside the specific aspects of the research questions. I then identified and coded the different sections of text in the data according to critical aspects of the study identified. Since the study aimed to understand how meanings are jointly constructed on a Wiki learning platform, categories such as active participation, collaboration, dialogues, negotiations, multiple voices/perspectives, learners' prior experiences, social relationships and motivation as identified in literature were important in this study.

Subsequently, from the captured information, I used different color highlighters to code segments of text related to each of the categories identified. After the color-coding, I created separate documents for each of the categories identified. The segments that were closely connected to a particular code were then clustered together in the same document, in order to be coded and analyzed separately. Although this data analysis technique was useful in assembling large volumes of data in the one document, it was also a challenge to manage and analyze huge volumes of data. The manually-generated templates were filled up with raw data with no elaborate interpretation. Moreover, in many instances, similar segments of text were categorized in more than one code at the same time which was quite confusing. Thus, it became necessary to employ other data analysis techniques such as those suggested by Miles *et al.* (2014:12) namely: data condensation, data display and drawing and verifying conclusions for proper management of data and identification of new emerging themes and categories of data.

Data condensation refers to reducing data from copious volumes to workable state through "selecting, focusing, simplifying, abstracting, and/or transforming data" (Miles *et al.* 2014:12). Thus, the key concepts derived from the theory underpinning this study as well as the research questions were used as basis for selecting and focusing data under the different categories. For

example different categories emerged out of the first and second research questions. The first question states: To what extent does the Wiki intervention foster social interactions and collaborative dialogues among pre-service students? The second is; how do social interactions and collaborative dialogues mediated by the Wiki intervention impact ESL pre-service students' literacy skills? These questions were broken down into specific categories such as; collaboration, interactions, dialogues, negotiations, multiple voices/perspectives, learners' prior experiences, literacy practices among others (see Figure 4.3). Relevant data was then selected from the template constructed using the method described above and put under the different categories. Furthermore, I read and re-read the raw data to identify new categories emerging or themes/sub-themes within each of the previously identified categories. Although some data appeared in more than one category, or could not easily be categorized in any of the established codes, I remained open to the possibility of adjusting the categories to accommodate such data as long as it was clear it would add value to the findings. At same time data that could not easily be categorized was put aside for further consideration since data analysis was an ongoing process. Having categorized the data, it was important that data is displayed in an organized format. Miles *et al.* (2014:12) suggests several formats for displaying data including; matrices, graphs, charts, and spread sheets, but they emphasize that the display format must be accessible to the researcher in terms of making connections and drawing conclusions from them. Thus, I created an Excel spread sheet to display matrices of the condensed data as illustrated in the screen shots in Figure 4.3. These displays were useful in in viewing data that addressed the specific research questions. Hence, categories of data displayed were continuously reviewed and refined by comparing and connecting one segment in the data to the other until all data were exhaustively attended to.

	A	B	C	D	E	F	G	H	I	J
1										
2	Participant	Type	Gender	Year of Study	Number	Data (Accessing the play area)	Collaboratio	Dialogue	Literacy	Interaction
3	Participant	Observation		YR3		20 participants accessed/played with site features				
4	Participant	Observation		YR3		Self- Introductions				
5	Participant	Observation		YR3	1	Participants helped each other to access the Wiki	Collaboration			
6	Participant	Observation		YR3	2	platform. Some welcomed members, others teased		Dialogue		
7	Participant	Observation		YR3	3	each other about failing to access the platform,				
8	Participant	Observation		YR3	4	others exchanged comments on how to access		Sharing		
9	Participant	Observation		YR3	5	Participants used phones, laptops, desktops, ipads				
10	Participant	Observation		YR3	6	to access the Wiki platform				
11										
12	Participant A12	Interview	Male	YR 3	1	I read several PBWiki user guides, and watched			Reading and	
13	Participant A12	Interview	Male	YR 3	2	tutorial videos, to understand how the site works			watching	
14	Participant A3	Interview	Female	YR 3	3	I consulted with the educator and peers		Dialogue		
15	Participant A14	Interview	Female	YR 3	4	I interacted with friends who had accessed Wiki to				Interaction
16	Participant A14	Interview	Female	YR 3	5	guide me on how to access the site				
17	Participant A1	Interview	Male	YR 3	6	I taught myself to access the Wiki platform	x	x	x	x
18	Participant A6	Interview	Female	YR 3	7	I waited for friends to try accessing the platform, I	Collaboration			
19	Participant A6	Interview	Male	YR 3	8	then worked closely with them to sign in				
20	Participant A15	Interview	Male	YR 3	9	Asking questions and receiving answers helped me		Dialogue		
21						gain access to the Wiki platform				

Figure 4.3: Excel Spreadsheet Data Analysis Extract

Although the approaches described above showed potential for patterns that speak to the critical aspects of the study or even provide some general answers to the research questions, I strongly felt that the sociocultural nuances that explain the participants' social interactions, dialogical conversations and meaning-making on the Wiki platform had not been fully addressed. Besides organizing data under key concepts derived from literature and research questions offered limited intrinsic value than would be obtained from analyzing the text as data source. For this reason, I adopted the sociocultural theoretical driven analytical framework to examine sections of the data further. Hsieh and Shannon (2005:1279) are of the opinion that a conversation between the researcher and the collected data in text form is necessary. This can be achieved through reading all the collected texts repeatedly to become acquainted with the emerging themes, and listening to audio recordings repeatedly in case of interviews, in addition to making observations and field notes. Accordingly, texts from data sets need to be examined for expressions or words that align with key concepts, theoretical constructs or research questions in the study. This systematic analysis of data can lead to obtaining true understanding of text (Creswell and Clark 2003:35). I envisaged that the sociocultural theoretical driven analytical framework adopted in this study

would enable me to pay closer attention to themes arising out of data as well as providing examples of such data in form of extracts and then giving an explanation of the whole phenomenon in line with theoretical constructs, literacy pedagogy and research questions (see Chapter Seven for examples of analyses).

Thus, I followed the analytical procedure of theme-extract-explanation to analyze data in this study. However, it is noteworthy to mention that the theme-extract-explanation aspect of the sociocultural cycle driven analysis was more applicable at the second implementation because of two reasons. First, at this stage there was more data collected using multiple methods of data collection such as; observations, researcher's field notes and blog entries, interviews, students' reflections and Wiki-generated artifacts. Second, the period within which to collect and analyze data was longer-traversing for over a period of one year- which provided enough time to revisit data over and again in order to analyze it. Besides, the large amount of data collected in this phase was rich with excerpts. This could be used to show how the analysis was carried out as well as how this procedure of analysis could be transferred to the rest of the data.

Besides the theme-extract-explanation approach emphasizes a deeper understanding of the inter-relationships among themes and sub-themes from texts through a thorough examination of every expression or sentence in the text. This form of scrutiny of data facilitates a gradual understanding of participants' experiences and improves a conversation between the researcher and the texts as well as themes generated. This step involves a back and forth movement of the researcher through literature, researcher's pre-understandings and the texts (Sargeant 2012:2). Creswell and Clark (2003:35) share a similar view when they argue that the back and forth movement is an important step in the analysis as it provides for an in-depth interpretation of meanings of texts and that meanings of the 'whole' influences the understanding of the other 'part' of the text and the process continues in a cyclic manner. This process involves understanding of the content of texts, phrases, words or sentences contained in data sets in connection with how they provide answers to the research questions. In addition, this process is useful in facilitating the coding of data.

Thus, in the current study, the "key phrases in the text data were used as the coding frame" (Stuckey 2015:8). Stuckey argues that a coding frame can be a "sentence", "paragraph" or "phrase" (ibid 2015:8). The codes obtained from reading and re-reading the text data were organized into groupings, through a process called "open coding" (Strauss and Corbin (1990:56), basing on how different codes were connected (Hsieh and Shannon 2005: 1279). Thus, this coding process helped

to ensure that data is put into similar categories for easy connection to the research questions. These categories were further reduced into units that are analyzable (Miles *et al.* 2014:12).

4.10 Ethical considerations

Marshall (2007:5) states that research with human participants raises ethical challenges related to “confidentiality, safety, anonymity, and informed consent of the participating human subjects”. In the current study, the ESL pre-service students were the human participants concerned with providing data in form of interview responses, reflective journal entries and Wiki-generated artifacts. Thus, it was important to put research ethics at the forefront when undertaking the study. According to Marshall (in Chawira 2017:183) research ethics is “the application of moral rules and professional codes of conduct to the collection, analysis, reporting and publication of information about research participants”. In order to ensure that this research was conducted in accordance with the recommended research ethics, the ethical guidelines specified by the University of Free State ethical committee were strictly adhered to as explained in the next section.

4.10.1: Request to conduct research

Having conducted research in the same context where I teach automatically raises ethical concerns, especially with regard to exerting undue influence on the research context as well as the participants. To address this concern, I requested for permission to conduct research from the University of the Free State Ethics Committee under the ethical clearance number **UFS-HSD2017/1020** (See Ethics Statement on page iii). Having been provided with the Ethics Approval letter, I went ahead to seek for permission from the Head of the institution, (the Dean of School of Education at one University in Uganda), where the study was to be carried out (see Appendix D). I also attached an information letter explaining the aim of the study, how the study was to be conducted and the possible benefits and risks to the participants (see Appendix F). The Head of the institution later invited me to a meeting in which issues regarding how the study was to be conducted with minimal disruption to the daily academic routine and how anticipated risks to the participants would be mitigated. Thereafter, the Dean signed a written consent granting permission to conduct the study at the institution (see Appendix E). The next step was to seek for an informed consent from the prospective study participants (the students).

4.10.2: Participant’s informed and voluntary consent

Prior to the commencement of the study, prospective student-participants were informed of the nature, purpose and extent of the research. The University Degrees Research Committee (2008:63)

states that “human subjects in any study need to be informed about the nature of the study”. Therefore an information letter which provides details on what the research is about, how it would be conducted, the potential benefits and anticipated inconveniences of taking part in the study was distributed to the students (see Appendix G). This was followed by a meeting in which I further clarified to the students how the study would be conducted, what their roles would be, the potential inconveniences and benefits of participating in the study. The students were also informed that their participation in the study was open to cession, if they no longer wanted to continue with it. Thereafter, students who were willing to participate in the study were requested to sign the participant letter of informed consent on voluntary terms (see Appendix H).

4.10.3: Anticipated risks and inconveniences

Although there were no major risks associated with students taking part in collaborative writing activities of an online platform in their class, homes or computer laboratories, it was anticipated that some of the study activities would either disrupt the students’ academic routines or would consume their academic time. This is because the students would need to divide up their study or free time to complete the project tasks (Hesse-Biber and Leavy 2011:64). To address ethical challenge, the study activities such as the face-to-face workshops were conducted over the weekend, (with permission from the participants), when there were no lectures, while the rest of the activities were to be done online during students’ convenient time. In addition, participants were given the option to withdraw from the study without any penalty should a need arise. They were also assured that in case of withdrawal from the study, all reference to the student would be removed and none of it would be used without the student’s knowledge. Moreover, interviews with the students were scheduled at the students’ convenient time and prior notification was given to avoid infringing on their personal time and also to allow them to plan accordingly.

4.10.4: Confidentiality of participants’ information

To ensure anonymity of the participants, the students who participated in this study were asked to use pseudonyms for the duration of the research. Besides, any other identifying information such as course codes and course names or calendar year which could be linked back to the participants were not revealed in the final report of this study or in any subsequent publications arising out of this research. Although some participants wanted their identities revealed, they were shown the importance of remaining anonymous, in case the findings reflect negatively on them or had far reaching effects on their careers. Additionally, access to interview transcripts, audio files, researcher’s field notes as well as students’ artefacts and documents in hard copy forms were

stored under key and lock in the researcher's office file cabin. While all collected data in soft copy form was kept in a password protected computer.

4.10.5: Issues of power relations

In this study where I was a researcher at the same time an educator conducting research with my own students, issues of power relations were bound to arise. The University Research Degrees Committee (2008:4) emphasizes that the power imbalance that exist between the researcher (educator) and the researched (students) has to be given due consideration. Thus, the student participants were requested to decide when they would wish to engage with the study activities, or when they wished to be interviewed as opposed to being imposed on. The students were assured that the research was conducted for purposes of understanding and improving pedagogical practices and not to evaluate or judge them. In addition, during the interviews, I did not impose an authoritative attitude, instead I positioned myself as a listener and provided encouragement in terms of verbal and non-verbal prompts in order to make the interviews less intimidating.

4.10.6: Payment for participation

There was no payment offered to the participants for taking part in the study. All students agreed to participate in the study without remuneration.

4.10.7: Withdrawing from the research setting

As a way to conclude the study, I organized brief presentations and discussions of my preliminary thoughts about the data with the dean, educators and the students who participated in the study respectively. This arrangement was welcomed by both the dean and the participants as seen from the way they actively engaged in the discussions. It also gave me an opportunity to validate some of my initial thoughts about the data. I also pledged to hold continuous discussions with educators and students who showed interest in the study after the completion of the dissertation. Finally, on my last day in the research setting, I officially informed the dean that the data collection had been concluded.

4.11 Chapter summary

This chapter presented a justification of DBR as an appropriate methodology to address the current study's research questions. The chapter also reports on how a case study together with the four major data collection methods including: observations, interviews, students' reflections and Wiki artifacts, researcher's logs and field notes were relevant for the current study. My role as a

researcher was mainly spelt out as participant observer taking part in observing of students' online presence, postings and collaborative behavior as well as setting up learning tasks and encouraging participation. The daily recursive visits to the Wiki learning platform served to ensure continued social interaction within the research context. The chapter also reports on the analysis techniques that were followed to analyze data. Finally, the ethical consideration section presents the steps that were taken to obtain access to the research context and to safe guard and respect the confidentiality of the participants as well as the research context.

The next chapter presents the development of the design solution highlighted in phase two of DBR.

CHAPTER FIVE

DEVELOPMENT OF THE DESIGN SOLUTION

5.0 Chapter overview

Following the completion of Phase One of DBR which involved exploring the educational challenge in collaboration with the practitioners, this chapter reports on Phase Two of DBR involving the “development of solutions informed by existing design principles and technological innovation” (Revees 2006:59). Having highlighted the issues related application of traditional behaviourist approaches that focus on structurally-oriented and mechanical methodologies to second language writing, there was need for a learning solution that integrates both the cultural and social elements of language acquisition to a second language writing context. Having conducted a thorough literature review to establish the value of social elements to second language writing and evaluate the existing learning solutions, a design solution was proposed. This solution was informed by guidelines from Salmon’s model for online learning and the sociocultural theoretical perspective. The Wiki online learning environment was considered appropriate to be implemented and tested in particular authentic classroom environment. The chapter is concluded with highlights of the affordances of the Wiki technology which is the design solution in this study.

5.1 Establishing the existing design principles

In Phase Two of DBR, the learning solution to the problem (identified in Chapter One) was implemented in a real-life educational context. Van den Akker *et al.* (2013:13) are of the opinion that in order to be able to create an appropriate learning solution, the researcher needs to consult literature to find existing design principles or advice on how a similar challenge was addressed in other contexts. Subsequently, previous research by Murugaiah and Thang (2010), Salmon, Nie and Ediringha (2010), Su and Beaumont (2010), Sebbowa *et al.* (2014), Wright (2014), and Ruzmetova (2018) were consulted. According to Sebbowa and Nga’mbi (2020) research has proved that Salmon’s five-stage model provides structured e-learning activities which serve the purpose of creating greater interaction and participation between participants in e-learning courses.

Thus, the design principles that were employed in this study were influenced by Salmon’s model because it provides a systematic structure for supporting the learner-centered pedagogy in online learning environments (Kovacic, Bupas and Zlatovic 2008:3). According to Herrington, Herrington

and Mantei (2009:138) design principles are viewed as reusable guidelines for others who wish to generate solutions to pedagogical challenges in their own contexts. Thus, the draft principles utilized in the current study emerged from theories of second language learning, second language writing and learner-centered pedagogy in order to advance both the theoretical and practical understanding of the phenomenon (Barab and Squire 2004:3). Salmon advanced the five-stage model of online learning to give a support to online participants to learn how to use the e-learning system, communicate and study in it as well as create greater interaction between students and teachers during a pedagogical process (Salmon *et al.* 2010:170). In addition, Salmon's model was a useful in structuring pedagogical activities to support interaction and collaboration between students, peers and their educator (ibid 2010:170).

5.2 The five stages of Salmon's model

The five steps of Salmon's model include: access and motivation, online socialization, information exchange, knowledge construction and development (Salmon *et al.* 2010:170). These steps are presented in figure 5.1 below.

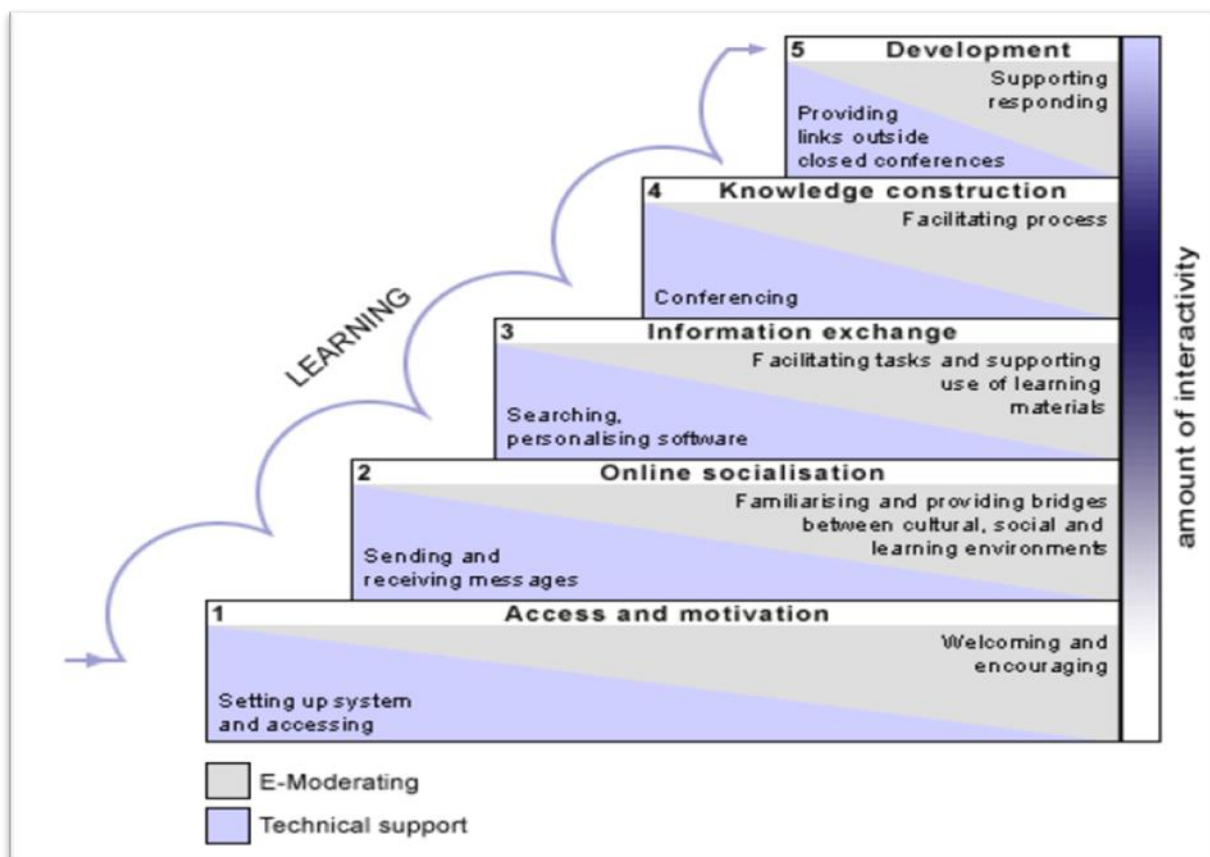


Figure 5.1: Five-stage model for online teaching and learning (Salmon *et al.* 2010: 170)

Referring to Figure 5.1, the five stages of Salmon's model include: Stage one- *access and motivation* entails setting up the online platform and having access to it. The e-moderator or educator sets up the online platform and welcomes participants to take part in the online activities (also referred to as e-tivities). Participants on the other hand are required to login and learn how the new environment operates. In other words this stage is intended to increase participants' comfort in using technology to engage with learning, what they have to do to take part and to raise their awareness about why they need to learn in this particular way (Salmon 2002:12). The most important aspect at this stage is that participants need to have developed the social and emotional capital to interact and learn with others online (Salmon 2002:12). It is necessary to provide clarifications on the purpose of the learning activities at this stage. This stage is accomplished if participants are able to respond to the instructor's welcome message by posting their own messages as well as responding to one another (Salmon 2003:29).

Stage two- *online socialization* is intended to help participants develop online identities and to find others with whom to interact and share information with (Salmon 2002:12). Group interaction needs to be promoted through e-tivities that explore cultural knowledge in order to support more collaborative learning, exchange of information and knowledge construction at later stages. This stage is said to be achieved when participants are able to share information about themselves which could act as spring board for further information exchange (Salmon 2002:24).

Stage three- *information exchange* entails that each participant should be assigned a role to undertake and should be actively involved with the content, peers and educators (Salmon *et al.* 2010:170). In order to do that, participants need to have knowledge of the tool for easy access of information and also possess the skills to enable purposeful retrieval and exchange of information. E-moderators need to ensure that discussions and activities help learners to discover information and identify resources that are useful to learning (Ruzmetova 2018:281). This stage is critical for the participants as they heavily depend on the e-moderators for assistance with regard to providing direction in utilizing the relevant learning materials (Salmon 2002:26). According to Sebbowa (2016:85) "demands for help from the moderator can be considerable because participants' seeking, searching and selection skills may still be low and also there can be many queries about where to find one thing or another." This stage is considered successful when participants can easily find information and share it productively through e- learning activities (Sebbowa 2016:85).

Stage four- *knowledge construction* involves engagement in discussions and interactions where participants create, upload, edit and peer review one another's work (Salmon 2002:28). This suggests that participants must be actively involved in a continuous dialogical activity which involves series of discussions, negotiations, and exchanging ideas through which they refine their understanding of the texts they are constructing. Participants are encouraged to remain open to new ideas and topics with an aim of gaining multiple perspectives to enrich their understanding. Thus, the online activities (e-tivities) need to offer opportunities to participants to construct knowledge and not just exchange of information (Ruzmetova 2018:283). As such, e-moderators must play a key role of motivating and sustaining group interactions in the process of knowledge building (Salmon 2002:31). The stage is attained when participants engage in a "host of skills, such as critical thinking including: judging, assessing, comparing and contrasting; creative skills including: discovering, inventing and hypothesizing; practical thinking including applying, using and practicing" (Ruzmetova 2018:283), leading to knowledge production.

Stage five- *development* is a stage where participants take charge of their own learning and often exercise critical reflection and practical skills (Salmon 2004:33). That is, participants can plan, evaluate their own learning and apply it to their specific situations (Muragaiah and Thang 2010:25). Here, the instructor's role is negligible and participants who have gained the experience often help to guide new comers to the e-learning system (Salmon 2004:33).

The next section reports on how Salmon's framework for online learning is aligned to the sociocultural theory to produce design principles.

5.3 Formulating the design principles: Aligning the sociocultural theory with Salmon's five-stage model

According to Barab and Squire (2004:5) DBR approaches do not simply stop at confirming that a particular design works. The approaches task researchers to develop principles that advance both the theory and practice, while at the same time produce empirical evidence on how a particular learning design works (ibid 2004:5). The fact that design principles blend well with theories of learning, the sociocultural theory was aligned with Salmon's five-stage model to produce design principles. This was to make sure that the study findings are transferable to other contexts and that knowledge generated would be put to use. Therefore, a combination between Salmon's model and the sociocultural theory provided a structure of formulating the design principles (see Table 5.1).

In addition, the sociocultural theory is relevant because it advances learning that is achieved through combining theory and the practical aspects of interpretations and meaning-making in second language writing (Godwin-Jones 2018:2). This view is consistent with DBR approach whose focus is about creating new conditions to link theory to practice in actual classroom settings (Amiel and Reeves 2008:35; Shavelson, Philips, Towne and Feur 2003:25). As earlier suggested that collaborative and dialogic learning which appear to resonate with the current generation of learners need to be reflected and applied in actual practice if we are to make literacy pedagogy relevant to the contemporary generation of learners (see Section 2.8). Consequently, it is these theoretical ideas which if carefully combined with existing design principles and practitioners’ suggestions that can generate necessary strategies to accumulate evidence based solutions (Bowler and Large 2008:39). Considering the practical side, Herrington *et al.* (2009:130) suggest that design principles be expressed using active verbs to make it easy for practitioners or researchers with similar contextual problems to readily employ them. In addition, Herrington *et al.* (in Sebbowa 2016:87) emphasize that “design principles can be substantive in nature referring to characteristics of an intervention (what it should be like) or of procedural nature (how it should be developed).”

Subsequently, the Table 5.1 explains an alignment between Salmon’s five-stage model and the sociocultural theoretical perspective to formulate the draft design principles.

Table 5.1: Formulated design principles

Formulated Design principles	Substantive emphasis (what it should be like)	Procedural emphasis (how it should be developed)	Sociocultural theoretical constructs
To enable access and motivation	Improve participants’ digital skills by getting them acclimatized to the user interface of the Wiki site. Collaboration Learning is blended Identification of topics of interest to students	The researcher: -Creates Wiki platform that is protected. -Invites participants to the platform via emails. -Posts a message on the Wiki homepage, welcoming participants. -Uses emails or SMS to invite participants for face-to-face orientation workshops.	Scaffolding Social interaction (Each participant playing particular social role)

	through discussions	group	<p>-Guides participants on how to seek and obtain technical support.</p> <p>The participants:</p> <ul style="list-style-type: none"> -Respond to email invitations by signing in to the platform. -Convene for face-to-face orientation workshop. -Use their mobile phones and other personal devices to access the platform. -Help each other to access the site. -Explore the wiki platform to become familiar with it. 	<p>Learner-centered pedagogy</p> <p>Collaborative interpretation</p>
To promote online socialization	Supporting participants to establish their online identities	Providing authentic tasks	<p>The researcher:</p> <ul style="list-style-type: none"> -Requests participants to briefly share something interesting about themselves (hobbies, interests, cultures, family background etc.) as a way of introduction. -Guides participants on how to access the pre-engagement task (Sharing their writing ESL writing experiences). <p>The participants:</p> <ul style="list-style-type: none"> -Introduce themselves by sharing personal information, their interests, cultural backgrounds, hobbies and expectations. -Respond to the pre-engagement task (shared their thinking regarding writing instruction in Ugandan context) -Comment on each other's posts. 	<p>Collaborative/shared dialogue</p> <p>Multi-voicedness/perspectives</p>
To support information exchange	Open questions and answers	Exchange of ideas on	<p>The researcher:</p> <ul style="list-style-type: none"> -Encourages questions and answers intended to derive meanings of texts 	<p>Learner-centered pedagogy</p>

	how their texts would look like.	<p>created.</p> <ul style="list-style-type: none"> -Requests participants to form groups and identify a topic to engage with. <p>The participants:</p> <ul style="list-style-type: none"> -Explore a range of topics and reach a consensus on the topic to engage with. -Share ideas on depth, scope and direction texts should take. -Pose questions and obtain answers on the texts created. 	<p>Collaborative/shared dialogue</p> <p>Meaning-making</p>
To promote construction of knowledge	Facilitate collaborative construction of knowledge in text writing	<p>The researcher:</p> <ul style="list-style-type: none"> -Suggests an authentic task (use of online role play). -Guides participants to construct knowledge collaboratively. -Encourages exploration of multiple views. <p>The participants:</p> <ul style="list-style-type: none"> -Work collaboratively to complete the task (take up different roles in the role play). -Collectively negotiate meanings out of texts generated in the role play. -Explore multiple views and sources brought as evidence to foster meaning-making. 	<p>Shared dialogue</p> <p>Collaborative interpretation (negotiations of meanings)</p> <p>Multi-voicedness (multiple discourses/perspectives)</p>
To foster development	Use knowledge generated to solve real life challenges.	<p>The researcher:</p> <ul style="list-style-type: none"> -Asks participants to reflect on the knowledge generated in text creation and how it can be used in real life. <p>The participants:</p> <ul style="list-style-type: none"> -Reflect and produce a responses on how to tackle a real life or a pedagogical challenge. 	<p>Shared dialogue</p> <p>Negotiations of meanings</p> <p>Relevance of text creation (applying literacy)</p>

In Table 5.1, the draft design principles were generated by aligning the “substantive and procedural characteristics” (Herrington *et al.* in Sebbowa 2016:87) from which the sociocultural theoretical concepts evolved. According to Design Based Collective (2003:8), the design principles formulated in this manner have the ability to link the educational theory to practice. Referring closely to Phase Two of DBR employed in this study, the formulated design principles informed the development of a Wiki design solution to address the educational challenge (Amiel and Reeves 2008:34). In other words, once the design principles are formulated, the intervention is implemented and evaluated in reference to the generated design principles (Herrington, n.d).

The next section provides a description of the affordances of web 2.0 technologies.

5.4 Exploring the affordances of web 2.0 technologies

As earlier stated that engaging with web 2.0 digital tools has potential to foster innovation and creativity in literacy teaching and learning. As such, several technologies were explored to determine those that had potential to support dialogical conversations among educators and pre-service students during writing of ESL texts. Consequently, Bower’s (2008:7) affordance analysis framework is considered relevant to serve this purpose. First, it presents a methodology for matching learning tasks with the affordances of technologies. Second, Bower’s framework provides an operational definition of “affordances” based on the need to describe ‘action potentials’ of the technologies (Bower 2008:1). Moreover, this framework suggests several categories of technological and educational affordances, ranging from media, spatial, emphasis, synthesis, temporal, navigation, technical to access-control affordances onto which Bower suffixes “-ability” on every element in each category of affordance (see Table 5.2) to emphasize the actionable (possibilities) that technologies can offer to their users.

Bower further classifies affordance categories according to their degree of interaction. Thus, static/instructive affordances are those attributes, characteristics, features, or properties of technologies, which allow for fixed representations and one-way transmission of information. On the other hand, collaborative/productive affordances are those attributes, characteristics, features or properties of technologies, which allow for flexible representations and multiple representation of information. The table below is Bower’s representation of functional affordances, categorized according to type and degree of interaction.

Table 5.2: Functional affordances categorized by type and degree of interaction (Bower 2008:7)

Static/instructive		Collaborative/productive	
Media affordances:	read-ability view-ability listen-ability watch-ability		write-ability draw-ability speak-ability video-produce-ability
Spatial affordances:		resize-ability move-ability	
Temporal affordances:	playback-ability	accessibility	
Navigational affordances:	browse-ability Search-ability	data-manipulation-ability	record-ability synchronous-ability link-ability
Emphasis affordances:	highlight-ability		focus-ability
Synthesis affordances:		combine-ability integrate-ability	
Access-control affordances:			permission-ability share-ability

Researchers such as Hodgkinson-Williams and Deacon (2013) and Pavlo, Antoneko and Shilpa (2016) among others, developed frameworks for aligning functional affordances of different technologies to inform the design of interventions aimed to transform different pedagogical practices. In the current study, Bower’s (2008) framework was utilized to analyze the affordances of different online learning spaces which include: Blogs, Wikis, Discussion forums and Google Docs as presented in Table 5.3.

Table 5.3: Affordance analysis of web 2.0 technologies (modified from Bower 2008:7)

	Write-ability	Share-ability	Multiple content authoring	Peer reviews add/edit content
Blogs	√	√	x	x
Discussion forums	√	√	x	x
Wikis	√	√	√	√
Google Docs	√	√	√	√

Referring to Table 5.3, Wikis were the most suitable choice to develop the intervention because they possess media affordances, such as: “read-ability”, “write-ability”, “share-ability”, “multiple content authoring” (Bower 2008:7) which can foster peer reviewing or collaborative adding and editing of texts. Such affordances were considered critical in creating an authentic meaning-making process needed in writing texts as opposed to blogs and discussion forums. While Google Docs appeared to share similar affordances with Wikis, this tool posed several technical challenges for the participants, including limited compatibility with many of the students’ mobile gadgets. In addition, a number of participants reported that they found Google Docs challenging to use.

5.5 Designing the Wiki learning environment

As earlier mentioned, analysis of affordances of the different technologies is important in determining the most suitable tool to use for the intervention. Two different technologies: Wikis and Google Docs shared similar affordances which could potentially support online collaboration, social interactions and critical analysis of peer’s work (Martin and Kirthi 2010:76). Although both tools are free web based authoring and page-editing tools (Jakes 2006:1), Wikis especially the Wikispaces type appeared more user friendly and compatible with the participants’ mobile gadgets. Thus, I was more motivated to engage with the Wikispaces tool than any technology because of its various affordances. The intention was to utilize Wikispaces as a space for joint meaning-making that would enhance dialogues and support construction of meanings between students, peers and educators during writing of texts. Consequently, the first step was to read about Wikispaces to understand how the tool works, how other people use it for pedagogical purposes as well as its benefits and challenges (Crane 2012:47). This step guided the creation of the Wikispaces platform, (<http://tinyurl.com/zjbz7xy>), which was integrated into the existing methods course. The Wikispaces platform was named “ele3101.wikispaces.com” and a welcome message to the participants was posted (see Figure 6.1).

5.6 Chapter summary

The chapter has presented a description of how literature was utilized to extract existing design principles and also to find ways of how problems similar to the educational challenge in current study were addressed in other contexts. As such, the DBR guideline of matching the generated principles with learning theories was highlighted by aligning Salmon’s model with the sociocultural theoretical perspective. This alignment resulted into a formulation of design principles that could potentially inform practice. Hence, the chapter was crucial in making

suggestions to design the Wiki intervention and also to formulate design principles to address the educational challenge in an authentic educational context.

The next chapter presents DBR phase three which is “iterative cycles of testing and refinement of solutions in practice” (Reeves 2006:59).

CHAPTER SIX

FIRST IMPLEMENTATION OF THE DESIGN SOLUTION

6.0 Chapter overview

This chapter presents a description of the first implementation of the design solution which is the Wikispaces intervention. This intervention was conducted and tested as a pilot study. In addition, the chapter provides a description of the context of study, the participants involved, the systematic procedure that was followed during the implementation, as well as the findings at every of the stage of the design solution. The chapter is concluded with the lessons learnt from the first implementation and the suggestions that were made to improve the second implementation of the design solution.

Context of the study

The first implementation was an eight-week-long project that was conducted from October 24th to December 17th 2017. It involved forty-eight (48) third year English as Second Language (ESL) pre-service students enrolled on a Bachelor of Arts with Education degree course. These students were studying *'Methods of teaching English as Second Language'* as one of their core language education courses. This course covers the four skills of English language (speaking, listening, reading, and writing) and it prepares students to develop an understanding of teaching the skills mentioned above using pedagogies that are relevant to contemporary learners. The course is a three-credit-unit course divided into four modules, each module catering for a specific language skill. That is, one module caters for the writing skill, while the other three modules are devoted to speaking, listening, and reading skills, respectively. The current study is based on the writing module, whose major objective is to sharpen students' skills of writing in various narrative genres. These genres include: argumentative, descriptive, and expository forms. The students are expected to be well equipped to teach similar skills to their prospective learners.

The writing module on which this study is based is generally taught through the traditional product-based approach. Students meet with their educator twice a week for a two-hour face-to-face lecture each to discuss selected topics in the course outline. The students receive instructions to write essays, either in groups or as individuals which they later submit for feedback and

corrections. After the face-to-face sessions, students disperse to begin working on their essays mostly on their own with limited assistance or interaction from peers or their educator. The Wikispaces intervention is, therefore, designed to provide an online space for students to interact and collaborate with peers and educator as they write texts. This intervention focuses on familiarizing the students with the descriptive writing genre, where groups of students can collaborate and write descriptive essays about a topic that is unanimously agreed upon. In addition, this implementation aims to establish how Wikispaces platform can be utilized to support collaborative writing among students and also to detect any challenges connected with the design of the intervention. As such, this implementation is relevant in providing data that can assist in the refining of the learning solution prior to the second implementation.

Participants

As earlier mentioned, there were forty-eight ESL pre-service students who participated in the first implementation. These students were in their first semester of third year, 2017/2018 cohort. All the participating students were from a background where English is used as second language and a language of instruction right from primary school up to university. In addition, the pre-service ESL students are expected to have obtained the minimum English language proficiency requirement to be admitted on the Programme. As such, these students were expected to have acquired the necessary language competences to communicate and sustain dialogues with other members on the Wikispaces learning platform.

Besides, this cohort of students was selected basing on the fact that students in their final year on the Programme tend to be more motivated to improve their language skills (Kyeyune 2011:89). Thus, they would be more likely to interact and hold discussions for a sustained period of time. Moreover, students join university having acquired some digital knowledge and skills from their high school training, since all students at advanced level ('A' Level) in Uganda are mandated to study ICT as a principal subject (Sebbowa *et al.* 2014:27). In addition, these pre-service students are required to undertake an introductory course in educational technologies which is offered as a foundations course in their first year on the Programme. This increases opportunity for the students use ICTs for educational purposes. Besides, several students indicated they are active users of social media platforms, such as: Twitter, WhatsApp and Facebook. With such engagement and exposure to the various technologies, it was expected that the participating students could collaboratively engage in construction of meanings in their writing mediated by the Wikispaces technology. As a researcher and a facilitator in this study, I took part in this implementation as a

participant observer involved in Wikispaces activities, such as: setting up the Wikispaces platform, developing the learning tasks, encouraging participation, and offering technical support so as to allow for collaborative engagements to take place among the students.

6.1 Procedure for the first implementation

The first implementation was conducted as a pilot study. Salmon's five-stage model, (see Figure 5.1), guided the implementation of activities on the Wikispaces platform. For purposes of consistency in this study, the term, Wiki learning environment is used synonymously with Wikispaces platform. To initiate Salmon's five-stage design principles into practice, a systematic procedure was followed. Thus, the procedure for the first implementation involved phases, such as: designing the Wikispaces platform, recruiting members to the platform, grouping of members and face-to-face workshops.

6.1.1: Designing the Wikispaces online platform

At the beginning of the project, a protected Wikispaces learning platform was created using a free online software <http://www.wikispaces.com>. The Wikispaces tool was preferred for its various affordances, such as: its simple, ready-made tools which provide templates for users to create several pages which can support a variety of group projects (Coniam and Lee 2008:57). In addition, the Wikispaces composing features, which are similar to Microsoft Word, are user friendly for they easily allow users to type in content, modify font sizes, insert images, videos and also upload files to the page (ibid 2008:57). By employing these features, it was possible to create several group pages for students' collaborative writing activities during the implementation. The Wikispaces platform was integrated into the existing '*Methods of Teaching English Language*' course, particularly the writing module. The Wikispaces intervention aimed at supplementing the writing module by giving students an additional space to practice the descriptive writing genre through joint construction of texts and sharing their understandings on the platform.

A home page entitled '*ELE 3101: Getting Students to Communicate in Writing*' was created on the Wikispaces online platform (see Figure 6.1). Since the Wikispaces platform was a protected online learning platform, the homepage acted as gate-way through which participants could sign in to become registered members of the platform. Besides, being used as a recruiting spot, the homepage was a space through which members accessed their group pages. The homepage contained a welcome message and an image that participants could easily relate with. The welcome message and the image were intended to highlight the value of collaborative writing, and also offer

guidelines on how to access the page (see Figure 6.1). Having created the Wikispaces learning platform, it was important to recruit members to the platform.

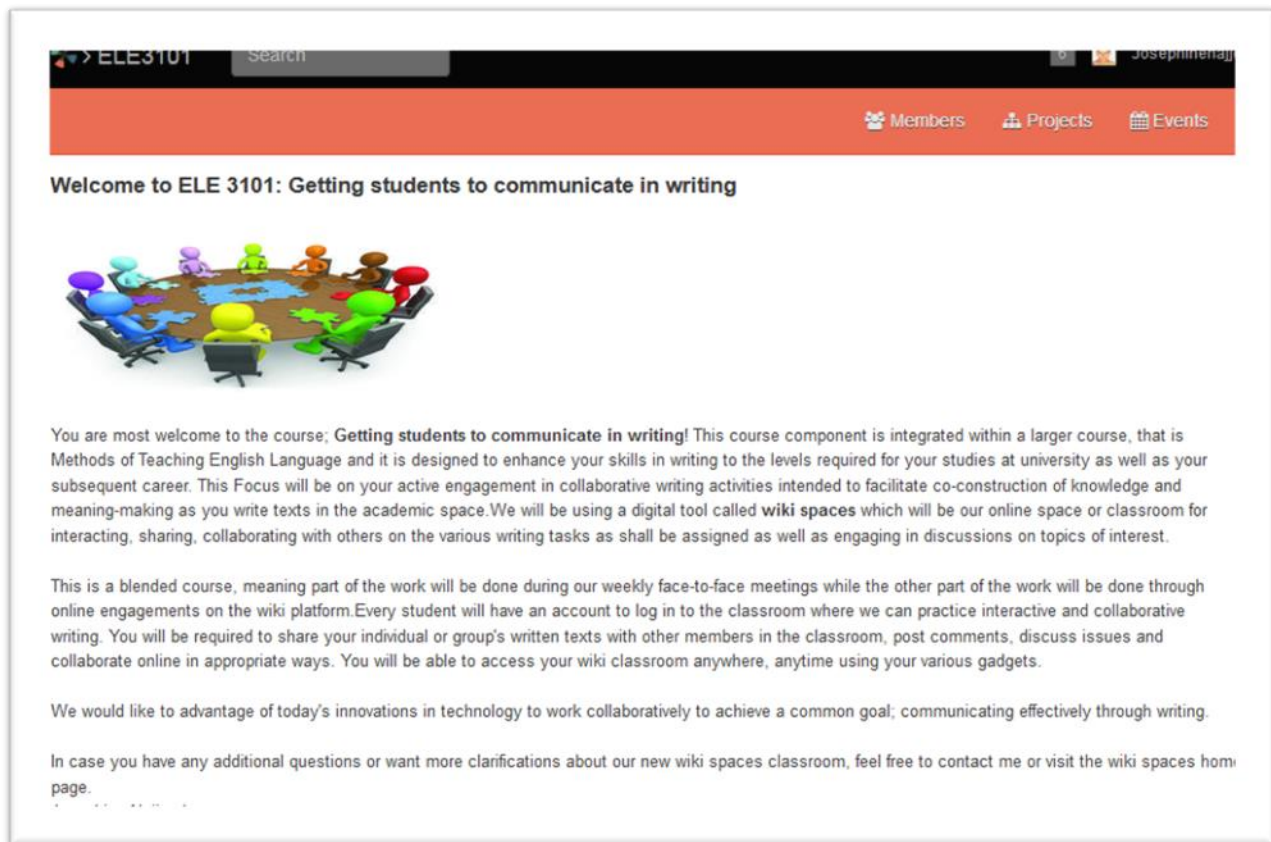


Figure 6.1: Wikispaces home page

6.1.2: Recruiting members to the Wikispaces platform

After the Wikispaces platform was created, the next phase was to recruit students to participate in the activities on the platform. As earlier mentioned, the third year pre-service ESL students studying '*Methods of Teaching English as Second Language*' took part in the study. Participation in this study was voluntary. Being one of the facilitators on the course, I used one of the face-to-face sessions to introduce the Wikispaces tool to the class, highlighting its potential to support collaborative writing. I then requested students who were interested in participating in the study to provide their email addresses. This would enable me send email invitations directly from the Wikispaces homepage inviting them to join the platform. The students who received email alerts prompting them to sign in were able to create their accounts and become members on the Wikispaces platform (as shown in Figure 6.2). Since it was a closed online platform, participants were required to log in every time they wanted to access the Wikispaces platform. The invitation to

participate in the project was open to all students offering ‘*Methods of Teaching English as Second Language*’ course. Subsequently, 164 students signed in as members of the Wikispaces platform (see Figure 6.2). However, only 48 students actively engaged with the activities in this implementation. Many students remained inactive, others dropped out of the project due to their busy academic schedules and loss of interest, while some students experienced difficulties to log in to the platform. Due to the heavy attrition, it became necessary to provide face-to-face weekly workshops to the student-participants regarding how the Wikispaces tool works and to offer the necessary technical support. For purposes of anonymity of the participants, the names used on the Wikispaces platform are pseudonyms.

Members	Projects	Events
arinda16	Oct 24, 2017	Member
ashabaolgah	Oct 24, 2017	Member
barbie-F	Nov 7, 2017	Member
Benard-SylasAmudu	Oct 24, 2017	Member
brendahlaala1	Oct 24, 2017	Member
Carolineturayahabwe	Oct 24, 2017	Member
conradtandeka	Oct 27, 2017	Member
dickson9	Oct 24, 2017	Member
eleabahoambrose3101	Nov 2, 2017	Member
eleadexarinanye3101	Nov 23, 2017	Member
eleahebwewinniefred3101	Nov 13, 2017	Member
eleainomugishaaulleria3101	Nov 5, 2017	Member
eleakankwasafortunate3101	Nov 16, 2017	Member
eleakokoemily3101	Nov 23, 2017	Member
eleakurejemodesther3101	Nov 21, 2017	Member
elealimoevaline3101	Nov 2, 2017	Member

1 - 20 of 164

Figure 6.2: Members registered on the Wikispaces platform

6.1.3: Face-to-face weekly workshops

The students who exhibited consistency in participation of the study activities were invited for face-to-face workshops through direct phone calls and messages. Although the majority of the

participants had signed in to the Wikispaces platform, they had not gained enough experience to use the platform comfortably. Thus, the face-to-face workshops were intended to have participants become acclimatized with the platform and also to provide necessary support to enable them to use the platform for their collaborative writing tasks. Engestrom and Jewett (in Ducate, Lomicka and Moreno 2011:496) note that “training participants to use the Wikis is one of the most important components of the project”. Therefore, the trainings (workshops) were scheduled every Saturday from 10am to 12pm in one the faculty’s computer laboratory for three consecutive weekends. The first session was an introductory workshop. Student-participants were formally introduced to the study and also a detailed discussion on the study requirements was held. The students were given chance to seek for clarification and ask questions for issues that were not clear to them. In addition, several documents describing the requirements of the research were provided to the students. These included: a *participant information letter* giving information on the nature, and purpose of the study as well as the participant roles in the study. Second, a *guidelines document for the students* containing information of how students were to contribute to the study and engage with activities on the Wiki. Third, a *consent form* which was aimed at obtaining students’ informed consent to participate in the project, and a *reflective journal document* containing information on how to write a journal and specific information to collaborative task requirements.

The second and third workshops were committed to ensuring that participants had clear guidance on the various activities they were supposed to do and to provide continuous technical support on the access and use of the Wikispaces platform. Salmon (2011:32) explains that offering proper support to participants to gain access to online learning platforms is crucial at this stage. Therefore, demonstrations on how the Wikispaces platform works and how participants would use it for their writing activities were conducted. The participants were encouraged to use their internet-enabled personal devices or computers available in the computer laboratories and practice how to log into the Wikispaces platform, navigate the homepage, locate their group pages, type in content and edit it. Some students assisted others to perform the tasks above. The students were also shown how to track their written versions using a history tracking function. There were also demonstrations on how to upload videos, photos and links from the internet in cases they were needed to enhance meanings in their texts.

In addition to offering technical support, the final workshop was useful in grouping the students and getting them to physically meet and share ideas with group mates before they went online. The forty-eight students who participated in this study were divided into six different groups of eight

members (see Figure 6.3). Each group had members with a range of abilities in the English language. The intention was that the more capable learners would assist the less able ones as they construct joint texts. Each group was assigned a Wiki page for their collaborative work and group members had to log in through the Wikispaces homepage in order to access their group pages. Group members were asked to alter their names and form pseudonyms for purposes of anonymity in this study. They were also provided with the guidelines explaining how they were to contribute to creating texts and engage with activities on the Wiki. A maximum of four weeks was given to the groups to complete the writing tasks and thereafter all the Wiki group pages were archived on the Wikispaces site <https://www.ele3101.wikispaces.com> for data analysis.

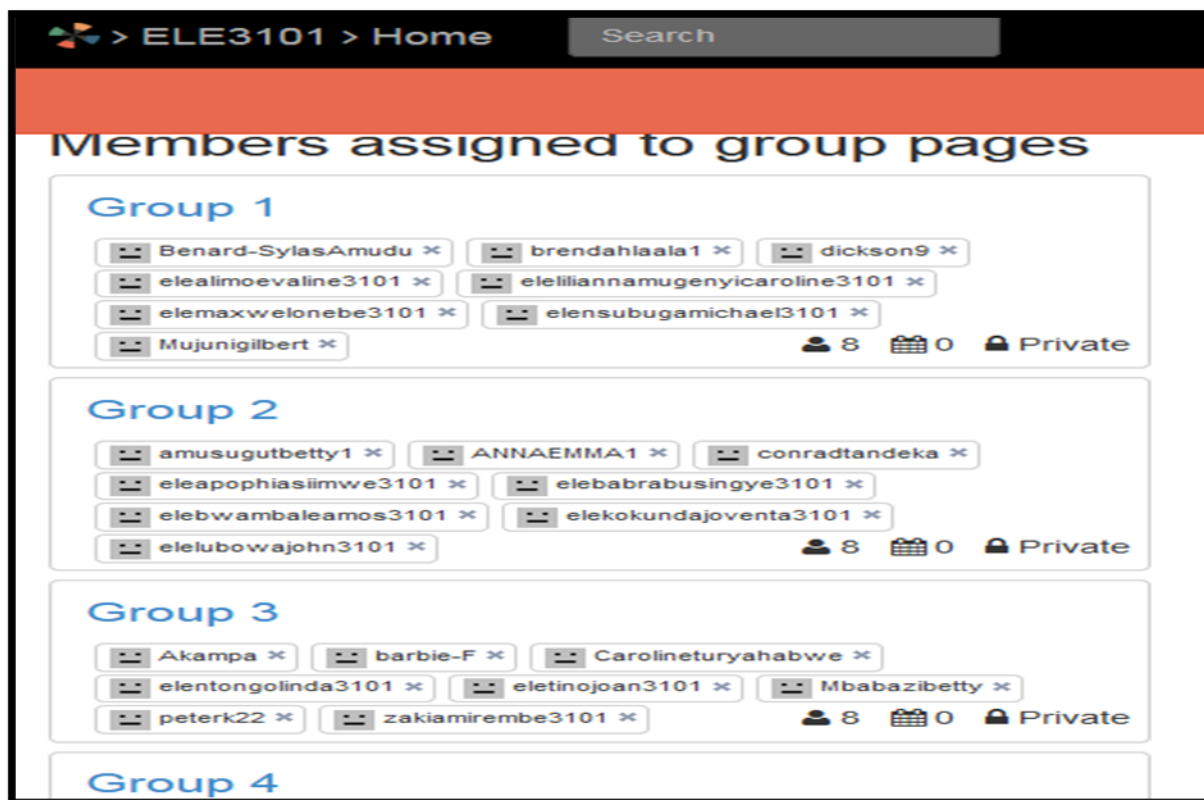


Figure 6.3: Members assigned to Wikispaces group pages

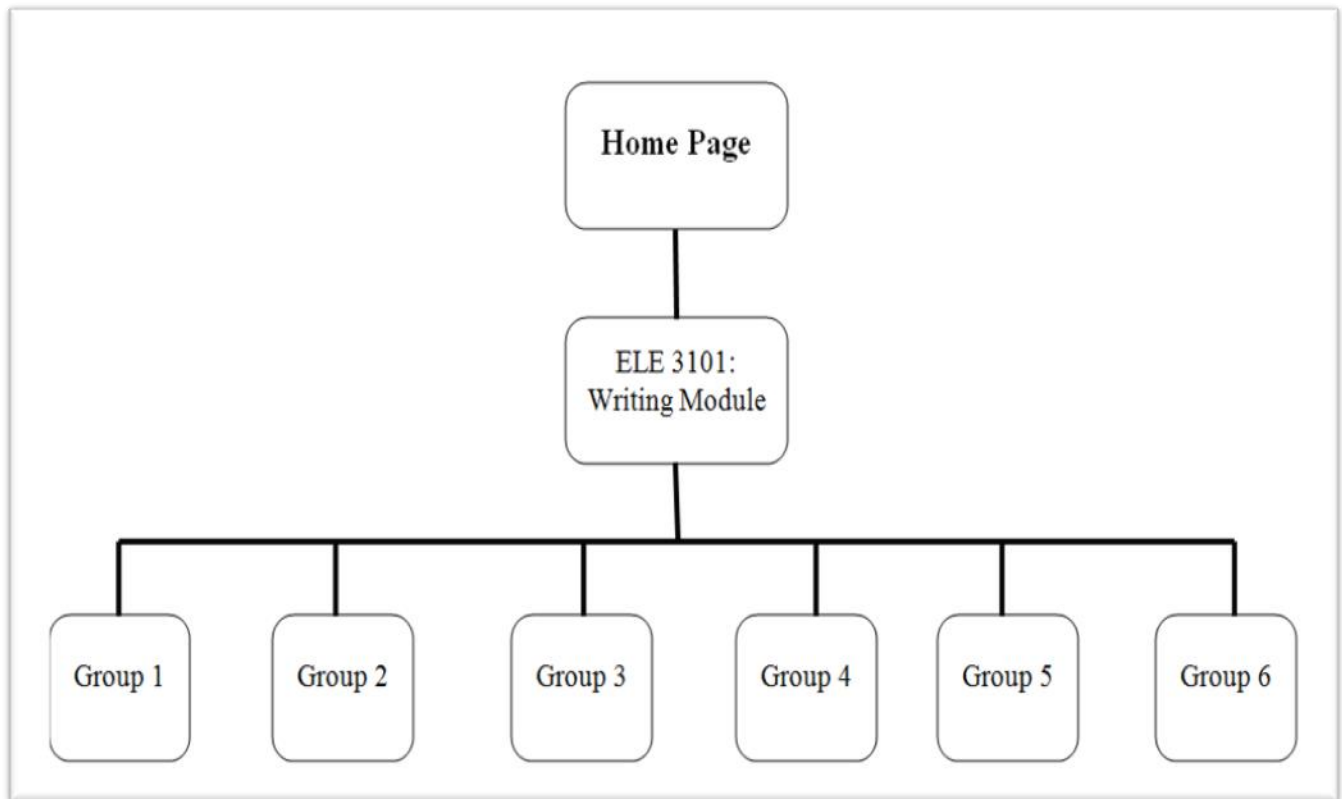


Figure 6.4: The structure of Wikispaces online learning platform

Following Figure 6.4, there were six groups of eight members each, making a total of 48 student-participants who took part in this study. The Wikispaces online platform, (being a closed platform), was structured in such a way that all the participants in each of the six groups above had to access the Wikispaces platform through the homepage. The homepage was named '*ELE 3101: Getting students to communicate in writing*', (see Figure 6.1), after the course module on writing on which the Wiki was integrated. The home page also contained several icons, including the 'member' icon which when clicked on, it opens a page listing the various groups that each participant belonged to (as indicated in Figure 6.3). Members in each group would then click on the group number they belonged to access their individual group pages. The idea behind the structure above was that each group would have a separate group page to write their group texts. Although each group had a separate page provided for their group work, they would be able to view and comment on the texts created by other groups. Besides, the selection of the groups was based on the different competence levels –as noted above- as well as their commitment to the project activities. Below is a summary of the procedural activities performed by both the researcher and the participants.

Table 6.1: Participants’ activities at Step one- to enable access and motivation

Researcher/facilitator’s activities	Participants’ activities
<p>Created a closed Wikispaces online learning platform. Sent email invitations through the Wikispaces homepage prompting participants to sign in and join the platform.</p>	<p>Responded to the email prompts sent through the Wikispaces page and signed in to the platform.</p>
<p>Booked the computer laboratory for the weekends and scheduled the face-to-face workshops with the computer laboratory attendant.</p> <p>Made phone calls and sent SMS to participants inviting them for face-to-face workshops.</p>	<p>Convened at the computer laboratory within the scheduled time to attend face-to-face workshops.</p>
<p>Welcomed participants and elaborated on their roles and responsibilities in the project and where to obtain technical support with regard to gaining access to the Wiki platform.</p> <p>Demonstrated how the Wikispaces platform works and how students would use it in writing their group texts.</p> <p>Encouraged more technology-savvy participants to assist others to access and use the Wikispaces site.</p>	<p>Used personal devices and desktop computers in the laboratory to sign in to the Wikispaces platform.</p> <p>Followed the steps of the demonstrations and practiced signing in to the Wiki platform.</p> <p>Some technology-savvy participants volunteered to assist one another to access the Wikispaces site.</p> <p>Participants played with the Wikispaces environment to post comments, and upload images.</p>
<p>Divided the students into six groups of eight members.</p> <p>Asked each group to share ideas on topics that could be debated on as one of Wiki learning activities and state the reasons why they would choose those topics.</p>	<p>Split into their individual groups and deliberated on the topics that could be discussed on the Wiki platform.</p> <p>Unanimously agreed on the topic; <i>‘School practice experiences of a novice teacher’</i> and explained reasons why they selected that topic.</p>

With regard to Table 6.1, the majority of the participants who attended the face-to-face workshops had not gained enough experience to use Wikispaces platform. However, these participants owned internet-enabled devices and had access to the desktop computers available in the computer laboratories. In addition, all the participants had active social media accounts, which increased their likelihood to engage with Wikispaces platform. Having presented the workshop objectives and demonstrated how to access Wikispaces platform, participants began to access the Wikispaces site using the devices at their disposal. Salmon *et al.* (2010:170) argue that obtaining access to any online learning platform is an essential precondition for online learning to take place.

Subsequently, after the first workshop, 32 out of the 48 participants successfully gained access to the Wiki platform. They exhibited their 'online presence' by posting brief comments on the Wikispaces homepage. Six other participants who had difficulties accessing the Wikispaces platform during the orientation workshop sought assistance from peers and eventually gained access a few days later. The remaining 12 participants, (5 of whom had not attended the orientation workshop), had issues gaining access to the platform due to faulty log-in details, and the compatibility of their devices. However, these participants were able to join the platform after a week with help of their peers who guided them how to access the Wikispaces platform using their Facebook accounts. The students' usual engagement with Facebook platform made it easier for them to assist others, citing the similarity of Facebook page with the Wikispaces interface. An argument by Mokoena (2013:101) indicates that access to online learning platforms can be a challenging experience at the beginning which necessitates continuous support from peers and educators. Mokoena further suggests that offering timely and consistent technical support through video tutorials, manuals, guides and helpline contacts is important (ibid 2013:101).

6.2 Data collection and analysis procedure

As earlier stated, the first implementation was conducted as a pilot study which was tested and evaluated at an English Language Education (ELE) unit of one university in Uganda. Participants were requested to critically reflect on the lessons learnt, opportunities, and challenges of engaging with collaborative construction of meanings in writing texts on a Wikispaces platform. The qualitative data obtained from students' reflections was summarized and presented as lessons learnt as well as suggested recommendations (see Sections 6.6 and 6.7). Subsequently, data from students' reflections was complemented with observational findings on the Wikispaces platform basing on the formulated design principles (see Chapter 5, Table 5.1). Analysis and evaluation of observational findings was conducted in consideration of formulated design principles which worked out successfully and those that were not successful. These provided ground for further testing and evaluation of the same principles for refinement at the subsequent cycles of implementation. That said, the next sub-section presents findings at stage one- to enable access and motivation.

6.2.1: Step one- to enable access and motivation

Observation was the main data collection technique used at step one- to enable access and motivation. This was to allow the researcher who played the role of a facilitator as well as a participant observer to directly experience how participants accessed and engaged with learning on

the Wikispaces platform. According to Creswell (2013:166) observation as a data collection techniques enables the researcher to obtain first hand information from the research context. As earlier explained, step one was conducted in three phases. Phase one involved designing the Wikispaces online learning platform on to which a welcome message to the participants was posted. The message was intended to make participants understand the reasons why they needed to learn in this particular way and what their responsibilities were in the online learning environment (Salmon 2002:32). The second phase was about inviting participants through their emails to sign in and create their individual accounts on the Wikispaces platform The third phase involved inviting participants for face-to-face meetings. This was for the purposes of social interactions, and providing clarifications and necessary technical support (see details in Section 6.1). Abrami, Bernard, Bures, Borokhovski and Tamim (2016:86) recommend that during online learning, it is important to support social interactions between students and their peers, or students and their educators. Salmon's model for online learning has been critiqued for lack of consideration for face-to-face meetings to foster participants' readiness to shift from one stage to another (Moule 2007:39). Therefore, it was important to counteract such criticism by inviting participants for face-to-face workshops, in order to get them acclimitize to the Wikispaces platform and the various activities that were to take place (see Table 6.1).

Observation of the activities at Step one- to enable access and motivation, indicates that this step was to a bigger extent successfully accomplished. Of the 48 participants, 32 accessed the Wikispaces platform using devices, including personal laptops, mobile phones and desktop computers available at the computer laboratory where the workshops were conducted. This was because this group of students was physically present during face-to-face workshops as demonstrations on how to log in were being conducted. Besides, the students were able to consult one another or the facilitator on how to access the platform. The rest of the students joined at a later time after sorting out their log-in details or seeking assistance from peers and the facilitator. In total, there were 108 entries at stage one, which were made by 48 students. Majority of the students accessed the Wiki platform more than once to try out the various features on the platform, or to seek clarifications and post comments. From this perspective, the sociocultural constructs of dialogue and social interactions were reflected through student-to-student and student-to-facilitator activities.

Although most participants successfully accessed the Wikispaces platform, there were several challenges reported in the interviews at the end of the first implementation. For instance, one

participant highlighted challenge of some technicalities of the platform, and thus the need for readily-available technical support and guidance (see Section 6.4). Similarly, Mokoena (2013:98) and Johnson (2017:11) emphasize that technical support is significant for the success of online learning. Another participant who highlighted the challenge of limited time within which to get acclimated to the platform requested that there should be more time slots to enable participants to get used to the Wiki online learning environment. Thus, the second implementation was conducted to adjust and improve step one of learning solution (see Chapter 7). The following step was step two- to promote online socialization.

6.2.2: Step two- to promote online socialization

This step aims to promote online socialization which involves supporting participants to establish their own online identities, and build their confidence in working with others online (Salmon 2002:12). Thus, two systematic steps were considered relevant to build confidence and ease interaction among participants. First, participants were requested to introduce themselves on the Wikispaces platform by stating their personal information, including their names, year of study and what they expect out of the course (see Figure 6.5). According to Salmon *et al.* (2010:170), participants' online introductions are essential in building solid friendships, and online identities, that would facilitate collaborative learning at a later stage. The second step involved guiding participants to complete the pre-engagement task.

The pre-engagement task was about identifying a topic that participants were to engage with on the Wikispaces platform. According to Salmon (2002:12), online socialization ought to promote interactions among participants which could act as a stepping stone for collaborative learning in the later stages of online learning. Salmon further argues that online socialization could focus on exploring participants' cultural knowledge. I used one of the face-to-face sessions to request participants to get in their respective groups, (see groups in Figure 6.3), and share ideas on the topic of interest they would wish to engage with as one of the Wikispaces activities, highlighting reasons for choosing such topics. Correspondingly, Mokoena (2013:98) encourages educators and e-facilitators to provide simple and clear directions on how the online discussions should be conducted and also provide guidance on what activity follows the other. In addition, Mokoena (2013:98) states that in order to foster online socialization, the in-class activities must give students practice on how to collaborate, set expectations for the collaboration and establish common goals before they begin to collaboratively work online. Thus, the activities must provide educators with the opportunity to establish learners' interests before they transfer their learning online.

Below are excerpts of participants' online introductions on the Wikispaces platform

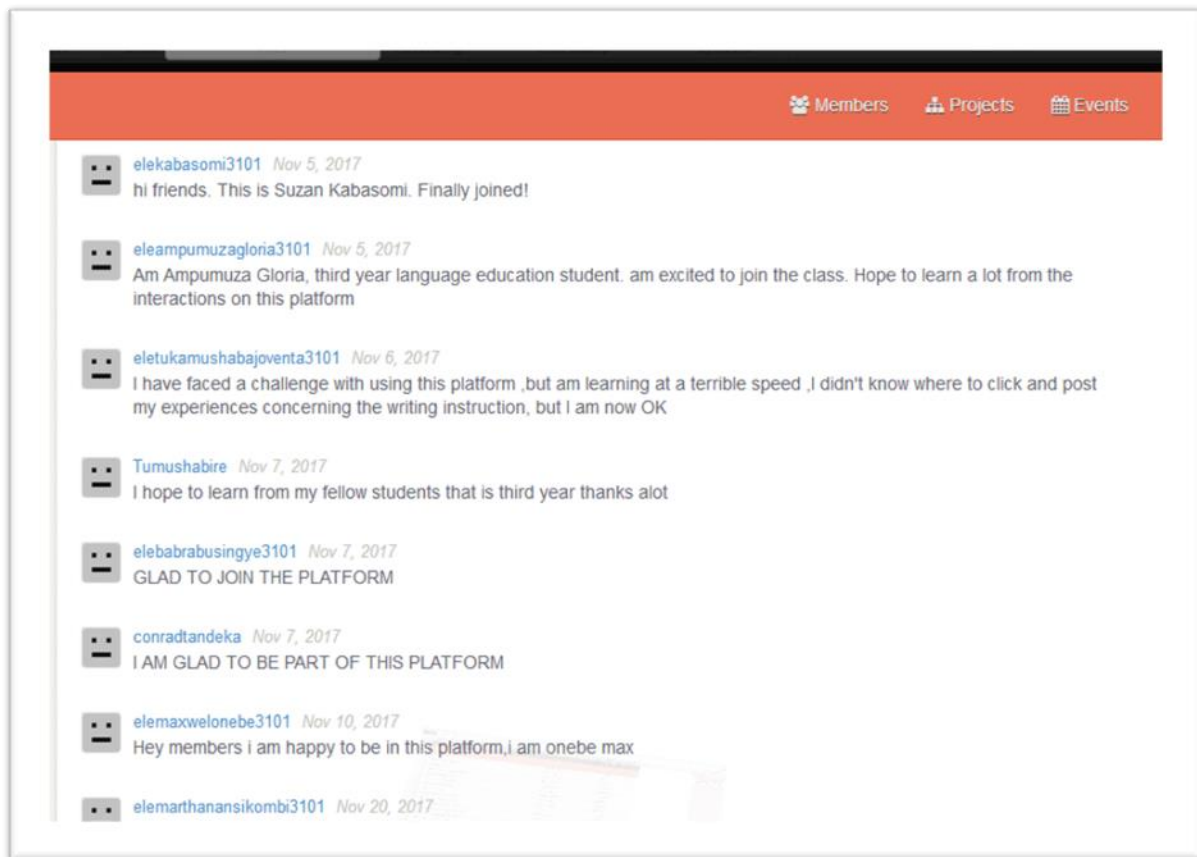


Figure 6.5: Students' online introductions on the Wikispaces platform (names used are pseudonyms)

Observational findings at Step two- to promote online socialization

Observations at stage two indicate that while participants responded to the task and introduced themselves on the Wikispaces platform, many declined to disclose their identities online, while others made very brief introductions about themselves (see excerpts in Figure 6.5). Twelve out of the 48 participants did not disclose their identities at all at this stage, while eight participants waited for about a week after the task had been given to post their introductions. Twenty-eight participants introduced themselves on the Wikispaces platform by stating their names, year of study and their expectations of the course. Among these nine participants posted very brief introductions. In a closer interview with the students, some participants revealed that they had not

gathered enough confidence to share their ‘true self’ with others online, while others said they were waiting for their peers to respond first. Similar findings were reflected in Mokoena’s (2013) study; students did not post any introductory remarks in the discussion forum when they were asked to, and others who participated gave shallow and short responses about themselves. The students’ response to this task suggests low motivation levels, presumably because participation in these online engagements was voluntary and did not involve any formal assessments that attract marks.

Mokoena (2013:98) notes that online learning activities that do not attract marks or grades rarely motivate students to actively engage in the online discussions. In addition some students may not join at all, while others students may participate but contribute very shallow responses. Another factor contributing to the lack of participation might have been that the students’ sense of belonging to this online community had not matured enough to permit socialization. Tintos (2016:3) argues that for students to be willing to engage more readily engage in a task (either online or in a college course), and expend more effort on it or persist longer to its completion, they should have developed a sense of belonging. This is where students regard themselves as members of the community or social circle who value their membership. Thus, the subsequent step involved supporting participants gain confidence in learning with others by getting them to physically meet and bond with their peers/group mates for purposes of creating “mutual friendships which are important for online engagements” (Mokoena 2013:98). The students were requested to engage in discussions on the topics they would like to write about as one of their tasks on the Wiki platform.

Given that the focus of the study was on the descriptive genre of writing, findings showed that students selected topics related to real life experiences and made justifications for their choice. Students in groups 2, 3, and 6 chose topics related to death and horrifying experiences, such as ‘Murder in the city’, ‘Road carnage in Uganda’, ‘Riots on Kampala streets’, ‘The unsafe roads in Uganda’ ‘The scourge of kidnaps in Uganda’, among others. The students who selected these topics argued that these issues were of urgent concern as they threaten national security. Meanwhile, members of groups 1, 4, and 5 suggested topics related to the teaching profession, such as ‘Experiences of a novice teacher’ and some lighthearted events, such as ‘The most memorable day of my life’. These students argued that writing about memorable events is a common topic in the secondary school English language writing curriculum. On the other hand, ‘Experiences of a novice teacher’ relates directly to them as English language teachers who are about to graduate and join the teaching profession. Given the fact that they had recently been in schools for their school practice examination, it would give them an opportunity to share the real

life school experiences. Consequently, after a series of negotiations, the groups unanimously agreed to write about ‘School practice experiences of novice teachers’, citing its relevance to them as teachers who are about to graduate. This aligns with Thompson’s (2012:85) sociocultural views about classroom writing, in his statement; “classroom writing is primarily a social and cultural practice whereby development through interaction and dialogue precedes individual development”. That said, the participants activities at step two –to promote online socialization are summarized in Table 6.2 below.

Table 6.2: Participants’ activities at stage two- online socialization

Facilitator’s tasks/activities	Participants’ activities
Requested participants to reveal their identities online by stating their names, year of study and their course expectations.	Thirty six participants introduced themselves on the Wiki platform at different intervals of the implementation, while 12 participants did not introduce themselves at all on the platform.
Guided participants on how to access the group pages that contained the pre-engagement task which was about identifying a topic for their online engagement.	Followed the steps given and accessed the group pages that contained the pre-engagement task.
Asked them in their respective groups to identify topics they would like to engage with and justify their choice.	Groups 2, 3, and 6 identified topics related to ‘horrific’ experiences while groups 1, 4, and 5 identified more ‘relaxed’ topics.
Asked them if they thought those would be the best topics to engage with on the Wiki platform.	Expressed their thinking behind the topics selected.
Asked the groups to discuss and agree on one topic that they will engage with.	Unanimously agreed to engage with the topic ‘ <i>School practice experiences of a novice teacher</i> ’

The participants’ activities (in Table 6.2) regarding step two aimed at promoting online socialization indicate that to a larger extent, this step was accomplished. This is because 36 out of 48 participants revealed their identities on the Wiki by stating their names, year of study and expectations from the project (see Figure 6.5). According to Salmon *et al.* (2010:170) getting students to introduce themselves online is an important step towards building solid friendships and networks that would later support collaborative learning. In addition, the sociocultural perspective of dialogical engagement among participants was evident at this stage as students engaged in discussions and negotiations regarding the topics to focus on for their Wiki pre-engagement activity. It can, therefore, be concluded that to a larger extent, the objective of step two was successfully achieved. However, the smaller extent should not be disregarded. For instance, eight

participants did not at all reveal their identities on the Wikispaces platform even when there was evidence that they had accessed the platform on several occasions. While four participants made very brief introductions about themselves online. Since this engagement did not attract any grades or any other incentive, students may have lacked the motivation for engagement or they may not have built enough trust to reveal their identities online. This served as base to guide the improvement of online socialization in the second implementation. Moreover, the DBR framework guiding this study stipulates that researchers must always reflect on what was successfully achieved and what was not in order to guide the next cycle of iterations (Reeves 2006:59; Amiel and Reeves 2008:35). The next sub-section describes step three-to support information exchange.

6.2.3: Step three- to support information exchange

Having unanimously agreed to engage with the topic '*School practice experiences of a novice teacher*' in step two, participants were asked to upload and share pictures, images, audios or videos of those experiences in their group pages. In addition, they were also requested to post comments, sharing their views or opinions about what was happening in those videos or images. This step was considered relevant in encouraging students to interact and share more personal details regarding their school practice experiences. In addition, sharing personal images and videos about their families or cultures is one way to understand how participants' social and historical background can be integrated in the study Fleming *et al.* (in Sebbowa 2017:80). Participants were also encouraged to ask questions or share views on each other's posts or shared images. Asking questions or sharing views aimed at promoting the sociocultural notion of dialogue between learners and peers or learners and their facilitator. Pictures and videos were also considered useful resource in supporting learners to interpret and construct various understandings in preparation for the next step, which was the actual writing phase about the topic. Such engagements would facilitate collaborative interpretation of meanings hosted on the Wikispaces platform. In order to obtain first-hand information on how participants engage in activities related to exchange of information on the topic '*School practice experiences of a novice teacher*', online observations were considered an appropriate strategy.

Subsequently, data obtained through online observations indicated that a number of participants contributed to exchanging information regarding the topic by sharing their pictures and videos of their school practice experiences on the group pages of Wikispaces platform. Altogether, there were 22 uploads made by the participants, among which were 10 videos, 8 pictures, and 4 audio files. Among the videos uploaded was one by a student in group 1 whose video showed students in

her class turning rowdy and fighting over the biscuits and cookies she had distributed as materials to teach noun classes (noun classes is one of topics in the secondary school English language curriculum). Another student in group 5 shared a photo of his students, in groups of threes, sharing and reading from the same text-book during reading lesson. In group 2, a student posted a video of students throwing pieces of paper and chalk at her, in protest of her taking over lessons from their favourite teacher. Related to this task, participants were requested to post comments on Wikispaces platform and share their views and opinions of the experiences in the uploaded artifacts. The video that attracted the highest number of comments, (32 comments in seven days), was the one shared by a student in group 2 of learners turning rowdy in protest of her taking over lessons of their favourite teacher. The comments had varying messages ranging from expression of sympathy and anger towards the rowdy learners to deeper reflections on how prepared they were for such occurrences.

Examples of such transcripts include:

I hate to sound like an errant brute, but I think these kids need some serious spanking to teach them a lesson on how to respect people. Imagine the long hours of lesson preparation we put in before we go to class, only to be welcomed by junk flying over your head. This is unacceptable! (Participant 1).

Acceptable or unacceptable! I beg to defer with you Josh (pseudonym) and the rest of the members who believe in the use of an 'iron fist'. Much as I do not condone the children's hooliganism, it is preposterous to use violence in a situation that is as emotionally charged as this one. There is got to be another way around this problem (Participant 4).

Thank you Malik (pseudonym)! Indeed there should be another way round this problem. Administering a cane, can't be a solution in this day and age. We could try counselling these kids! However, this situation got me thinking, as a teacher about to join the teaching force, just how much are we prepared to counter situations like these? Surely, a course unit in management of issues like these should be included in our language education curriculum (Participant 18).

The excerpts above are an indication of the sociocultural notion of dialogue that is achieved through an intense debate students engaged in after watching one of the videos shared on the

Wikispaces platform. For example, one strongly opinionated participant expressed a strong desire to use corporal punishment to discourage hooliganism in schools. This response triggered off an instantaneous string of emotional responses from other students, expressing different viewpoints on the issue. This engagement generated an intense discussion on how acts of hooliganism in schools should be handled. In their explicit attempt to address this social injustice, students based on their past experiences and personal opinions to question the issue at hand and seek new understandings. For example, Participant 4 used reflexivity based on the notions of care and compassion to question the use of violence to handle disruptive behavior among school going teenagers. Participant 18 further questions the adequacy of their university teaching curriculum to prepare them to respond to such occurrences. The informal dialogue which resulted into students' exchange of various viewpoints created what sociocultural theorists Bakhtin (1981:354) refers to as "multivoicedness". This happens when people interact and engage in a conversation/dialogue about an issue, leading to generating multiple perspectives which later yields into deeper analysis of the issue, and also creates new ground for understanding.

Although participants were able to exchange information through sharing videos, photos and posting comments on the Wiki platform, there were some challenges experienced. For example, one participant noted in his reflective journal, there was limited time allocated to the task. Similarly, another participant explained that the time given to them was not enough to explore the Wikispaces platform and learn how to upload the various materials. Examples of such excerpts include;

At some point, I felt left out. There was a lot going on the platform, one upload after another. Personally, I had not figured out how to upload images yet, the next thing, I know the assignment had closed (Participant B reflection).

Sometimes, it took me long to complete the Wiki assignments as opposed to the limited time we were given to complete the tasks, but it was an always an amazing feeling when I finally got the uploads right (Participant D reflection).

Similarly, the online observations indicated that some students were struggling to upload the different materials. Some participants were uploading pictures, videos, and photographs in the wrong Wikispaces pages, while others were deleting the already uploaded materials. This was an indicator that more technical support was needed for the students to master uploading of the

materials. (Johnson 2017:11) emphasizes the “ironing out technical issues at the initial stages of online learning as well as throughout the duration of the course”. Besides, more time was needed to enable participants explore the functionalities of the Wiki platform and become acclimatized with making uploads. However, it can be concluded that step three-to promote information exchange was successfully accomplished.

Table 6.3 shows pedagogical activities that the facilitator/researcher and participants engaged in at step three-to support information exchange.

Table 6.3: Participants’ activities at Step three- to support information exchange

Facilitator/researcher’s activities	Participants’ activities
Asked participants to upload pictures and videos on their specific group pages illustrating their school practice experiences.	Posted pictures and videos on their group pages illustrating their experiences during school practice.
Initiated dialogue among participants by asking them to post comments on what the experiences meant to them.	Responded by posting comments aimed at exchanging ideas and attaching meaning to uploaded artifacts.
Tasked participants to ask questions and provide answers on the artifacts.	Posed questions to one another and provided answers, thus exhibiting learner-centred design principle (highlighted in Table 5.1).

Following the different activities between the facilitator and the participants in Table 6.3, as well as the conversations between student to student regarding their school practice experiences (see students’ excerpts provided), it can be concluded that the sociocultural constructs of interaction, dialogue, multiple voices (openness to other people’s views and perspectives obtained through questions and answers, negotiations or discussions) were reflected in this stage. Given the interactions participants had with each other and the exchange of ideas they had regarding school practice experiences, the formulated design principle- to support information exchange was to a large extent successfully achieved. According to Salmon (2002:26), Step three-information exchange is considered successful if participants are able to search and exchange information meaningfully. However, there were cases in which this step was not as successful. For example, there were limited uploads of videos, audios, and images on students’ school practice experiences, while in other cases students uploaded materials in the wrong Wikispaces pages. This made it hard for peers to exchange comments about them. Hence, some lessons were documented and recommendations were made for further improvement at the next implementation (see Section 6.4).

The next section presents step four- to promote knowledge construction.

6.2.4: Step four- to promote knowledge construction

Step four was the actual writing phase and it involved substantive characteristics aimed to promote knowledge construction, including providing online support for collaboration, peer scaffolding, and writing tasks where participants engaged in adding content, editing it, and contributing to one another's work (Salmon 2002:28). In order to build online confidence and ease of interaction, participants were divided into six groups of eight members, and each group was assigned a group page (see Figure 6.3). As mentioned earlier, these groups were selected by the facilitator basing on the different competence levels of the students in English language as well as their commitment to this project. To facilitate peer scaffolding, each group had a mixture of students' abilities. That is, each group had students who were linguistically competent and those that were not so competent so that these would complement and support one another during the process of creating and making meanings of the texts. The argument in this study was that feedback regarding student's written texts, would not only have to be provided by the facilitator, but also would come from the students. As the facilitator, I kept my feedback minimal so as to encourage peer-to-peer scaffolding.

In the first task, students were asked in their respective groups to share ideas on their story lines, and also decide which school practice experiences they wished to include in their stories. The topic to engage with was still the same- *'school practice experiences of a novice teacher'*. Similarly, the idea of engaging students in collaborative work was targeted in this first task, whereby each group member was encouraged to contribute towards creating of the story. The second activity which was regarded as 'add content' activity involved students logging in to their individual group pages and typing the texts in those pages. Here, students were requested to click on the page link of the group they belonged to through the 'member' icon available on the Wikispaces home page (see Figure 6.1). This would then open specific group pages with composing tools that would allow students to type in the content, insert images, or links and edit it as they would consider appropriate. The 'add content' activity required students to focus on typing the content and the overall structure of the texts before making any revisions. To ensure that students completed this activity on time, a specific date was set within which all groups had to post their drafts. To guide students through this process, I often posted short guidelines, reminders, questions to ponder about or complements on the students' contributions. However, the complements were brief such as 'Good job' 'Well done'

‘Keep it up’ and within minimum limits to avoid ‘interfering’ or disrupting the flow of feedback from peers.

The final task was the ‘read and revise’ activity. At this point, the group members were required to read, and review their texts, delete or retype them until they were satisfied that the final draft communicated their desired meanings. At the same time, students were asked to use the ‘comment function’ and exchange views regarding making their texts better. The students were given four weeks to complete this collaborative writing task and publish their final text in Wikispaces site for archiving. Therefore, the step-by-step guidelines offered to students at this stage were intended to promote knowledge construction by minimizing frustration that arises from lack of guidance on how multiple groups of learners can contribute to the Wiki tasks. Lee (2010:163) confirms that in any online learning engagements, individual contributions and collaborative efforts are less likely to occur without proper guidance. Correspondingly, Mokoena (2013:98) posits that the facilitator must provide simple and clear directions for online discussions and that participants must be guided on what online activity follows the other.

Thus, the step-by-step online activities by the participants and the facilitator at stage four-knowledge construction are summarized in table below.

Table 6.4: Participants’ activities at step four- to promote knowledge construction

Facilitator’s tasks/activities	Participants’ activities
Arranged for face-to-face meeting in which the six groups met and interacted with their group members as well as members of other groups.	Interacted with members of the different groups in the face-to-face meeting.
Asked members in the different groups to brainstorm and share ideas on the experiences they would like to focus on in their stories, the story lines, and the style they would like to use.	Participants brainstormed and shared ideas on the stories they wished to write about, their story lines, and style to use.
Requested each member of the group to click on the page link in order to access their group pages that would allow them to type in their texts.	Clicked on the page link to access group pages.
Asked participants to type texts in their group pages, comment and exchange views on how to make their texts more meaningful.	Typed texts in their group pages and exchanged views on how to communicate meaning in their texts.
Posted comments, reminders and questions to ponder about encouraging participants to complete the tasks.	Participants read comments and responded accordingly.

6.3 Observational findings at step four-to promote knowledge construction

Although this implementation lasted for about eight weeks from 24th October to 17th December, 2017, step four -knowledge construction which involved the actual writing phase took about four weeks to complete. Online observation was the main technique for data collection at this stage. It should be indicated that a good number of students in groups 1, 3, and 5 responded to the group writing tasks almost immediately and were the most actively involved groups. Groups 2, 4, and 6 had the biggest number of students who responded late to the tasks and were the least actively involved. In addition, there was evidence to indicate that nearly all the participants in the project had logged on to the Wikispaces platform at least once, although some of the students did not make any contributions at all. Altogether there were 68 entries at stage four made by 12 out of the 48 participants in the study. It was clear that these 12 students made the biggest contributions to their group pages with regard to adding and modifying their texts.

With regard to the ‘read and revise’ activity where students were required to carry out actual editing of the texts, online observations indicated that 32 out of 48 students simply viewed what their peers had contributed, but did not take part in the actual editing process. The ‘track history’ function provided by the Wikispaces platform, which gives a report on the number of times a page has been visited, viewed or edited, showed that several group pages had been viewed from 28th November to 4th December 2017. However, many students not did not engage in the editing of the texts, they simply viewed. When interviewed, students highlighted the busy schedule due to the end of semester examinations as one major hindrance to the full participation in the editing process. This was noted as a lesson learnt that was to be revised in the next iteration. However, Coniam and Lee (2008:56) explain that while students who simply observe their peers’ online contributions may not be active in terms making direct contributions, such as edits, they still learn by reading each other’s work.

Another observation indicated that a good number of the students worked on their Wiki activities in the late hours of the night. One student wrote in her reflective journal:

It was always comforting to find someone logged on to Wikispaces platform in wee hours of the night. That way, I would never have to feel like I was sneaking around to complete my Wiki assignments (Participant F reflection).

Another student explained:

The Wiki was always a busy space during day-time. Therefore, doing my online tasks in the late hours of the night gave me the peace and quiet I needed to think through what I was going to write (Participant J, reflection).

Following the participants' reflections above, study habits illustrated that the online spaces such as the Wiki gave students an opportunity to pursue their own learning at their convenience as opposed to when they are learning within the physical classroom at the teacher's convenience.

Similarly, observation of the students' editing patterns indicated that there were specific students within each group that took up the leading role to ensure texts are created, edited, and published to the satisfaction of the group members. They would constantly post comments regarding the edits they were making or they would send reminders to their group members encouraging them to contribute to group texts. They also made more editing contributions than any other member of the group. Group 1 was a good example to illustrate this observation. By tracking changes in this group's Wiki page, it was observed that one student, Mujuni (pseudonym) constantly contributed to his group's Wiki page in editing as well as posting comments regarding the progress of their work. Mujuni was one of the linguistically competent students among his group members. Seen from the number of editing contributions he made, he played a leading role in revising a number of entries made by his group.

Figures 6.6 and 6.7 provide examples of students' edits and comments respectively obtained from Wikispaces history tracking

Forget about the saying that at University an individual knows it all and in most cases if he is a teacher, He is a god and an epitome of knowledge. Every human being is inclined to a point in life where he is supposed to prove his self worth and for a teacher, this is more than a mere phenomenal phenomenon because he has his brain to be proved to a thousand of eyes instantly in front of him. Trust me when that point in life is present, day comes, then reality is present. strikes! For any university student, the School Practise period Practice exercise is one that sparks simultaneous feelings prior the real day one sets off mixed feelings. Feelings of excitement and a strange anxiety at the same time. The first of July, 2017 was the moment that we had all along waited for. It was a moment for School Practise. We are no of exception because the moment we had waited for was finally at hand and trust me if I tell you that us to practice what had seemingly been an exquisite delight sensensational feeling, eventually turned out into a reign of terror. At the school I was attached to preached to us in the School Practise period, being lecture rooms, teaching!!!

Coming from Makerere University was like as if an individual knew it all since we arrived late -a month past after other Universities had almost closed off their internship. coming from a tower of knowledge where every body expects you to know everything at your finger tips Exhibiting lack of knowledge or happen to error would earn one a crucifixion. The reception we received at the school made other people feel grounded since students always stormed the staff room to see the Makerere teachers. envious. The atmosphere was simply amazing and truth be told we surely rocked to the extent that the way we walked was as if we were stepping on soggy ground. But was it It was not our fault that we had come from the Best University or that we had our content!! We happened to belong to one of the best universities on the continent. In fact we cared less. less! Little did we know that peoples peoples' hearts had turned into molten rocks of refute!! Till one fateful day, our supervisor who was happy with our first supervision, was given a decayed report about us! I call it decayed simply because this school bursar with his sarcastic sarcastic smile he presented it to us that fateful morning. He told the supervisor how Kyambogo students were better than Makerere since we, as he says, used to come late, dress indecently and refuted all sorts of words to the supervisor. Possibly you know what this means for the students being supervised. To add salt into the wound, we arrived Five minutes late for classes that day fo supervision there on deviating from the program we had drafted with him a day prior the day before the supervision! Nonetheless, the conferencing went on as it should be by rules and it was here we had of the complaints and indeed we were astounded to the extent that we failed to say anything during the session!.The look on our eyes was like that a child wears in his

Figure 6.6: Edits made by students of group 1 from Wikispaces tracking system

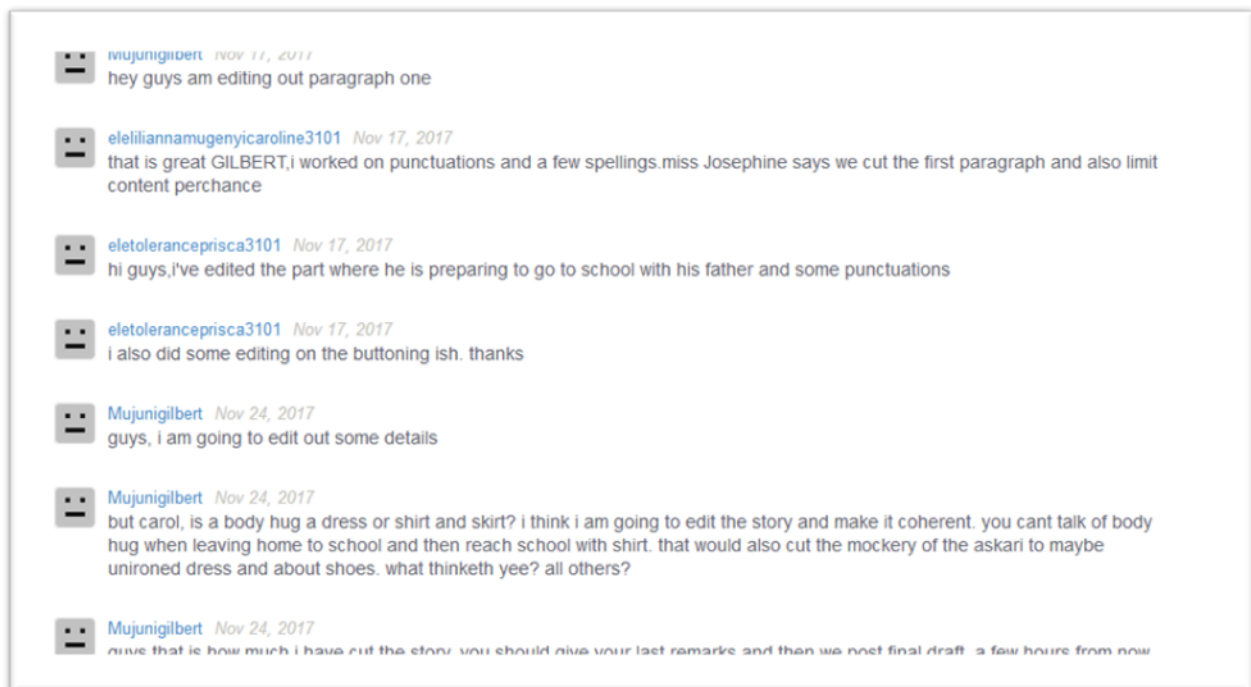


Figure 6.7: Comments posted by group 1 members on their group page during the editing phase

Following Figure 6.6, the different colours reflected on the Wikispaces tracking page indicate the composing types that have taken place. For example, the text that was initially written appears in the grey colour. While the text that appears in red colour indicates that the text was deleted. The green colour represents a new text that has been added. The colour-coding method allows to easily track and monitor the different types of content created or edited by specific students in each group. Figure 6.6, gives an example of what student –Mujuni-, an active contributor of group 1 was doing to improve the quality of meaning of what his peers had written. The changes this student made involved using carefully selected words or phrases to replace the redundant sentences written by his peers. He also worked on eliminating the repeated words in sentences. For example, the third line from the top of screen shot (see Figure 6.6) had the word ‘present’ repeated twice. The sentence read as:

‘Trust me when that point in life is present, then reality is present’ (line 3).

The student corrected the repetition made in this sentence by replacing the phrase ‘point in life is present’ with a more precise words ‘day comes’ and then used one word ‘strikes’ to replace the repeated word ‘present’ at the end of the sentence. After the edits, the final sentence in the Wiki reads much better:

‘Trust me when that day comes, then reality strikes.’ (line 3, from the top of Figure 6.6).

The same student also identified that paragraph one contained so many redundant sentences which did not communicate much sense (see sentences underlined in the excerpt below). He decided to rewrite the paragraph in a more precise way. The unedited paragraph reads as follows:

‘For any university student, the school practice period, is one that sparks simultaneous feelings prior to the real day one sets off school practice. We are of no of exception because the moment we had waited for was finally at hand and trust me if I tell you that seemingly an exquisite delight sensational feeling, eventually turned out into a reign of terror. At school, I was attached to school practice period, being teaching.’

(Note: the underlined sentences appear in red, in the screen-shot indicating that they were deleted during the revision process).

When the student edited the paragraph above, it was easier to read and its meaning was clearer. The new paragraph reads as below.

(Note: the student's inserted sentences appear in green on the Wikispaces tracking system (see Figure 6.6).

'For any university student, school practice exercise is one that sparks mixed feelings; feelings of excitement and anxiety at the same time. The first of July, 2017 was the moment we had all along waited for. It was a moment for us to practice what had been preached to us in the lecture rooms.'

In this edit, the student replaced the phrase '...simultaneous feelings prior to the real day one sets off school practice' with a more precise phrase 'mixed feelings' and went ahead to describe nature of the feelings to the reader. He then re-writes the rest of the sentences in a summarized manner, making them more analytical and conclusive. Lastly, as he was editing the text, the student consistently posted comments to update the members of his group on changes he had made and also to seek their approval (see Figure 6.7).

Although some students made significant editing contributions to their group's work, this did not apply to many of the participants at this stage. As observed from the groups' history pages, most entries indicate one or two of the members' names appearing predominantly for each group. Most groups seemed to have left the responsibility of editing the work to a few individual members. One possible reason could have been that traditionally, students have been used to their educators or teachers correcting and marking their essays, they could have felt that it was not their duty to do so. In addition, some students did not have the confidence in their own linguistic abilities to change and modify one another's work. As seen from group 1 above, most of the edits were done by one student. Since he was one of the most linguistically capable students in his group, this could be one of the reasons for his confidence in editing his group's work. For many of the students, editing and correcting the others' texts is a new approach to what they consider as learning. It also presumably requires a longer time than was provided for in the current project to understand what is involved in this novel approach.

Given the limited engagement and collaboration among participants observed from a few students doing all the work on behalf of the group members, it can be concluded that stage four-to promote

knowledge construction was to a large extent not successfully achieved. As Salmon (2002:28) posits that stage four, knowledge construction is said to be achieved when all participants engage in active, joint knowledge construction as a team through interpretations of meanings of texts reflected in creating, adding, editing and contributing to one another's work. Since step five- fostering development- relies heavily on the success of step four- knowledge construction, the researcher could not proceed to step five, given the challenge at hand. As earlier explained, knowledge construction requires longer periods of time for participants to learn to trust one another well enough share ideas within their groups. The DBR methodology used in this study encourages cycles of testing, and refining of the design principles (Herrington, Herrington and Mantei 2009:138). Therefore, the formulated design principles 'to promote knowledge construction' and 'to foster development' were to be tested again and refined at the next cycle of implementation.

Following an evaluation of the first implementation, which involved operationalizing activities of Salmon's five-stage model on a Wikispaces online platform, it can be concluded that there was evidence of increasing dialogical conversations and peer scaffolding between student to student and student to facilitator, especially steps 1-3. Subsequently, the sociocultural theoretical constructs: social interaction, peer scaffolding, dialogue, and collaborative interpretation of meanings emerged in the four steps. The argument advanced is that the theoretical underpinnings were very useful in informing the first implementation of the design solution. In addition, the findings from this implementation guided the readjustment and improvement of the second implementation of the design solution.

6.4 Lessons learnt from the first implementation of the design solution

Step one – to enable access and motivation- was largely successful. Although to some extent, issues of limited technical support and time constraints were raised as major challenges. Participants suggested that more time should be given to them to get used to the platform and to complete the tasks. In addition, technical support in form of user guides, videos, and consultation hours should be made available to them for proper orientation to the Wiki learning environment. This would encourage learners to engage more with the activities on the platform.

Step two- to promote online socialization- was largely successful, as seen from the 40 out of the 48 participants who were able to introduce themselves online. However, these introductions revealed some discrepancies that needed to be addressed. For example, while 31 participants revealed their

online identities by stating their names, year of study and their expectations of the course, nine participants made brief introductions, omitting the key socialization information, such as their names and study expectations. Meanwhile eight participants did not disclose their online identities, even though the history tracking feature showed that such participants had accessed the platform several times. Such a response was attributed to the low motivation presumably caused by participation in the project being voluntary or because they had not gained enough trust in the new learning environment to start sharing their personal details.

Step three- to support information exchange- was partly a success since a number of participants engaged with sharing ideas and opinions on the uploaded videos regarding school practice experiences. For example, a video shared by a student in group 2 showing learners protesting her taking over lessons from their 'favourite' teacher attracted 32 comments in seven days. Here, students engaged in a heated debate on how to handle hooliganism in schools, while others expressed various emotions on the unfortunate event. However, given the 16 uploads (seven videos, six photos and three audios) posted on the Wikispaces site, these were too few compared to the 48 participants who participated in the study. This was attributed to participants' limited skills and practice in uploading materials as well as posting comments on the Wiki platform.

Step four and five-to promote knowledge construction and fostering development were not achieved, given the limited engagement and collaboration among group members in generating texts on the Wikispaces site. This was reflected in one or two students creating or editing the texts on behalf of the group members. For example, group one had one student editing the group's work, while the rest of the seven members were passive. This was attributed to the too many members each group (eight members per group), and perhaps because, they considered it as the duty of the educator to correct and give feedback on their essays. It could also have been that students did not feel confident in their linguistic abilities to edit each other's texts.

6.5 Recommendations from the first implementation

Several recommendations were made basing on the key findings from the first implementation as well as the existing literature regarding students' engagement in online learning courses (see Table 8.2). These are as follows:

The fact that Salmon's model (guiding this study) has been criticized for lack of face-to-face component (Moule 2007:39 Wright 2015:22), it is recommended that the face-to-face training workshops be intensified at the second iteration. Chen *et al.* (2010:1223) observes "no communication technology can replace the physical presence and the serendipitous moments of learning, such as the spontaneous discussion or the overhead remarks during class break that so often occur in a face-to-face environment." Thus, the face-to-face sessions are expected to enhance social interactions and collaborative behavior among participants before they can proceed with their online activities on the Wiki.

Another challenge pointed out in the first implementation was the limited time given to the participants to get familiar with the Wikispaces tool and to complete learning tasks. Thus, it is recommended that in the second implementation, participants are given ample time to master how the tool works, learn how to use it to generate texts, upload materials, such as videos, audios, images and web links, and also develop confidence in using the tool to engage in collaborative dialogues aimed at creating meanings in writing texts.

The findings from this implementation also indicated technical challenges in the use of the Wikispaces platform, especially in uploading texts, videos, audios and other materials. These had a negative impact on how students engage with the learning on the Wiki platform (see Section 6.2.3). Research recommends addressing the technical issues at the initial stages and throughout the course of online learning is important. (Chen *et al.* 2010:1229; Salmon 2011:53; Johnson 2017:11). Similarly, Boling Hough, Krinsky, Saleem and Stevens (2012:118), recommend providing personalized technical support to the students who are experiencing technical challenges.

Participants also reported a lack of connection with their peers and the facilitator as well as a delay to receive feedback compared to the face-to-face meetings where their questions or issues are responded to immediately. Mokoena (2013:98) recommends supporting participants gain confidence in learning with others by getting them to physically meet their peers/group mates face-to-face to create "mutual friendships which are important for online engagements". In addition, Nagel and Kotze (2010:45) propose that in any online learning engagements, students should be given positive feedback, encouragement and recognition for their work, because timely and constructive feedback can create extrinsic motivation among online learners.

The last challenge experienced at the end of the first implementation was the closure of the Wikispaces services and online classrooms which came into force on the 31st July 2018. All Wiki users were required to depart from its services and find alternative online classroom workspaces (see Figure 6.8). To avoid losing the data that had been generated, analysis of data from the pilot study (the first implementation), had to be completed and an alternative online classroom had to be found. Bower's (2008) affordance analysis model was utilized to guide the selection of a new online writing classroom. The PBWiki (which was a newer version compared to the Wikispaces tool), proved to be a better replacement for the Wikispaces online classroom (details are provided in Section 7.2.1).



Figure 6.8: Notification for the closure of Wikispaces online classrooms and workspaces

6.6 Chapter summary

In this chapter, Salmon's model for online learning guided the implementation of the activities of the Wikispaces online learning platform. The Wiki intervention was conducted to test the generated design principles in an authentic context. Basing on data from online observations, students' reflections and Wiki-generated artifacts and interviews, results from each of the crafted design principles were scrutinized according to what worked well and what did not work. The

findings obtained at each stage formed a basis for re-testing and refining the second implementation. To conclude the chapter is a list of the observations made and suggestions for improvement to inform the next implementation of the design solution.

CHAPTER SEVEN

SECOND IMPLEMENTATION OF THE DESIGN SOLUTION

7.0 Chapter overview

Chapter Seven is an extension of the third phase of DBR, that is, “iterative cycles of testing and refinement of the design solutions in practice” (Reeves 2006:59). This chapter provides a description of the second implementation of the design solution arising out of the developments of the first implementation captured in Chapter Six. In addition, this chapter reports on the change in the naming of the of the formulated design principles leading to a new set of revised design principles. This is accompanied by a detailed description of the revised design principles which were modified to suit the ESL writing context and to accommodate the sociocultural philosophy guiding this study. Correspondingly, collection and analysis of data was largely guided by the sociocultural cycle-driven framework. Thus, the findings aligned to the revised design principles illuminated the pedagogical implications to guide the development of the pedagogical framework for enhancing literacy skills of ESL students.

7.1 The second iteration

The second iteration was spread out for a period of one year. It involved 20 third year pre-service students offering Methods of Teaching English as a Second Language course who had participated in the first implementation. One of the reasons for selecting the same cohort of students was that since these students had already participated in the first iteration, they had become familiar with the requirements of the study as well as the Wiki online learning environment. Therefore, they would require minimal technical support to complete the Wiki writing activities in the second implementation. Second, the students expressed interest to continue with the Wiki activities after their final examinations, since they would have a lot free time thereafter.

Following lessons learnt in the first iteration (see Chapter 6, Section 6.4), large number of participants, (a total of 48 students), in the first iteration may have hindered some of the students from actively engaging in collaborative construction of meanings in texts. Lee (2010:260) posits that group collaboration in any online engagements is less likely to be effective if the team members are many. Some members may not have the confidence to modify each other’s texts, because they consider this as the educator’s duty. While others will simply lurk on the platform

waiting for their peers to complete the tasks on their behalf. Subsequently, the 20 participants who voluntarily participated in this iteration were considered a relatively smaller number, as compared to the 48 participants in the first implementation. Most notably, this group of students had exhibited a deeper interest in the Wiki online learning activities, as seen from their active participation in the first implementation. Since this iteration was focused on enhancing students' literacy skills through digitally-mediated learning environments, it was necessary for participants to have the interest, and some knowledge and skills on how to use of digital platforms for social or academic purposes. To this end, the majority of the participants in this iteration were active social media users, which was believed to increase their likelihood to use the Wiki platform for collaborative writing activities (Najjemba *et al.* 2018:515). The fact that the participants had been provided with a set of research documents describing the nature and purpose of the study in the first implementation, they were not given any in this iteration. The facilitator guided all the study activities and ensured that students are provided with the necessary assistance over the course of the study. As was the case with first implementation, I assumed the dual role of the researcher (participant observer) and the facilitator.

7.2 Procedure for the second implementation

The procedure for the second implementation involved phases such as; analyzing the affordances of the Wiki tools, setting up the Wiki online platform and re-designing the Wiki platform. Sections 7.2.1 to 7.2.3 provide detailed descriptions of the mentioned phases.

7.2.1: Analyzing the affordances of Wikispaces and PBWiki tools

Following the closure of Wikispaces, the tool that was used in the first implementation (see Chapter 6, Figure 6.8), it was necessary to find a suitable replacement for the second implementation. Thus, conducting an affordance analysis (Bower 2008:7) on other Wiki types such as Media Wiki and PBWiki (also referred to as PBWorks) that share similar affordances with Wikispaces was important. Martin and Kirthi (2010:76) posit that both Wiki types can foster online collaborative behaviour, encourage peer feedback, and have a history tracking feature to trace the changes made. However, the Media Wiki, though web-based with page-editing tools, is not user-friendly and requires payment for one to use it (Jakes 2006:2 of 3). On the other hand, the PBWiki is a free web-based page-editing tools that requires no subscription and is very user-friendly (Jakes 2006: 2 of 3). It was therefore necessary to conduct an affordance analysis between the Wikispaces (the previously used tool) and the PBWiki (the new tool) to ensure it is a better replacement in terms of serving educational purposes for the current study. Subsequently, Bower's

(2008:7) analysis indicated that PBWiki, (which is a newer version of Wikis compared to Wikispaces), has multiple affordances to foster collaborative writing, editing of content and uploading of images and videos. This is crucial in improving the quality of literacy pedagogy at a specific education setting. Table 7.1 illustrates the affordances of both tools.

Table 7.1: Affordances of the PBWiki and Wikispaces tools (modified from Bower 2008:7)

PBWiki	Wikispaces
More opportunities for editing are readily available and collaborative adding and editing of ESL texts is possible.	Has less editing opportunities and collaborative writing and editing of texts is limited.
Enables participatory group writing of content.	Participatory group writing of content is a challenge.
The tool's navigation links are visible and has a printable version that allows users to work with content offline.	The tool's navigation links are hidden and has no printable version for users to work offline.

From Table 7.1, the PBWiki tool provided a number of affordances, such as more opportunities for editing, and participatory group writing of content that could enable participants to engage in collaborative dialogues and meaning-making processes aimed at constructing knowledge during writing of ESL texts. Thus, the PBWiki was a preferred alternative to the Wikispaces site that was used in the first iteration. The next step was to set up the PBWiki platform.

7.2.2: Setting up the PBWiki online learning platform

To set up the PBWiki platform which, at this point, was a relatively novel tool to both the researcher and the students, there was need to get acclimatized onto how the tool works through reading widely and also by viewing several PBWiki online classrooms in other contexts. This would facilitate understanding of how these Wiki classrooms perform specific pedagogical purposes. The next step was to analyze the possibilities and challenges of utilizing this particular type of Wiki for writing purposes. Having done all that, the PBWiki online classroom was set up, and modified to suit the local ESL educational context and its objectives. As such, PBWiki online learning platform had to be given a name, to reflect the study intentions as well as, the design and theoretical principles informing the study. Thus, the PBWiki online classroom was named the “Socio-wiki” to reflect the sociocultural theoretical constructs and the Wiki online learning

platform that was created. To ensure uniformity and consistency in this study, the term ‘Socio-wiki’ will be used synonymously with the Wikis or Wiki learning environment.

Having set up the Wiki learning environment, it was important that the physical outlook of the homepage appears attractive with well-written out text, animations, or pictures. Maloy, Poirier and Smith (2010:77) posit that contemporary learners are easily attracted to web pages have an appealing combinations of text and multimedia features. Thus, written text, and visually appealing colours and images were utilized for the Socio-wiki homepage to attract students’ attention, while at the same time making suggestions to the importance of collaboration and participative online learning activities (see Figure 7.1). In addition, a captivating introductory message to welcome participants on to the platform was posted. According to Salmon (2002:15) and Mokoena (2013:98) designing interesting welcome messages helps to create a positive instructor presence in an online course, it reduces students’ anxieties about the course, and can also motivate them to stay online. Having set up the Socio-wiki platform, the next step was to re-design and refine the learning environment basing on the observations and recommendations from the first implementation.



Figure 7.1: Screen shot of the Socio-wiki writing class website

7.2.3: Re-designing and refining the Socio-wiki online learning environment

The process of re-defining the Wiki learning environment was guided by DBR approach which focuses on the testing and refining of design principles to suit the local educational context and its objectives. Similarly, the revising and refining of Salmon’s (2002:11) design principles applied in the first implementation formed DBR phase three of DBR which emphasizes “iterative cycles of testing and refinement of the design solution” (Reeves 2006:59). Correspondingly, the motivation to name the newly created platform the ‘Socio-wiki’ platform was brought about by the need to highlight the role of the sociocultural philosophy in providing the theoretical constructs that guided the study. Table 7.2 reflects a shift from the original design principles (Salmon 2002), to the newly revised design principles. The revising of the design principles were tailored to suit the ESL writing context.

Table 7.2: Formulated and revised design principles (modified from Salmon 2002).

Existing formulated design principles	Newly revised design principles
To support access and motivation	Accessing the play space
To promote online socialization	Promoting online introductions
To support information exchange	Sharing experiences about ESL writing
To promote knowledge construction	Making shared interpretations of meanings in writing ESL texts
To foster development	Supporting reflections in ESL writing

According to Table 7.2, the change in names as indicated in the modified design principles resulted from the need make theory (sociocultural theory/ existing principles) align with practice (ESL writing objectives) at an authentic context. For example, step one- to support access and motivation (Salmon 2002:12) was renamed ‘accessing the play space’ to make participants feel free and comfortable to play around with the various Wiki platform features as they learn to use the site. Step two- to promote online socialization (Salmon 2002:23) was renamed ‘encouraging online introductions’ with the intention that participants would learn to trust one another well enough to share personal information. Step three- to support information exchange (Salmon 2002:26) was renamed ‘sharing experiences about ESL writing’. This was guided by the sociocultural perspective that one’s prior knowledge or experiences determines how new meanings are created. Step four- to promote knowledge construction (Salmon 2002:28) was changed to ‘making shared interpretations of meanings in written texts’ where participants engaged in an online role play and debated about a topic ‘Mobile phone policies in schools’ and backed up their arguments with authentic sources such as the images, photos, videos legal and policy documents, and internet links. They were also required to share their own judgments basing on evidence produced and come up with conclusions. The last step was to foster development (Salmon 2002:31) which was renamed ‘supporting reflections in ESL writings’. Participants were requested critically reflect on the various positions taken during the debate and come up with one concrete position aimed at addressing the status quo.

7.3: The shift from formulated to revised design principles

The shift from the formulated to the revised principles and the process of refining the design solution are provided in the next section following a step-by-step procedure.

7.3.1: Step one: Accessing the play space

The recommendations made at step one- to support access and motivation (of the first implementation) were that: it is necessary to provide adequate technical support and to create fun and excitement if students were to stay motivated to learn online. Therefore, ‘accessing the play space’ page on the Socio-wiki platform was created to offer continuous support to participants as they access the platform and also create fun in learning online (Salmon 2002:15). The ‘play space’, as the name suggests is a space for playing and trying out things on the Wiki platform without any fear of making mistakes, since there were no rules or procedures to follow. Ulibarri, Cravens, Cornelius, Royalty and Nabergoj (2014:252) emphasize the importance of creating a non-judgmental atmosphere to foster creativity in online learning. One way of creating such an environment is through ‘play’ (Gachago, Morkel, Hitge, Zyl and Ivala 2014:12 of 14). This suggests that participants would practice how to access and use the Wiki learning platform by playing around with the Socio-wiki features (that is through a trial and error method). ‘Play’ is conceptualized as a free, open game characterized with dialogue intended to create fun and excitement among participants as they practice, discover and gain confidence in using a new online tool (Fairfield 2015:542). Similarly, the sociocultural theorists consider ‘play’ as dialogical conversations among participants intended to broaden each other’s understanding (Vygotsky 1978:100; Thompson 2012:85). Therefore, revising this design principle to encompass the element of ‘play’ is an important step in addressing the study’s educational problem where pre-service students found print-based writing of ESL texts boring and disconnected to their current study needs (see Chapter 1, Section 1.2).

In addition, basing on the sociocultural conceptualizations of play, the argument advanced in this study is that the didactic, behaviourist approaches in literacy pedagogy limit students’ participation in dialogical conversations which are useful in creating new meanings. One way to tackle the current situation is to use informal means, such as play in the Socio-wiki learning environment to create the fun and excitement in learning to write texts and to construct new understandings. Subsequently, the refining of the educational challenge, suggesting solutions, and implementing methods and design principles (Reeves 2006:58) were visible in this study. Besides, the sociocultural perspective puts emphasis on being open to alternative views in any dialogical encounters if one is to broaden their understanding in ESL writing (Vygotsky 1978:90).

At Step one, participants were presented with opportunities to think about writing texts in ESL as lively meaning-making activity, rich in discussion and negotiations as opposed to the conventional

print-based writing pedagogies they had been used to. Moreover, the scaffolding role I assumed as a researcher aimed to guide participants to try new ways of self-discovery, ask questions and seek clarification, respond and help one another to negotiate new meanings being mediated by the Socio-wiki site. Correspondingly, this informal way of writing texts in ESL classrooms opened new possibilities for making learning fun and more relevant to the current generation of learners. Having provided a detailed description of step one revised principle, ‘accessing the play space’, the next step was promoting online introductions.

7.3.2: Step two: Promoting online introductions

The intention of step two- promoting online introductions was to create an online learning environment where participants are comfortable to share information about themselves without any fear of being judged. According to Salmon (2002:20), this step is crucial in supporting students to develop ownership of their learning which may not only act as a foundation for promoting meaningful exchange of information and construction of knowledge but also to support group interaction necessary for collaborative learning to take place. Correspondingly, participants were encouraged to share personal information, including: their names, year of study, and also post photos or images with stories about their own family background or cultures. Salmon (2002:23) suggests that e-moderators need to use activities that encourage exploring of cultural knowledge, in order to support creation of new knowledge patterns and also to make participants feel part of learning community.

Therefore, to enhance participants’ online introductions, an additional link was created to enable participants to share pictures of their families, cultures and traditions. This link was named ‘Sharing pictures of ‘my family, my life, my culture’ (see Figure 7.2). The idea behind sharing these visual artifacts is to enhance the practice of interpretation and meaning-making processes mediated by the Wiki tool that will be required in the later stages of this project. According to Vygotsky (2004:52) the learner must be “encouraged to write about what s/he is deeply interested in or about what s/he knows and understands well”.

The following section is a description of step three- sharing experiences of ESL writing instruction

7.3.3: Step three: Sharing experiences of ESL writing instruction

Since this study is based on the writing module whose major objective is to support students to effectively communicate in writing, participants were tasked to share their experiences or

preconceived ideas regarding the writing instruction in Uganda. This was guided by sociocultural perspective which holds that to obtain true understanding from any human dialogue, there is a need for an awareness of personal biases in making literacy interpretations. In other words, to be aware of personal biases during interpretation and attaching meanings to written artifacts could help culturally unaware students to de-center from their narrow view points and engage in more open and expansive dialogue with peers or experts (Bonk and Cunningham 2001:42). As such, learners in any collaborative engagements ought to be trained to be aware of their personal biases shaped by social contexts, cultures or generation in order to achieve true meanings. Following this background, the argument advanced in the current study is that if participants are able to share their personal experiences or preconceptions about ESL writing on the Socio-wiki site, collaborative meaning-making processes and understandings would be obtained. This was considered an important step in fostering collaborations which would help to redefine and create in-depth understanding of the contrasting views arising out of collaborative writing engagements. The next section presents details of step four.

7.3.4: Step four: Making shared interpretations of meanings in written texts

Step four which involved negotiating meanings and building consensus out of the written artifacts was intended to enable collaborative interpretation and construction of meanings out of the generated texts. Participants were encouraged to take part in an online role play and debate upon a controversial topic which had a big impact on their lives. The students unanimously agreed on the topic '*Mobile phone restrictions in schools*'. In taking roles, participants were required to adopt positions associated with the professional or institutional roles they represented, carry out extensive research and create credible arguments backed up with evidence from multiple sources. By so doing students would be in position to convince to others to adopt their view points. The next step required participants to analyze the various entries posted on the platform and then respond by posting comments in form of open questions, rebuttals, or supplements. This aim here was to enhance dialogical conversations of meanings in texts in order to reach understandings mediated by the Wiki online environment. Wertsch (1991:97) argues that new mental functions and patterns of thought involves negotiations the tentative truth among participants. Without engaging in open inquiry, participants cannot have new experiences. The implication is that constant engagement in discussions, negotiations, rebuttals, and open questions focused on validating 'the what', 'the how' and 'the why' of the claims advanced in written texts is crucial in opening new ways of understanding in ESL writing classroom. This could open doors for deeper

critical thinking in generating texts in ESL writing classrooms. The final step involved supporting students to reflect on their writing experiences.

7.3.5: Step five: Supporting reflections in ESL writing


Given the importance of collaboration and peer interaction in supporting new patterns of thoughts among learners, it was necessary to create a space where participants would critically reflect on the lessons obtained during the process of creating meanings of the generated texts (that is, online role play collaborative arguments). Salmon (2002:31) argues that for learners to arrive at higher mental functioning expected at this final stage, they ought to charge of their own learning and exercise skills, such as conceptualizing ideas and facts, sorting them, illustrating significance and making connections and interrelationships come into play. This implies that ESL writing instructors ought to continuously point out the relevance of group learning activities in supporting meaning-making and knowledge construction in the ESL writing classrooms. Correspondingly, at the end of the role play, students came out of the roles they had assumed and critically reflected on the competing perspectives during the role play and how these influenced their beliefs regarding societal issues. They finally wrote position papers aimed to make improvement in policies regarding mobile phone in schools. The screen shot below provides links to the revised design principles discussed above.

☆ **ELE 3101: Writing in ESL, Socio-wiki Class**

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last edited by [Josephinenajjemba](#) 6 minutes ago
[Page history](#)

You are most welcome to ELE 3101: Socio-Wiki Writing Class website!!!



Writing in academic spaces has potential to be transformed from an internally generated, individualistic cognitive activity to a knowledge-sharing and meaning-making practice arising out of active learner engagement in collaborative task with 'others'. This platform is intended to create excitement among participants (21st century language education students) as it enables them to actively participate in collaborative dialogues with their peers and educators in the process of writing texts.

Please click on the links below to navigate your way through the platform

- [Accessing the play space](#)
- [Encouraging online introductions](#)
- [Sharing pictures of 'my family, my life, my culture'](#)
- [Sharing experiences of writing instruction](#)
- [Promoting collective meaning-making of written texts](#)
- [Supporting reflections in ESL writing](#)
- [Classroom photos](#)


Navigator

- ★ Starred Pages and Files
- 📁 Aalo Loyce
- 📁 Abraham Muwanguzi
- 📁 Ahebwe Winnie
- 📁 Akampa Liz
- 📁 Conrad Tandeka

Pages Files options

SideBar

Sparkle High School welcomes you!!!



Characters in role play

- [Mr Amanya Wycliff](#)
- [Mrs Yogi Ayendale](#)
- [Laura Kaye](#)
- [Langa Lagu](#)
- [Reverend Jozi Mugwanya](#)
- [Anita Bakka](#)
- [Willy Gadama](#)
- [Conie Were](#)

Figure 7.2: Screenshot of links to the revised design principles

After creating and re-designing the Socio-wiki learning environment, the subsequent step was to recruit participants on to the platform.

7.4 Recruiting participants to the Socio-wiki platform

As earlier mentioned, third year pre-service students offering methods of teaching English language course were recruited for the second iteration. The major reasons selecting same cohort of students, (that is, third year pre-service students), who had participated in the previous implementation were as follows. First, majority of these students had become fluent users of Wikispaces platform, thus they were familiar with the affordances of the Wiki tool with regard to supporting writing. These students would require relatively less support to access and use the Wiki platform than when a new group of students was recruited. Second, the Wikispaces project excited many participants and they wished to continue learning through digital platforms as opposed to the

traditional print-based pedagogies they were used to. This level of interest and motivation was considered useful in sustaining students' active participation in the collaborative activities on the Socio-wiki platform. Lastly, being in their final year of study at university, these students usually take their studies seriously, so they would diligently perform the Socio-wiki tasks assigned to them.

Subsequently, through a one-on-one invitation, email addresses and phone contacts previously obtained in the Wikispaces project, third year pre-service students were invited to take part in the Socio-wiki project. It was clearly highlighted in the invitation that participation was voluntary and that students were free to join and leave the project at will, without being penalized. In addition, students were given assurance that data generated on the Wiki platform or any other information such as their names, phone contacts and email addresses would be kept confidential and used only for research purposes. Subsequently, a total of 24 third year ESL students voluntarily expressed interest to take part in the study. However, only 20 of them actually participated. Four students did not go beyond expression of interest stage due to personal reasons. Thus, the 20 students were requested to attend the orientation workshop which was scheduled to take place at one of the faculty's computer laboratories.

7.5 Face-to-face orientation workshop

The objective of this orientation workshop was to highlight the potential affordances of the Wiki tool and also to help participants to get acclimatized to the new platform, so that they are able to work with it to accomplish their collaborative writing tasks. The procedural activities of the workshop are summarized in the Table 7.3.

Table 7.3: Face-to-face workshop activities of the Socio-wiki learning platform

Duration	Session	Activities of the workshop
10.00 am- 12.00 pm	Introductory remarks from the facilitator	<p>Registration.</p> <p>Introduction of attendees.</p> <p>Objectives of the workshop.</p> <p>Setting up desktop computers and students' mobile devices to access the new platform.</p> <p>Demonstration of how to access the Socio-wiki platform.</p> <p>Attendees follow the steps demonstrated to gain access to the platform.</p> <p>Participants help each other to access Socio-wiki platform.</p> <p>Participants gain access and show online presence by posting comments on the platform's homepage.</p> <p>Participants are put into groups to discuss how best to engage with the activities on the platform.</p> <p>Clarification on where to obtain technical support and study expectations are presented to the participants.</p>
	Concluding remarks	<p>Participants requested to make regular online contributions on topics suggested.</p> <p>Reflect on their learning process with regard to how their understanding is impacted by their engagements on the Wiki platform.</p>

With regard to Table 7.3, a total of 18 out of the 20 expected student-participants attended the orientation workshop. This indicated a good turn up, given the fact that participants needed to have a hands-on-experience with the Socio-wiki tool and physical interaction with the facilitator and peers before they could proceed to work online. Besides, the participants' likelihood to engage personal devices and were active social media users. The workshop objectives were presented to the participants and a step-by-step explanation on how to access the online platform was given. The students were encouraged to use any internet-enabled device available to them to access the Wiki platform. As highlighted by Salmon *et al.* (2012:173), accessing any online learning platform is an essential condition for online learning to take place.

Subsequently, the six participants who had no devices used the desktop computers available in the computer laboratory, while the rest used their mobile devices to gain access to the platform. Out of 18 participants, 11 of them were able to sign in to the Socio-wiki platform following the steps demonstrated to them. The seven participants who had difficulties with signing in due to password errors had new accounts created for them. They eventually signed in and became members of the Socio-wiki platform before the close of the workshop. Meanwhile, the remaining two participants who did not attend the face-to-face workshop had similar instructions sent to them via their emails. According to Mokoena (2013:98), technical guidance by facilitators and educators is important to support access and use of online learning platforms, since access to these platforms has often proved to be a great challenge. During the same workshop, students consulted one another as well as the educator on issues regarding how the tool works. For further guidance, the contacts of the technical support team were provided and also several resources were uploaded on the Wiki homepage, including a video and a PBWiki user guide for participants to consult whenever need arose.

Given their exposure to the Wikispaces platform in the first implementation, many participants did not experience any major difficulties in accessing and exploring the Socio-wiki online learning platform. For example, eight technology-savvy participants played around with ease the ‘accessing the play space’ link, posting teasing comments to peers who had not reached this step. They also uploaded videos, class photos, cartoons and any other materials that created fun and set momentum for engagement. They quickly moved on to the next link ‘supporting online introductions’ and completed the assigned task of introducing themselves by posting their personal information, such as their names, year of study and anything interesting about their family and culture. The same group of students also moved around the computer laboratory checking and assisting their peers to access the platform. Consequently, four participants successfully posted comments and also uploaded materials on the ‘Accessing the play space’ page. While the other three participants also made posts on the homepage of the Socio-wiki site. This closely relates to the DBR approach used in the current study which puts emphasis on the iterative process of testing things in order to improve practice (Plomp 2007:13).

In addition, findings from the face-to-face workshops revealed that two participants did not have any knowledge of word processing, even when they had active accounts on social media platforms. In fact, their reason for attending the workshop was that they hoped to learn some basic computer application skills, such as typing documents, using the key board, printing documents, sending

emails and uploading videos among others. While many learners born after the mid-90s may qualify to be the “Generation Z” whose livelihood rotates around the internet and digital technologies (Schwieger and Ladwig 2018:45), this study revealed that some of them, though born around the same period, are far from qualifying for that generation. This may be due to their attitude towards technology or perhaps the lack of access to and use of such tools. At the close of the workshop, participants were encouraged to seek for assistance and clarification regarding issues to do with the functioning of the Socio-wiki for their collaborative writing tasks. However, one activity that was not effectively handled during this workshop was the group discussion of how best they were going to engage with the Socio-wiki activities. This necessitated having another face-to-face workshop the following weekend.

7.6 The subsequent face-to-face weekly workshops

The main objectives of the subsequent weekly face-to-face workshops were: to offer continuous technical support to the students with regard to access and use of the Wiki platform, to complete tasks that could not be accomplished in the previous workshop, and to strengthen support for knowledge construction and meaning-making mediated by the Socio-wiki platform. As such, the workshop held the following weekend of 3rd March 2018, started with a revision of the initial steps of the Socio-wiki platform covered in the previous workshop. These were: how to access the platform, make online introductions, post pictures, upload videos, and post comments on the different activities on the platform. Eleven students used their own internet-enabled mobile devices to access the Socio-wiki platform, while the remaining nine students used the computers available in the computer laboratory. Moreover, the early adopters on the Wiki platform volunteered to assist their peers, especially the ones who were not present during the first workshop, to gain access to the platform and make online introductions.

Subsequently, the remaining period of the workshop was focused on engaging in group discussions on how best to engage with the Socio-wiki activities. This followed an observation in the first implementation where students exhibited low motivation to engage in Wiki writing tasks. The focus was on soliciting ideas on how to motivate participants to actively engage online. Students highlighted a number of tasks that could increase online participation, including participating in a role play and collaborative writing of comic pieces satirizing ill behaviour in society. The students who suggested writing comic pieces explained that it would attract colleagues to participate because of the fun and humor that comes with comedy or satirical pieces. In addition, writing satirical pieces would give students a chance to criticize human follies without directly confronting

anyone. On the other hand, the students who suggested a role play argued that it is interesting and also brings real life situations to the classroom. This was an interesting idea for the study, given that Herrington, Reeves and Oliver (2010:17) guidelines on designing learning tasks stipulate that the tasks should not only mirror the type of real world communicative events performed by learners through their interaction with each other, but also these tasks must be complex, ill-defined with real-world relevance. A role play learning task, especially the one that is digitally-mediated would enable students to access multiple perspectives from other participants and would also require the use of authentic resources to complete. In addition, it was important that the tasks involve opportunity for collaboration among participants and also foster reflection on their individual and collective learning. The task also needed to encourage learners to create a tangible product (argumentative text) on which multiple perspectives could be shared (Herrington *et al.* 2010:17) as opposed to one that allows only a single correct answer.

Having taken all these aspects into consideration, the online role play seemed to fit well within the parameters of an authentic learning task, such as: having real-world relevance, fostering collaborative arguments, and supporting development of higher order thinking skills. Doerr-Stevens, Beach and Boeser (2011:32) explain that online role play task participants to undertake a range of roles that represent opposing viewpoints on an issue, which they debate about over an extended period of time. Thereafter, students base on the understandings of each other's views to come to a consensus on what the possible solutions regarding an issue should be (ibid 2011:32). In light of these considerations, it was decided that an asynchronous online role play blog platform would be embedded within the Socio-wiki platform to provide space for students to participate in ongoing conversation in an online role play. Being a tool specifically designed for writing purposes, it would permit multiple characters space to develop individual arguments in form of blog entries which they would later share on a common page for others to view and comment. Moreover, the conversations and interactions afforded by the blog tool could easily mediate online role play collaborative arguments in this iteration.

It was therefore necessary that the students are motivated to engage with the learning activities especially that the last steps of the Socio-wiki learning environment target higher order thinking skills such as: negotiating meanings, building consensus of written artifacts (step four) and supporting reflections in ESL writing (step five). These require high levels of students' engagement and commitment to the online learning activities. Beach and Doerr-Stevens (2009:462) suggest that learners are more likely to participate in the online role play collaborative

arguments if they perceive an issue or topic being discussed as significant to their lives. Therefore, the next workshop was focused on selecting a topic that could sustain participants' interest and keep them motivated to participate in the online role play.

7.7 The process of identifying a topic for the online role play

In the third face-to-face workshop, focus was on identifying a suitable topic that participants would debate about in the online role play. In their allocated groups, students were requested to discuss topics that they would like to debate upon for their online role play citing reasons why they wished to engage with those particular topics. Participants held heated debates on the various topics, but finally agreed to engage with topic regarding 'technology/phone restrictions in schools'. This followed an incident that had occurred at the time in one of the schools in Uganda, in which a group of teenagers were suspended for violating the school's phone restrictions. Many of the participants felt this would make a good topic for the online role play as it would give them chance to voice their opinions on a real-life issue that they are deeply connected to. In addition, having such a topic for a role play would allow them to examine the strengths and limitations of such policies in the various roles as parents, teachers, lawyers, child rights activists, religious leaders among others for purposes of advocating for a change in the status quo.

Apart from its authenticity, this topic is considered relevant because the argumentative genre of writing of Paper one entitled 'Composition Writing' at lower secondary English Language Curriculum (for which the pre-service students are being prepared to teach), involves topics that have potential to stimulate debates and argumentative thinking among learners. Since they are prospective ESL teachers, participants would get a chance to participate and reflect on such debates before they could proceed to teach them to their future students. According to Monte-Sano and Budano (2013:171), students' motivation to engage in learning can be obtained if their ideas and experiences are listened to or used as object of reflection. Thus, engaging with the topic 'mobile phone restrictions in schools' seemed a timely, given the fact that most participants belong to a generation whose livelihood is entirely dependent on digital technology. Realizing the real-life relevance the topic has, all the students who participated in the workshop unanimously agreed to use it for the role play.

To wrap up the workshop, participants were requested to research about issues of access and use of technology among young people, and also conduct a critical analysis on the existing mobile phone policies in schools. They needed to cite evidence in which these technology restrictions addressed

or failed to address issues of school discipline, children's safety and well-being. At the close of the workshop, a participant appreciated the facilitator's effort to introduce them to the Wiki project which she highlighted as a new development in ESL education. The facilitator also thanked the participants for their active engagement in the project and encouraged them to continue attending workshops aimed at improving their performance on the Socio-wiki online learning platform. As such, the workshops that followed focused on preparing participants for the online role play. That said, the following section presents a step-by-step preparation for the online role play.

7.8 Preparation for the online role play

Preparation for the online role play involved phases, such as setting up the blog platform and preparing students to take up the different roles in the role play. These phases are described in detail in the sections below.

7.8.1: Setting up the blog platform

Following the participants' unanimous decision to participate in online role play and the subsequent selection of the topic, an online role play collaborative blog platform was created and embedded within the Wiki learning environment. The blog platform was created using a free online software <http://www.blogger.com>. The blog tool was chosen to supplement the Wiki platform for its various affordances particularly in mediating an online role play. It is user friendly tool which allows participants to create blog entries in which they can develop various role play persona positions and arguments. In addition, its discussion forum provides a space for exchange of views amongst role play personas which is useful for meaning-making and knowledge construction- the skills that are targeted in the last two steps (four and five) of the Socio-wiki writing activities. Its 'restrict-ability' affordance (Bower 2008:7), is also useful in providing a protected and secure space for the participants to freely share their views and opinions on the topic without any hesitations.

As earlier mentioned, the Socio-wiki platform was integrated into the existing methods course *Methods of Teaching English Language* specifically focusing on the writing module. One of the course objectives was to train students to participate in proper writing of arguments. The blog platform was used to offer students space to engage in a debate about the topic, negotiate the different viewpoints and build alliances for the purpose of reaching a consensus. A homepage containing a virtual high school "Sparkle High School" was created through which students assumed roles and debated upon the issue of mobile phone use among children during school time

and the retributive actions taken for those who violate them. The home page contained instructions on how the role play was to be carried out, specifically highlighting the importance of collaborative arguments as shown in Figure 7.3.

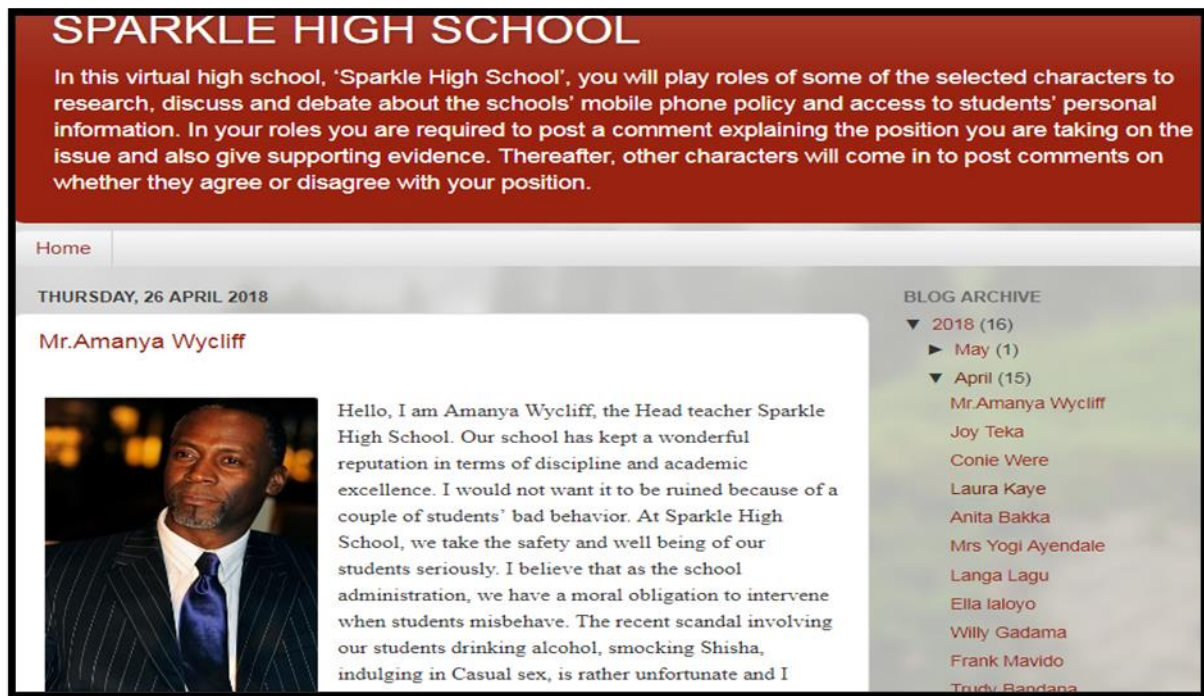


Figure 7.3: Screenshot of blog home page containing a virtual high school

7.8.2: Preparing participants for the online role play collaborative arguments

The fourth and fifth workshops were dedicated to preparing participants for the role play collaborative arguments. The collaborative arguments require participants to take up different roles and formulate arguments on topic which they share on the blog platform in form of blog entries. It is these postings that are either challenged or affirmed by other role players leading to a continuous process of meaning-making and knowledge construction. Given the challenges of generating effective argumentative texts using an online platform, such as a blog, it is important that participants are adequately prepared to use the blog platform to write argumentative texts (blog entries) and for interactive purposes. Thus, in these two workshops, demonstrations on how to sign in to the blog platform, create blog entries and upload them were provided. In addition, short presentations and discussions on how to formulate good arguments and counter-arguments (presenting claims, offering evidence, warrants and rebuttals) were conducted.

In addition, discussions of samples of argumentative texts, specifically focusing on analyzing the claims, rebuttals and supporting evidence were held. For the online role play blog posts, students were given a set of questions to reflect on while creating their role play personas and building arguments on the topic. Once again, the topic was about restrictions on children's use of mobile phones during school time and the retributive measures meted out on those who violate them. The students were also encouraged to read policy and legal documents and other internet sources regarding children's access to technology to strengthen their arguments. Also, focus was on how to build role play personas and identities using both the textual and non-textual (semiotic) resources, such as videos, sounds, and images to enhance arguments. This was followed by a discussion on how to use these online materials for this project without violating the copyright laws.

Finally, students composed argumentative texts with varying positions and stances on the issue. Some of them wrote the texts using the conventional pen and paper tools, while others used their laptops and desktop computers available in the computer laboratory where workshops were held. Thereafter, students shared their drafts with peers and educator for feedback, and continued to make revisions to their drafts basing on the feedback offered. After making final touches to the argumentative texts and making sure that the semiotic resources were well orchestrated to serve the intended purposes, the students 'published' their texts on the blog platform for all participants to view, comment, and exchange ideas and opinions about. That said, the next section provides an analysis of the findings relating to answering the two research questions as aligned to the revised principles. These include:

1. To what extent does the Wiki writing intervention foster social interaction and collaborative dialogues among ESL pre-service students?
2. How do the social interactions and collaborative dialogues in a Wiki writing intervention impact on ESL students' writing and argumentative thinking?

Analysis of the research findings as aligned to revised principles

Analysis of the research findings was done following the third phase of DBR whose evaluation mainly focuses on refining educational problems, finding solutions, and testing the design principles in authentic contexts (Reeves 2006:58). Data findings aimed at providing answers to the research questions in alignment with the modified design principles. The revised principles included: 'Accessing the play space', 'Promoting online introductions', 'Sharing experiences about ESL writing instruction', 'Making shared interpretations of meanings in ESL texts', and

‘Supporting reflections in ESL texts’. Qualitative data analysis techniques, (as explained in Chapter 4, Section 4.8), were used to analyze data collected at the second implementation. As mentioned earlier, data analysis was conducted following three major steps including: organizing raw data according to how it appeared to address the respective research questions; reducing data into categories that represented key concepts from theory and literature in relation to specific research questions and using the sociocultural theory-driven framework to interpret and report the findings in alignment to the research questions. Subsequently, steps 1-3 were intended to seek answers to the first research question whose analysis was conducted under the theme: promoting social interaction and active online participation. While step 4-5, analyzed under the theme: promoting collective meaning-making in ESL writing, aimed at providing answers to the second research question. On the other hand, the third research question was aimed at finding a theory-driven pedagogical framework that could enhance students’ literacy skills. That said, the following section presents the observational findings at step one: accessing the play area analyzed under the theme: promoting social interactions and active online participation.

7.9 Promoting social interactions and active online participation

Data for the theme ‘promoting social interactions and active online participation’ was provided by the three steps aligned to the revised design principles. These are: step one- accessing the play area, step two-encouraging online introductions and step three- sharing experiences of ESL writing instruction. Analysis is presented in sections below.

7.9.1: Observational findings at step one: Accessing the play area

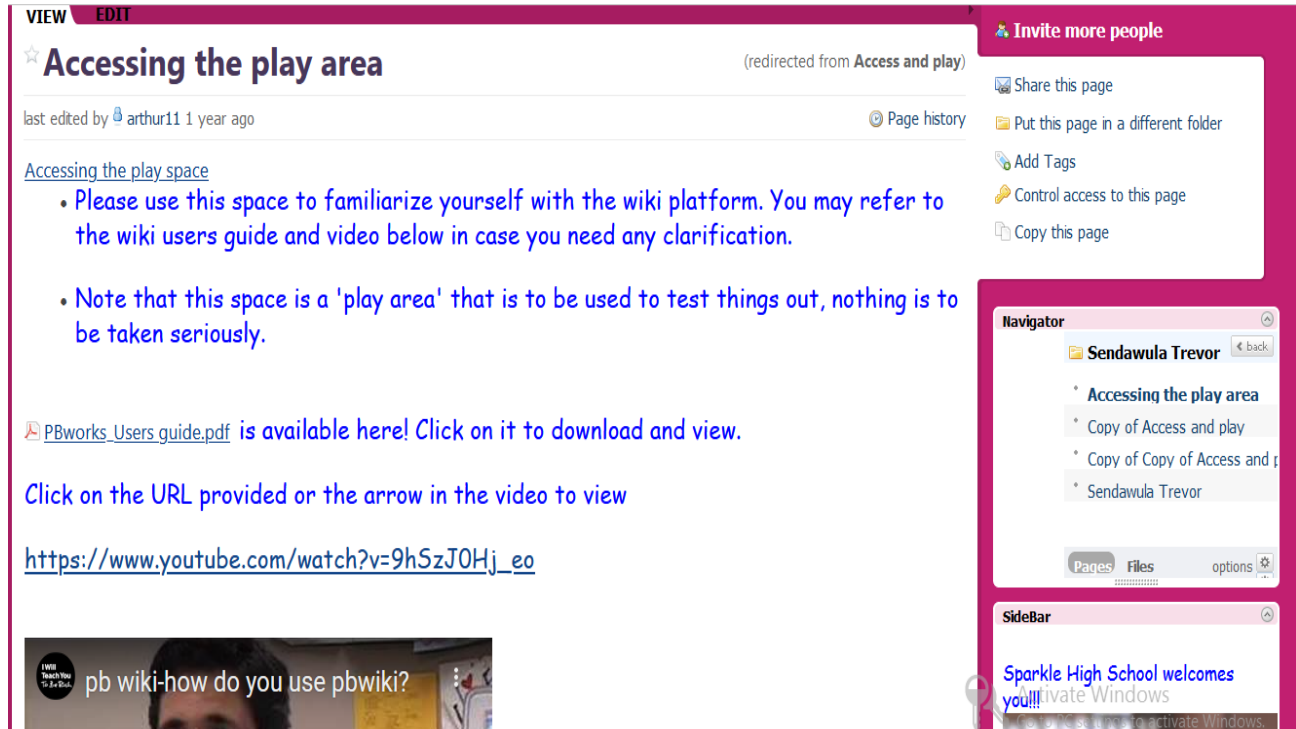


Figure 7.4: Observational findings at step one: Accessing the play area

Figure 7.4, highlights step one in the second implementation of the design solution. As earlier stated, this step was intended to boost participants' confidence in using the Wiki site for their collaborative writing tasks. As such, it was important to establish the ICT infrastructure participants utilized to access the Wiki site and thus their likelihood to engage with collaborative construction of literacy meanings on the Socio-wiki learning environment. Responses from the students' interviews corroborated with responses from students' reflective journals indicated that out of the 20 participants, nine used mobile phones to access the platform; six used personal laptops; two used iPads; one used a desk top computer at home; while two participants used their friends' laptops to gain access to the platform. These results suggest that participants made use of the available technologies to obtain access to the Socio-wiki platform. These findings sharply contrast with the previous findings from studies conducted in teacher education contexts in Uganda that indicated minimal access to ICTs and thus their limited use for pedagogical purposes (Bakkabulindi and Adebajo 2011). This shift in access to ICTs among students could possibly be explained by the affordable technological devices on the market today, as well as easy access to affordable internet packages from the different service providers.

Having highlighted the ICT tools that students can use to gain access to online learning platforms, it was important to orient the participants to the Socio-wiki platform through informal means, such as making trial posts or uploads of pictures, images, and videos without fear of failure. As such, participants were encouraged to feel free to ‘play’ around with the various Wiki features and discover the functions they can perform. A notification was made that the page was a ‘play area’ to be used to test out things. Nothing was to be taken seriously (see Figure 7.4). Correspondingly, participants responded with enthusiasm and made several trial posts and uploads of images, pictures and videos on the platform, ranging from pictures of their football and soap opera stars, their pets, videos of current events and movie trailers. The students also exchanged jokes and teased one another as they tried out the various features on the Wiki platform, while others posted questions seeking clarification. According to Vygotsky (1978:100) play and dialogue have the ability to enhance understanding. Play is defined as a peculiar dialectical lightness that combines dialogue, questioning and interaction in that “when we engage in play and relaxation with something, we are always serious about obtaining understanding by learning from what we are doing” (Porter and Robinson 2013:127). Thus, it was relevant to create a space for students ‘to play’ and practice how to use the Wiki platform as a learning space through trial and error method or without following a particular structure or set of rules.

To establish how the participants became familiar with the platform and also gained confidence to use it for learning purposes, data from interviews revealed participants used a number of avenues. Eight out of the 20 participants said that they simply played around with the Wiki features and eventually learnt how each of them works. Six participants said they consulted their peers. Four said they used the PBWiki user guide and watched You Tube video tutorials; while two consulted with the educator. These findings highlight the role of interaction and collaboration in supporting students to access and gain confidence in using the Wiki platform for their writing tasks. The interactions were between students-peers, students-educator, students- resources (Wiki user guide and video). Basing on these findings, the argument presented is that creating a relaxed learning space without strict rules can make ESL writing enjoyable. Abrami *et al.* (2016:86) confirm that providing an appropriate environment for interactions and collective learning can promote learner motivation leading to more meaningful and practical language learning experiences.

Similarly, the data above generated themes categorized as follows; utilizing the PBWiki user manual for guidance, playing around with the functions of Wiki platform, self-studying of the platform, making trial posts and uploads on the platform, consulting the educator and peers,

watching PBWiki tutorial videos and asking questions for clarification. Participants' representative comments highlighting themes (related to accessing the play area) arising out of data are summarized as below.

Having participated in the previous Wikispaces project, accessing the Socio-wiki platform was not a problem for me. Once I got on to the play page, I just played around with the Wiki buttons until I managed to upload my first video (Participant A13).

Another participant retorted;

I made several attempts to log onto the Wiki platform without much luck. When I finally succeeded, I read the instructions and watched the user guide video, I no longer have a problem using it (Participant A7).

While another describes her change of attitude about classroom writing;

Classroom writing, for me, has always been a serious activity; no fun, no jokes, no play. It is always, write! write! write! But my attitude changed when I engaged in this Wiki project. We exchanged jokes and teased each other as we fooled around with the Wiki buttons. The trial posts and uploads we made finally put us into a place where we were ready to start some serious writing. I loved it. (Participant A19).

The sociocultural cycle-driven analysis of students' interview responses (theme-extract-explanation)

With reference to the participants' statements: '*I played around with the platform functions until I managed to upload my first video (A13)*', '*We fooled around with the Wiki buttons and made trial posts and uploads...*' (A19), and '*I read instructions and watched the user guide video*' (A7), suggest that writing in ESL classroom could be made exciting through providing a free and relaxed space for participants to experiment with the knowledge they have. Digital technologies have the potential to encourage play which can make learning fun and exciting. According to Vygotsky (1978:100) play is essential in creating a relaxed environment through which participants can gain understanding of a given phenomenon. Considering the trial uploads students made on the Wiki platform, some uploaded images represented students' interests (images of favourite soap opera and soccer stars), while others uploaded images of family members and special celebrations. These

findings suggest that participants were using their personal experiences to interpret a new phenomenon (accessing and getting familiar with the Wiki environment). This was a significant observation as it manifested a sociocultural theoretical perception that the ability for learners to process and construct knowledge depends on their background experiences. It is these experiences that facilitate the interpretation of new phenomena within a particular cultural setting.

Similarly, data from observations indicates that students made several postings on the play page which resulted into dialogical conversations, majorly on two issues: writing instruction and how to use the platform. These were coded and categorized under two themes: 'writing instruction dialogue' and 'fun and play dialogue'. The 'writing instruction dialogue' involved discussions and seeking clarifications about writing instruction issues, while 'fun and play dialogue' represented lighthearted comments students exchanged as they played with the features of Wiki platform. Out of the 20 participants' responses, 14 of them were categorized under the theme 'fun and play dialogue', while the six remaining responses were put under the category of 'writing instruction dialogue'. Examples of extracts illuminating the themes above are analyzed as follows:

Example 1

Theme: 'Play and have fun dialogue'

Extract: *'I would like to know from you guys how we can maximize and enjoy our writing using this platform'* (Participant B11).

Explanation: Even when the page was a 'play page', the student used it to post a dialogical question probing others on how they can have fun with the new ways of writing and also maximize the potential of the platform. As students inquire and search for answers to the question, they are likely to engage in dialogue on several issues which could breed into several interpretations. By so doing, they are sharing ideas and broadening each other's horizons. This aligns with the sociocultural perspective which posits that failure to open up to asking questions, we cannot obtain new experiences (Sebbowa *et al.* 2014:28). It is, therefore, important to establish a dialogical or open-ended question and answer in the writing classroom, as learning is limitless and requires continuous engagements in dialogues between the students and their peers or students and their educator.

Example 2

Theme: ‘Writing instruction dialogue’

Extract: *Hi guys, I need some advice on a project I wish to start. I am thinking about starting a writing ‘Clinique’ for my brothers and sisters in the community who are struggling to write in English. This shall cover basic concepts like writing application letters, CVs, minutes and radio announcements. I need advice on how I can concretize this project’* (Participant B10).

Explanation: This data indicates student’s desire to use knowledge obtained from the writing classroom to tackle everyday problems. By soliciting ideas from peers to tackle the community problem, (writing challenges in the community), the student is drawing his peers into what Swain (2013) refers to as ‘collaborative dialogue’. Collaborative dialogue is “the talk that emerges when learners engage in a problem-solving activity” (Swain and Watanabe 2013:1). Learners engaged in a ‘talk’ (dialogue) by sharing ideas on how their colleague would best implement the writing Clinique in his community. By doing so, students are using language to articulate and share their thinking or opinions. This is in agreement with the sociocultural theoretical tenet that posits that knowledge is created in a social environment where participants interact, share, and reflect on their own and one another’s ideas (Murugaiah and Thang 2010:21). In other words, social interaction is an important factor in creating trust and motivation among learners engaged in an online learning environment such as a Socio-wiki. Thus, findings at step one involving students making trial uploads, posting comments, exchanging jokes, and engaging in collaborative dialogues could potentially make writing an interesting and exciting event supported by the Wiki technology. This partly solves problem identified in Chapter One in which students highlighted that they find print-based writing of ESL texts boring and disconnected to their current study needs. Thus, the DBR objective of refining the problem and revising solution, was evident at this stage of implementation. With the qualitative findings at step one presented, the next section presents findings at step two, encouraging online introductions.

7.9.2: Findings at step two: Encouraging online introductions

Step two- encouraging online introductions, was intended to establish an online community that could enhance students’ interest to interact online and learn to trust one another well enough to share and exchange information. According to Salmon (2002:22), supporting participants to develop mutual trust in one another at this stage is crucial for the success of other stages. This follows findings from the first implementation where some participants were reluctant to share

their identities and personal information on the Wiki platform. The probable causes may have included: trust issues where participants lacked confidence to share personal information with others online. It could also have been that the participants did not get enough time to interact online and get to know each other well enough to share their intimate details. Salmon (2002:22) suggests that building a vibrant online community through well-thought-through online activities has potential to cultivate trust amongst learners as they begin to become comfortable with one another through the culture of exchanging ideas online. Subsequently, the purpose of this stage was to create a sense of togetherness and comradeship among participants through sharing personal information about themselves, their families, interests, and hobbies.

Data from online observations indicates that the majority of the participants actively engaged with the task of establishing their online identities by stating their names, year of study and even shared pictures and posts about their families, traditions and interests. The screenshot in Figure 7.5 shows some of the online introductions that were made by the participants.

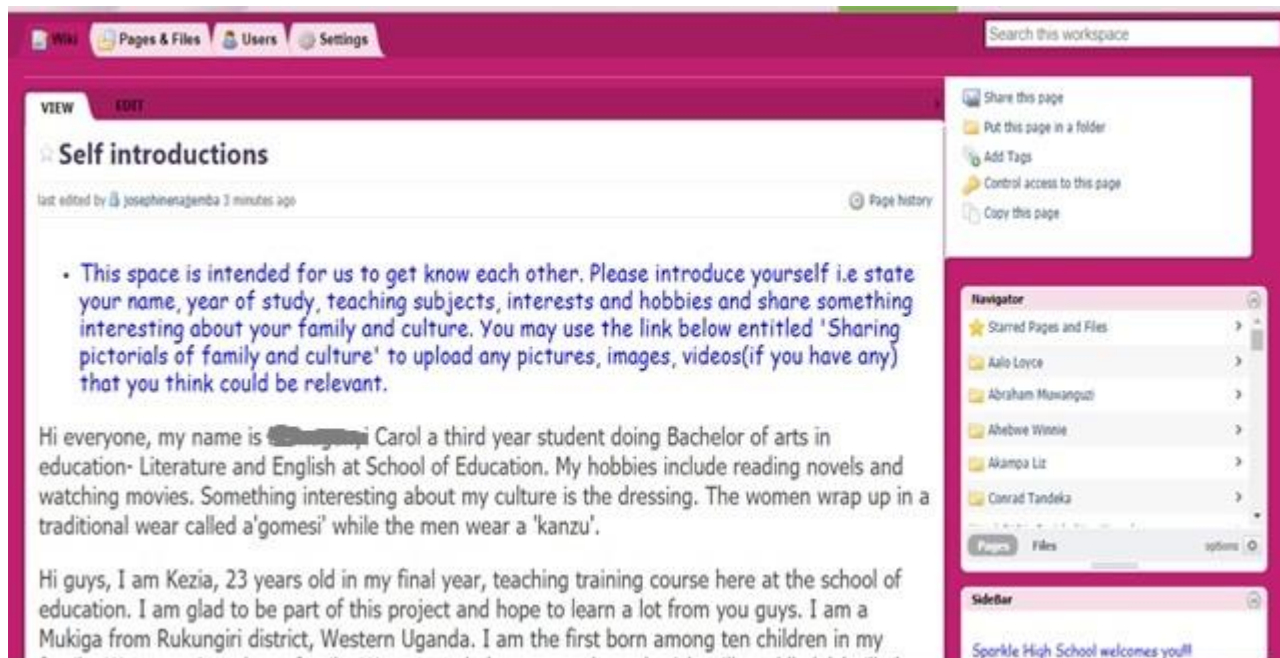


Figure 7.5: Screen shot of participants' online introductions

Following Figure 7.5, there is evidence to show that most participants (12 out of 20) preferred to use the written narrative to introduce themselves and share their personal stories about their family backgrounds and culture, while eight shared images and photos combined with short narratives. One of the participants' narrative is as follows;

Hi guys, I am Kezia, 23 years old, in my final year, teacher training Programme here at the School of Education. I am glad to be a part of this project and hope to learn a lot from you guys. I am a Mukiga from Rukungiri District, western Uganda. I am the first-born among ten children in my family. We are quite a large family. We are cattle keepers and we cherish milk and 'kalo' (millet) as our staple food (Participant B2).

In this extract, a student states personal details including his name, age, year of study, his home area, family background and some of the cultural aspects, such as cattle keeping and their staple food. Many other students also opened up about their family backgrounds and cultures. This socialization is quite important for students learning online as it builds a sense of togetherness and fosters a closer bond between them as they learn how to work together. It also creates relevance for students who are reluctant to engage in writing, because they consider it as 'knowledge-telling exercise' that has no connection to their study needs or day-to-day lives. Through this socialization event afforded on the Wiki platform, students are provided with an opportunity to share their identities and also appreciate one another's cultural values and backgrounds. Thus, creating a bond and a sense of togetherness among participants.

In addition, having a large number of participants, (12 out of 20), taking preference in the narrative form in sharing their personal information could be attributed to the fact that most students are used to this form of writing. The narrative form is the most commonly used form of writing at university. In addition the narrative form appears to open a space for students to engage in an open dialogue with one another. This would facilitate the conveying of students' ideas that peers would willingly listen to. Thompson (2012:84) explains that social interaction in form of dialogue about a shared experience is a crucial developmental component for learners constructing meaning. Moreover, within the sociocultural perspective, value is attached to interaction between people using tools, artifacts, stories, language and signs available in their world as they construct meaning (Wenger and Synder 2000:229). However, data from online observations also indicates that some students (8 out of 20 students), extended beyond the narrative texts to include semiotic resources, such as images and pictures while introducing themselves and sharing their personal information. Figure 7.6 provides an example.

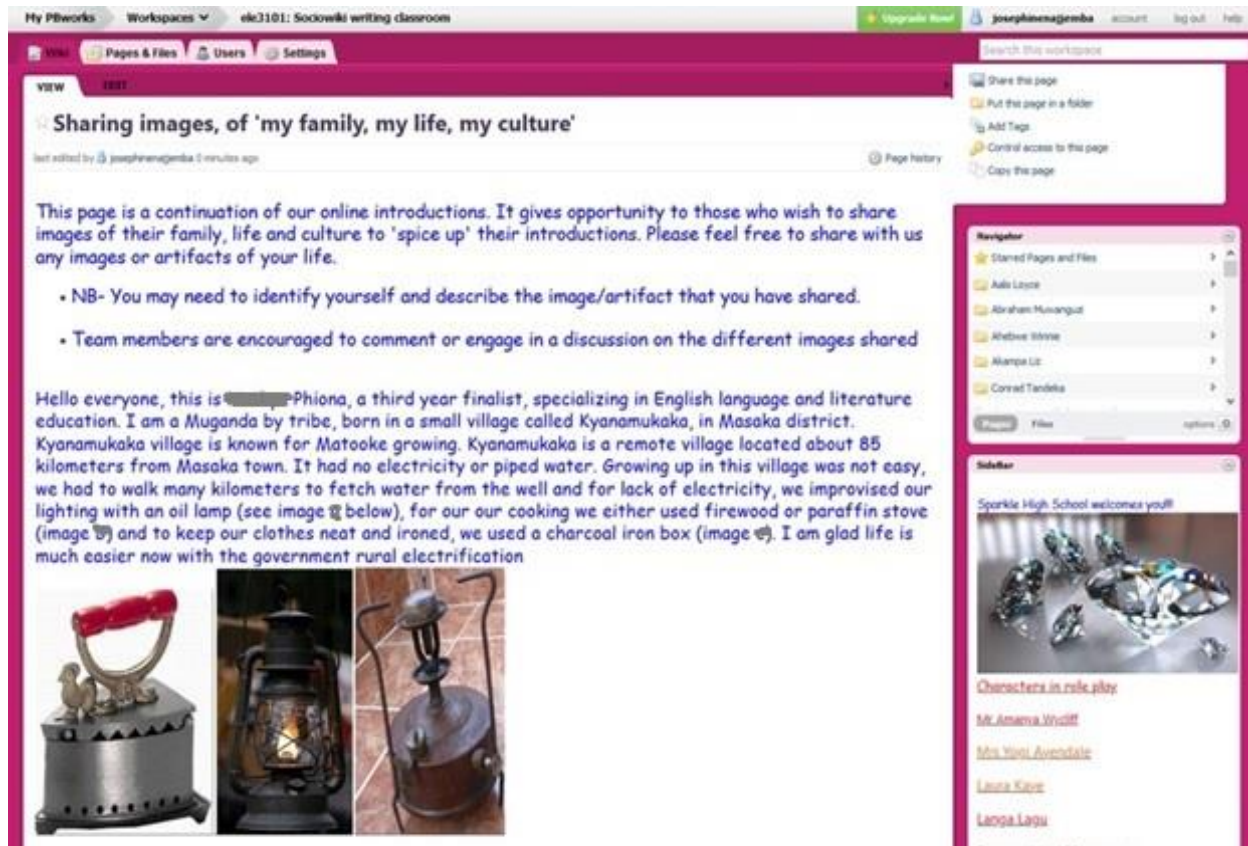


Figure 7.6: Student's online introduction combined with images

Following Figure 7.6, a student shared personal information and incorporated images of the equipment such as; flat iron, oil lamp, and stove she used in her daily life experiences while growing up in a small, rural village that did not have electricity. The students' use of images does not only enhance meaning, but also depicts the student as having potential to exercise some degree of agency over her writing. Early, Kendrick and Potts (2015:448) argue that meanings are created through multiple modes of representations and communication sources, including; sounds, linguistic codes, visuals, gazes, gesture, and spatial concepts, that are possible through manipulation of digital tools. In addition, Yi *et al.* (2017:7) postulate that signs are generated through social interactions. They are motivated not arbitrary, and they arise from the sign maker's interests. The interaction afforded on the Wiki platform as students shared personal histories and cultures not only created a bond among participants, but also motivated students to make their introductions better through orchestrating images and signs. In one of the reflective journals, a student wrote:

I enjoyed reading my colleagues' self-introductions. In fact, I got to discover a number of interesting things we share in common, like tribe, place of birth, position in the family, interests, and hobbies. For example, two of my colleagues come from Masaka District just like me. I felt motivated to participate in writing about my background and spice it up a little bit with a few images (Student's reflection, November 2018).

There is evidence that this mode of socialization encourages students to invest in their own writing experience through playing multiple roles including: reading each other's introductions, responding to them, creating their own stories, 'spicing' them with images, and finally sharing them on the platform. This attests to the sociocultural theoretical perspective of situated practice where there is an "immersion in meaningful practices within a community of learners who are capable of playing multiple and different roles based on their background and experiences" (New London Group 1996:85). That said, the following sub-section provides findings at step three- Sharing experiences of writing instruction.

7.9.3: Findings at step three: Sharing experiences of writing instruction

Step three- sharing writing instruction experiences, was intended to extend interactions among participants as well as with the course content. Ruzmetova (2018:281) reiterates Salmon's (2002) suggestion that at this stage information ought to be swapped into tasks (e-tivities) which are succinct, to motivate interaction with the content and among participants. This project was based on the writing module whose aim was to boost students' confidence to effectively communicate in writing in order to perform better as teachers in the language classroom. Thus, it was important that students reflect and share their writing instruction experiences, their successes and challenges, how they navigated through the challenges as well as their suggestions to improve the situation. Salmon (2002:28) suggests that at this stage, e-moderators ought to assign tasks that require students to explore any information that is relevant and readily available to them. Exploring students' experiences and preconceived ideas about writing instruction would provide an understanding of how students' personal feelings, experiences, social, and historical background would be integrated into the study Fleming *et al.* (in Sebbowa 2017:80). Thus, students engaged in meaningful collaborative exchanges of their writing experiences and preconceived ideas on the Wiki platform. The responses were categorized into three major themes, namely: 'challenges of writing instruction' 'shared understanding of writing as journey', and 'working through our writing

challenges’, accompanied with some of the representative comments from the participants as Table 7.4 indicates. These were later analyzed following the sociocultural theory-driven analysis of theme-extract-explanation.

Table 7.4: Observational findings at stage three- sharing writing instruction experiences

Observational findings on Wiki platform	Themes formulated from student’s responses	Number of participants out of 20	Participant’s Salient comments
Stage three- sharing your writing instruction experiences on the Wiki platform	Challenges of writing instruction	9	Most writing instructors assume that students can learn to write by ‘osmosis’. They simply pick random topics from the course outlines for students to write about. I think students ought to be taught what good writing is all about and it should also relate to the learners’ daily experiences (Participant B19).
	Shared understanding of writing as a journey	6	Both the instructors and the students ought to understand that writing is a journey which cannot be completed in single day. Having too much stuff on writing pumped into our heads in just a few hours of face-to-face session just made writing complicated for me. However, given the changing times, I think this journey could be made a lot easier if we utilize the available technologies. But, this has a lot to do with the instructor’s choices (Participant B4).
	Working through our writing challenges	5	Many of us are from school backgrounds where writing took a back seat. The only times we practiced writing was when we were taking tests

			and assignments. But that did not stop us from mastering the skills of writing. We wrote stories and shared with friends and a few teachers who were interested. Personally, as I grew older, I used the internet quite a lot (Participant B2).
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The observational findings in the Table 7.4 indicate that nine out of 20 participants shared their challenges (ranging from pedagogical, cultural, and social) in learning to write in English as a second language. While six participants noted that it was a journey with many complex steps which required patience, time, and innovation to accomplish, and five participants exchanged views on how writing instruction can be improved. Following the salient comments of participants in the table above, participant B19 provides useful insights on students' writing experiences that instructor's need to reflect on. Student B19 believes that instructors assume that students can learn to write by 'osmosis' and focus more on covering the topics in the course outline. The student further suggests the need to adjust the teaching techniques to involve demonstrations of what good writing is all about and also relate it to learners' daily experiences. This student's views are in line with Vygotsky's argument that the teaching of writing ought to be based on learners' interests, that is it must "be relevant to life, meaningful to learners, and taught naturally rather than mechanically" (Vygotsky 1978:118). In other words, writing instruction ought to be adjusted to embrace learner-centred methods to facilitate learning, and support learners to learn to write naturally as opposed to drilling them.

Another student argued:

Writing is a journey which cannot be easily completed in a single day. Having too much stuff on writing pumped into our heads in just a few hours of face-to face session just made writing complicated for me. However, given the changing times, I think this journey could be made a lot easier if we utilize the available technologies (Participant B4).

These sentiments illuminate the teacher's role in the teaching and learning process. Since writing, (referred to as a journey), involves many sub-skills which take time to develop, encouraging

students to actively participate in the writing by ‘using the available technologies would make the journey a lot easier’. According to Thompson (2012:90), “if allowed period of freedom in the classroom and depending on the tool usage available, students may be motivated to experiment with several skills of writing. They can text, scribble notes, write on social networks, use emails, type into search engines, write on desks or even on each other.” By so doing, learners are practicing different forms of writing. Kress (in Thompson 2012:89) points out that “new technology in particular means new affordances for writing.” I argue further that supporting learners to write requires not only the new tools for writing, but also purpose and motivation. Thus, active participation in writing is important for it allows learners to have purpose (attach relevancy to writing), while also making them feel part of the process (motivation).

Moreover, student B2 also asserts:

Many of us are from school backgrounds where writing took a back seat. The only times we practiced writing was when we were taking tests or writing assignments. But that did not stop us from mastering the skills of writing. We wrote texts and shared with friends and a few teachers who were interested. Personally, as I grew older I used the internet quite a lot (Participant B2).

The above sentiments indicate the student’s desire to draw lessons from their prior writing experiences to improve the present situation. The student explains that while they were not taught to write, that ‘did not stop them from mastering the skills of writing’. They sought for assistance from some ‘interested teachers, friends, and the internet’ to supplement the few times they practiced writing, and they finally learnt how to write. Similarly, the above findings were corroborated with data from interviews when students were asked why it was important to share their writing experiences on the Wiki platform. One student stated:

If we had not shared our writing experiences on the Wiki platform, personally, I would not have known that there many other students who were struggling to write or even facing worse challenges than me. This gave me the ‘I am not alone’ feeling and that it is possible to overcome such struggles. What we needed was a moment like this to reflect on the challenges and how we worked through them, especially now that we are about to graduate and become classroom teachers who are expected to teach what we were never taught (Participant A16).

Just like student A16, the above sentiments indicate the student's need to reflect on past experiences to address the current instructional problems. The student uses the statement: "*What we needed was a moment like this to reflect on the challenges and how we worked through them, especially now that we are about to graduate and become classroom teachers who are expected to teach what we were never taught.*" This statement is important in that it links writing instructors to students' thinking in the present. The student highlights that there was a lot about writing that they were never taught and yet as the current generation of teachers are expected to teach. This statement provides a candid lesson to language teachers, especially the writing instructors to align their pedagogies to the contemporary instructional processes. Several students suggested several ways to bridge the gaps, including using peers and available technologies, shifting from mechanical to more learner-friendly methods. In addition, the sentiments partly responded to the study problem where writing is more mechanical with limited freedoms for learners to experiment with their writing which detaches many of them from the learning process. Vygotsky (1978:90) criticizes mechanized learning programmes because they not only "isolate the slow learners, but also they fail to expose learners to abstract thought" (ibid: 90). Vygotsky emphasizes the need to think through the persistent contradictions between the educational task of writing and the practical utility which society expects from it (Vygotsky 1978:90).

Following the presentation of findings from step three, the next section provides a description of findings at step four-promoting collective meaning-making of written texts. However, before the findings at step four are presented, the section below explains how the above findings responded to the first research question: To what extent does the Wiki writing intervention foster social interactions and collaborative dialogues among ESL pre-service students?

A summary of responses to research question one as evident in the findings above

Findings above suggest that the Wiki writing intervention largely fosters social interactions and collaborative dialogues among ESL pre-service students. The sociocultural philosophy guiding this study posits that learning occurs through collaborative conversations between learners and the knowledgeable others. The Wiki writing platform provides a relaxed space for students to interact and actively engage with the learning tasks. The students supported one another to access the platform. As a way to introduce themselves onto the platform, students shared personal information and images of their families, cultures, interests, and created meanings out of them through discussions on the Wiki platform. In this study, the social interactions and collaborative dialogues were closely interlinked. The social interactions in this sense involved shared online

practices between two or more students intended to maximize their own and one another's learning (McInerney and Roberts 2004:73). Collaborative dialogues involved increased interactions, discussions, and negotiations between student and student or student and educator, leading to a sense-making process in producing and representing meanings in ESL texts.

Findings also indicated that the collaborative space in the Wiki learning environment which allowed students to relate the writing tasks to their own experiences and personal interests, not only resulted into appreciation of each other's personal information, families, and cultures, but also created a sense of togetherness amongst them. The connection to students' prior knowledge and experiences was an important motivation for students to fully engage with the writing tasks and in providing them with meaningful learning experiences. The proceeding section presents findings at steps four and five aimed at providing answers to the second research question. These are captured under the theme: Knowledge construction and collective meaning-making of writing texts.

7.10 Knowledge construction and collective meaning-making of writing texts

Following the successful implementation of steps one, two and three depicted in the revised principles presented above, it was expected that participants would work jointly to co-construct knowledge through collaborative conversations and interpretation of meanings out of the generated texts on the Wiki platform for the two remaining steps four and five; promoting knowledge construction, and fostering development, respectively. However, following step four findings in the first implementation, indicating low levels of engagement and motivation among participants, it was necessary to support students to engage with writing activities that interest or motivate them. As such step four of this iteration was revised and renamed 'making shared interpretations of meanings in written texts.' This stage required providing participants with opportunities to engage with authentic tasks that have real-world relevance (Herrington *et al.* 2010:17), and those that arouse deeper interactions with other online members. As such, participants were invited to take part in an online role play collaborative arguments in which they debated on a real-life topic that was unanimously agreed upon by all participants.

The intention of choosing the role play writing task was to increase student engagement and motivation levels by allowing participants to explore the controversies surrounding the topic, encouraging open-mindedness about each other's ideas, and building understandings together, which, according to Salmon (2002:29) are prerequisite if knowledge construction is to happen. Subsequently, stage four and five are aimed at providing answers to the second research question

which is: **How do social interactions and collaborative conversations in the Wiki intervention impact pre-service students writing and argumentative thinking?**

The qualitative data findings are presented in the following section.

7.10.1: Findings at step four: Promoting collective meaning-making of written texts

Analysis of data at step four revealed a number of themes in relation to how collective construction of meanings reflected through the online role play influenced students' writing and their argumentative practices in general. The themes include: 'motivation to engage with tasks', 'connection to past experiences', and 'enacting of literacy practices' as discussed below.

7.10.1.1: Motivation to engage with tasks

Findings from this study suggest that the real life relevance attached to the role play tasks and the preparations involved in putting them together motivated students to engage with the tasks. One student commented:

The whole process of planning the details of a role play was so near to reality. I played the role of a lawyer and presented arguments on the topic from the legal perspective. These arguments had to appear legit, so research was necessary. Therefore, I had to get into it as if I was a real lawyer, making real legal interpretations and arguments on the issue (Interview with Participant A12 who played the role of a lawyer).

Other participants described the feeling of becoming immersed in the task of developing role play personas and arguments, that it almost did not occur to them that this was a 'pretend thing'. What was clear to them was that one day, someone would actually draw a lesson or two from the role play arguments that the students posted online, as seen from a student's comment:

We carefully planned every little detail of the role play, taking into consideration that someone out there would read our posts and draw lessons from them in order to change some of the bad school policies. We did not regard this role play as a 'pretend thing', but as means of putting our thoughts out there for the benefit of others (Interview with the Participant A17 who played the role of a head teacher).

On the other hand, some participants were concerned that several of their colleagues had taken the role play tasks too seriously and were worrying excessively about details of the role play as if the tasks were real. One student noted:

Many students were obsessed about this whole thing of the online role play. They worried about almost everything from which role play character suits them better, to making compelling arguments. As such, they were doing a whole bunch of stuff- conducting face-to-face consultations and internet searches, creating blog entries; uploading images...they just got caught up in it and could not let go! (Interview with Participant A2 who played the role of a school nurse).

In the excerpt above, the student provides a description of how his colleagues got so deeply involved with the role play tasks that they almost accepted them as real. Such engagement with the tasks usually happens when students embrace a process described as ‘willing suspension of disbelief’ (Herrington *et al.* 2010:44). In this process, students willingly accept the learning context created for them and become completely involved in the activities as if they were real (ibid 2010:44). Herrington *et al.* (2010:44) argue that such engagement with the learning context and willingness to accept it as real is an important process that needs to occur in order to support students’ learning, particularly in online settings. In other words, it provides the motivation that students need to get familiar with the setting and also learn the skills required to complete the tasks. The fact that step four involved an online role play which required participants to complete tasks that are almost similar to those that can be encountered in real life, provided motivation for them to engage with the tasks. Csikszentmihalyi (1990:4) describes this type of engagement where learners are fully involved with a learning activity as the ‘flow’. The term ‘flow’ relates to the fun and satisfaction people derive from engaging in a specific activity (Csikszentmihalyi 1990:4). According to this author, this type of engagement is an essential condition for learning and only when learners fully immerse themselves in processing an activity, can meaningful learning occur.

The findings above were corroborated with observational findings, particularly the log on histories of the students including their log in times, duration spent on the Wiki platform, pages viewed as well as content uploaded or edited. Online observations indicated that the highest number of log-ins on the Wiki platform was consistently registered during night time. The majority of the students in this project always logged on to the platform after midnight. Twelve out of 20 participants commented that working late in the night on the Wiki gave them the ‘peace and quiet’ they needed

to concentrate on the tasks, as opposed to day time when they had so many other things to attend to. Six participants commented that it was easier to work when their colleagues were visible online, because whenever they got stuck or had a problem they could always find someone online to consult. Only two participants said they never worked on the Wiki tasks in the night as they were usually tired after a long day's work. Although working in the late hours of the night may not have been the best recommended study practice, it illustrated that Wiki online environment increased students' levels of motivation and commitment to pursue their own learning at the time and place they feel most convenient for them. A similar finding was reported in Coniam and Lee's (2008:63). In other words, the participants utilized the Wiki platform as a resource to extend their learning beyond the classroom at their own convenience as opposed to the educator's convenience. That said, the next section presents findings on the theme: 'connection with students' prior experiences'.

7.10.1.2: Connection with students' prior experiences

As earlier stated, that step four aimed to enable collaborative interpretation and construction of meanings as students engaged in writing argumentative texts. To achieve this, participants were invited to take part in an online role play on a Wiki platform on the topic, 'mobile phone restrictions in schools' that had been unanimously agreed upon. The students adopted different roles, ranging from school head teacher, students' representatives, teachers, lawyers, religious leaders, school counsellors, and civil society representatives, among others (see Figure 7.3). The students argued out the moral, ethical, humanitarian, and contemporary issues surrounding mobile phone restrictions in schools as well as the implications of the retributive measures for violation of the restrictions undertaken by schools. Several participants commented that they had prior experiences with phone restrictions, while they were still in high school. Eight out of the 20 participants explained that they were suspended at least once during their high school days for what was termed as 'illegal' possession of mobile phones. Five participants said that they had their phones confiscated by the school administrators, while four said they had friends whose phones were destroyed by school administrators as punishment. Only three participants said they attended schools where using mobile gadgets was not a problem. As such, they never experienced any of those things their colleagues mentioned.

The fact that the online role play was about real life experiences, it had a positive effect in motivating participants to invest time and effort to formulate and share arguments/positions on the issue using the Wiki platform. Students wished to share personal, moral, and ethical reasons why mobile phone restrictions in schools need to be revised to match with the contemporary times. In

fact, some participants revealed that the online role play provided them with an opportunity to “let out what they felt about phone restrictions in schools today” and they also wanted “to create something that could be useful to other school going children.” Beach and Doerr-Stevens (2009:466) explain that ESL students are more likely to engage in argumentative thinking if they perceive an issue or problem being debated to be a “big deal for them”. The fact that majority of the participants were punished for using their mobile devices during school time was a “big deal” for them. They felt the urge to contribute to the voices that could lead to change in the status quo.

Subsequently, the students’ ability to engage with role play tasks (e.g. formulating arguments, crafting role play persona positions, citing personal, moral, ethical reasons on the issue) basing on their past experience was consistent with the sociocultural theoretical notion of situated learning which posits that knowledge is contextually situated. According to Brown, Collins, and Duguid (1989:34), when learners are provided with the opportunity to establish a direct connection between their prior experience and new material or transfer their prior knowledge and life experiences to a new situation or task, they can actively construct new knowledge and new understandings. Brown *et al.* (1989:34) further explain that this new knowledge is meaningful because it is influenced by cultural context and it is integrated into students’ own life experiences.

Moreover, the fact that the role play was about a real life issue, involving real people, in real life communities, students were motivated to deeply engage with the roles that each of them adopted. For example, one student appreciated the fact that one of her colleagues who acted as a legal representative in the role play was from a family background of lawyers. He researched and held discussions with his lawyer parents and came up with captivating legal interpretation of the school’s action to suspend the children which he shared on the platform. The student acknowledged that reading her peer’s compelling arguments on the topic positively influenced her to carry on with the role play tasks.

I liked the fact that one of the students who chose to play the role of the legal representative was well suited for the role because he was from family background of lawyers. He had opportunity to hold discussions regarding the topic with family members who are practicing lawyers. He was able to come up with compelling arguments on the topic which he shared on the platform. Reading such powerful arguments was a big motivation for me. So I decided to dedicate a lot more time to my tasks (Interview with Participant A6 who played the role of a school counsellor).

The fact that one participant's experience motivated other students to engage with the learning tasks is consistent with research that explored the effect that "situational interest" has on motivating students' learning (Renninger and Hidi 2016:1). Situational interest relates to motivational variables such as context that triggers feelings of enjoyment and satisfaction in conducting a task resulting from individuals working together mutually to influence and motivate one another. Similarly, an empirical study by Wentzel and Brophy (2014) which explored the relationship between motivation and cognitive processes points out that motivation is a critical aspect of learning because it affects the level of learners' involvement and cognitive engagement in the learning process. In the context of this study, having a shared context for participants to share their prior experiences through the different role play positions affected the other students' motivation to explore and develop particular aspects of the task. This in turn, influenced learners' involvement and engagement in the learning process. In addition to enabling students to establish connection to their past experiences, the online role play's collaborative arguments on Wiki platform encouraged students to enact multiple literacy practices ranging from building credible role play personas, use of competing discourses and building strategic online relationships as explained in the next section.

7.10.1.3: Building credible role play personas

Data from online observations indicates that pre-service students used the affordances of the Wiki platform to build credible role play personas. Using prior knowledge of social media engagements such as building profiles and embedding images, participants created personas which they enhanced with images to create what Beach and Doerr-Stevens (2013:188) refer to as a "rhetorical persona who serves to achieve own rhetorical goals of convincing others to adopt their positions". For example, a student who created the character of the school head teacher (see Figure 7.3), embedded an image of a well-dressed, neatly kempt man with an imposing personality. This served to project a symbol of authority and a strict disciplinarian. Through the image of a strict disciplinarian, the student was able to position her audience to build meanings around this character, such as tendencies of a non-compromising school administrator in ensuring discipline among his students and in controlling their activities within the school. According Bezemer and Kress (2008:170) "meanings are not just words combined with images. Rather, word-meanings are modified in the context of image-meanings, thus opening up a wider space for meaning-making". The student goes ahead to align the image of a strict disciplinarian to the position the head teacher adopts in the role play. He asserts "*I believe as the school administration, we have a moral*

authority to intervene when students misbehave.....” This not only serves to build credibility of the character, but also positions the head teacher in the role of a person who has high stakes in controlling students’ activities which allows him to defend the action taken. In his role as the school administrator, the student writes:

Uncontrolled phone use during school time and any other unnecessary distractions such as alcohol and substance use, as was discovered among the school children is strictly forbidden and unacceptable regardless of where they take place. The school has the mandate to guard against any destructive behaviour among the children in order to promote ‘valued learning’ (Participant B12).

The belief in ‘valued learning’ as projected by the head teacher in the above excerpt suggests a school environment that is run on strict moral values, free from any distractions that may divert children’s attention from learning. While this position aroused a lot of controversy among the other role play characters, it reflects the school administrator as the voice of the school’s ideologies. This is in line with the sociocultural theoretical notion of “figured worlds as socially and culturally constructed sites” (Holland, Lanchicotte, Skinner and Cain 1998:52). The student who created this persona continuously re-aligns the character’s actions and intentions within lived-world hierarchies and power structures of the “figured world”. This is confirmed by Haynes-Moore (2015:36) in her statement “people develop, perform and continuously realign identities in an improvised response to others and in response to the social relationships within the figured world”.

Similarly, it is evident that students had learnt the “socially recognized ways of using words and other semiotic codes, such as images” (Bezemer and Kress, 2008), combined with ways of “thinking, feeling, believing and acting” (Gee 2005:111), to qualify their characters as members of particular social groups and also to build ethos aimed at convincing audiences to identify with their cause. Such literacy practices not only strengthen students’ on-screen visual arguments, but also help to shift from what Gee (2005:111-112) describes as “ascribed” identities – superficial identities within the role play to “achieved” identities- those identities within lived-world spaces of the school or community. Among other literacy practices enacted by students was the use of competing discourses to challenge other role play positions and arguments.

7.10.1.4: Using competing discourses to challenge other role play positions

The current study was guided by the sociocultural theoretical perspective, which views writing as a “social and cultural practice rather than a set of technical skills and competencies” (Street 2015:111). This means students’ literacy practices are viewed from the perspective of cultural, social, or power structures in society as opposed to the “universal cognitive or technical skills that are learnt independently of the specific contexts or cultural frameworks” (ibid 2015:111). In this context, data indicated that engagement in online role play collaborative arguments fosters students’ use of competing discourses basing on professional, administrative, legal, family, and ideological ways of “knowing and thinking” (Gee 2005:111) to challenge each other’s positions. In this particular case, students exhibited awareness of the rules, and beliefs operating in the different systems, such as the law, school, family, and technology.

For example a student who played the role of a head teacher (see Figure 7.3) built his position basing on the discourse of school management and protectionism. He used this discourse to frame his position based on the power to protect the school image and ensure children’s well-being. While this discourse garnered support from several characters, including: the school counsellor, the concerned parent, and the school nurse, it also provoked a lot of controversy among other characters especially, the single parent, the legal representative and the Child Rights Activist (these competing discourses can be accessed on <http://ele3101collaborativewriting.blogspot.com/2018/04/>). On the other hand, the legal representative used the legal discourse to challenge the school management position. He explains that the school’s policy which restricts students from using their mobile devices during school time and subsequent retributive acts, such as confiscating student’s phones and searching through their social media pages for incriminating information, is not only a violation students’ privacy, but also a deprivation of students’ constitutional freedoms to enjoy technology. He adds that basing on an ‘illegally’ obtained video recording (of children drinking alcohol and abusing substances) - an event that happened outside the school premises, to dismiss students, puts the school in a volatile and contestable position. He states:

While the school management may feel justified to get rid of the unruly students as guided by the school regulations, this case can turn out to be much more complicated due to the fact that the basis of the expulsion was focused on what the students did outside the school premises. While it might be clearly stipulated in the school regulations that phones are

forbidden, these rules do not protect the teacher who infringes on the learners' online space and interactions with others (Participant B12-legal discourse from the lawyer).

Findings suggest that the student who crafted this character is aware of the beliefs and rules governing the legal system. He uses these to build a valid legal interpretation of school administrators' actions. By identifying weaknesses in the school policies, not only indicates the student's critical thinking abilities, but also it reflects a real-life court scenario that could be used by lawyers in real-life courtrooms. Moreover, discourses such as this, illuminates an allegiance to a legal system, (directly opposed to a school system), whose values are purposely geared towards upholding the children's legal rights.

The school counsellor, on the other hand, uses a psycho-social discourse to defend the school's position. She argues that children in the adolescence phase experience serious behavioral challenges which render them incapable of making proper judgment about their lives. Therefore, this calls for adults to control the children's behavior, even if it means over-stepping boundaries, or 'infringing on their rights' as the lawyer describes it. She (school counsellor) asks "How else would the school administrators know that the children were engaged in self-destructive behavior...?" The discourses of protectionism and control adopted by the school head teacher, and all other like-minded roles, such as the school counsellor reflect an allegiance to school system with an ideological belief that to achieve 'value in learning', there must be censorship and strict control of students' activities aimed at ensuring a safe and distraction-free school environment.

On the other hand, the student who crafted the role of a single parent used a family discourse to challenge the school's restrictions on technology with a position that they are promoting 'valued learning'. The parent highlights the contradictions in blocking children from using mobile devices during school time vis-a-vis the principles of 'valued learning' and children's 'well-being'. He argues that being a single parent, who is always away from home on business trips; he ensures the well-being of his children through constant calls via internet-enabled technology. He then wonders how the school expects him to fulfil his parental obligations when children are banned from using their mobile devices while at school:

Being a single parent, I am always away from home on business trips. How does the school expect me to fulfil my parental obligation – which by the way is part of ensuring the well-being of my children- when children are not allowed to carry their mobile devices to

school? Does the school think that by banning the use of mobile phones at school is ensuring children's well-being? I don't think so! (Participant B15- Family discourse by a parent).

The parent's argument is that banning the use of technology during school time cannot guarantee students' well-being or learning for that matter, instead it creates unnecessary inconveniences and anxieties which may hinder learning. Thus, the student who created the character of a single parent uses family discourse to make valid arguments as to why the phones restrictions in schools can no longer apply in the current times. The legal representative, on the other hand, uses the legal discourse to portray the flaws in the same policies.

Thus, the competing discourses above indicate that the students (behind these characters), engaged in what Kamberelis (2001:120) referred to as "hybrid discourse practice". The practice involves projecting the competing agendas associated with larger institutional forces, such as those related the legal, school, family and technology-oriented systems, which according to Engestrom (in Beach and Doerr-Steven 2013:193), create tensions and contradictions suggesting a need for change in the status quo. By experimenting with the various discourses associated with the different systems, students became aware that they were not simply dealing with individual perspectives, but with larger societal issues (Beach and Doerr-Stevens 2013:193) related to the law, family, education, human rights and technology. Last but not least, students engaged in the literacy practice of story-telling to engage in argumentative thinking as explained in the next subsection.

7.10.1.5: Using story-telling to engage in argumentative thinking

Data from online observations reveals that a number of participants who were opposed to the restrictive and authoritarian policies of the school used the story-telling technique to advocate a different approach to handling adolescent issues in schools. For example, students who created role play characters, such as Ella Laloyo (pseudonym), a teenage girl who got pregnant while still in school and Langa Lagu (pseudonym), a teenage boy who dropped out of school due of drug addiction used the story-telling technique to deliver their arguments. These narratives can be accessed at <http://ele3101collaborativewriting.blogspot.com/2018/04/>). The story-telling technique helped the students to tell real life stories of adolescents which served as testimony that adolescence challenges are real and that they require a different approach from the one of censorship and authoritarianism reflected in the school policies. For example, in both narratives,

students highlighted ‘peer pressure’ and the ‘desire to belong’ as the major causes of teenage challenges. In her narrative, Laloyo explains that growing up as an orphan, she was a very lonely child who felt the need to be accepted by her friends at school. However, the friends she chose led her to a self-destructive path of partying, drinking and boyfriends, which resulted in her getting pregnant while still in school. Similarly, Langa says:

I was a grade A student, always on top of my class. I had big dreams for my future. But all these came crashing down when I joined the wrong crowd.... My friends and I always hanged out and partied most of the nights. I was introduced to women, drugs, and alcoholI eventually got hooked and couldn't easily break away! (Participant B14, who acted as an unruly teenage-boy who dropped out of school).

The two stories represent typical examples of the rebellious and self-destructive social lives associated with teenage-hood. These involve: ‘hanging out’, ‘drinking’, ‘sexual encounters’ and ‘drugs’. Through story-telling the students are able to reflect not only the behavioral challenges associated with teenage-hood, but also the causes of these challenges. For instance, Laloyo, highlights that being an orphan, who lacked both material support and parental guidance made her vulnerable to falling ‘prey’ to the wrong group. As such, she was drawn to peers who misguided her. Similarly, Langa a very bright boy was diverted from his education when he was introduced to drugs by the wrong friends. The students used these narratives as discursive devices to highlight the fact that behavioral challenges among teenagers are real and they are caused by some underlying factors that need to be understood by school administrators before they can take measures to discipline the students. The arguments advanced by the students behind these characters (Langa and Laloyo) are that the children who were dismissed from school for violating school policies could have had similar underlying challenges. Thus, dismissing them may not have been the best solution.

In addition, through story-telling, the students were able to highlight the consequences resulting from the bad choices that teenagers make. For example, Langa dropped out of school and took to pick-pocketing on city streets to sustain his drug addiction problem. While Laloyo became pregnant with a baby whose father, (a fellow teenager), denied any responsibility (see the full story on <http://ele3101collaborativewriting.blogspot.com/2018/04/>). In addition, the student exercises creativity in her writing when she accompanies her narrative with an image of a sorrowful young girl with a baby wiping her tears (see Figure 7.7). This image is carefully selected to add visual

weight to the framed argument of the vulnerable position of teenage-girls and also to create a sentimental mood for the readers. The reader is drawn to think about the challenges teenage-girls go through, while at the same time feeling sorry for the misery this girl is going through. In as much as teenagers may be rebellious, they are still vulnerable to making bad choices, thus the need for adult guidance and not harsh punishments such as dismissals from school.

On the other hand, the image of a baby wiping tears off her mother's face (see Figure 7.7), creates lighter mood and builds a sense of relief in the story. This symbolically represents hope for teenage-mothers. It suggests that in spite of the mistakes committed, a vibrant life (a baby) was brought into this world and that teenagers are capable of learning from their own mistakes to become better people in society. Laloyo's words indicate she had learnt her lessons:

In spite of the difficulties I went through, Trina, my baby girl, gives me the greatest joy. She grew up into an intelligent, loving and caring little soul who always made me smile. I am glad I did not listen to the advice of getting rid of her (Participant B18 who acted the role of a teenage girl who got pregnant while in school).

This suggests that teenagers, who after a phase of life experiences, are capable of making better life choices and becoming better people in society. The fact that this character did not go through with the decision to abort the baby was a better life choice she made. Thus, the literacy practice of appropriating semiotic resources with textual narratives were in line with what the sociocultural theorists Rogers *et al.* (2010:304) describe as 'triple cultural narrative' about adolescence. This involves the rebellious behaviour commonly associated with adolescents (such as, defying authority, hanging out with friends, drinking), its causes (such as, peer pressure, desire to belong) and consequences (such as drug addiction and teenage pregnancy). These serve to position teenage-hood as a highly complex phase. Conclusively, participation in Wiki-mediated role play collaborative arguments provided students with opportunities to exhibit creativity in writing and also apply literacy practices aimed at building convincing positions regarding the issue of school policies on access and use to technology.

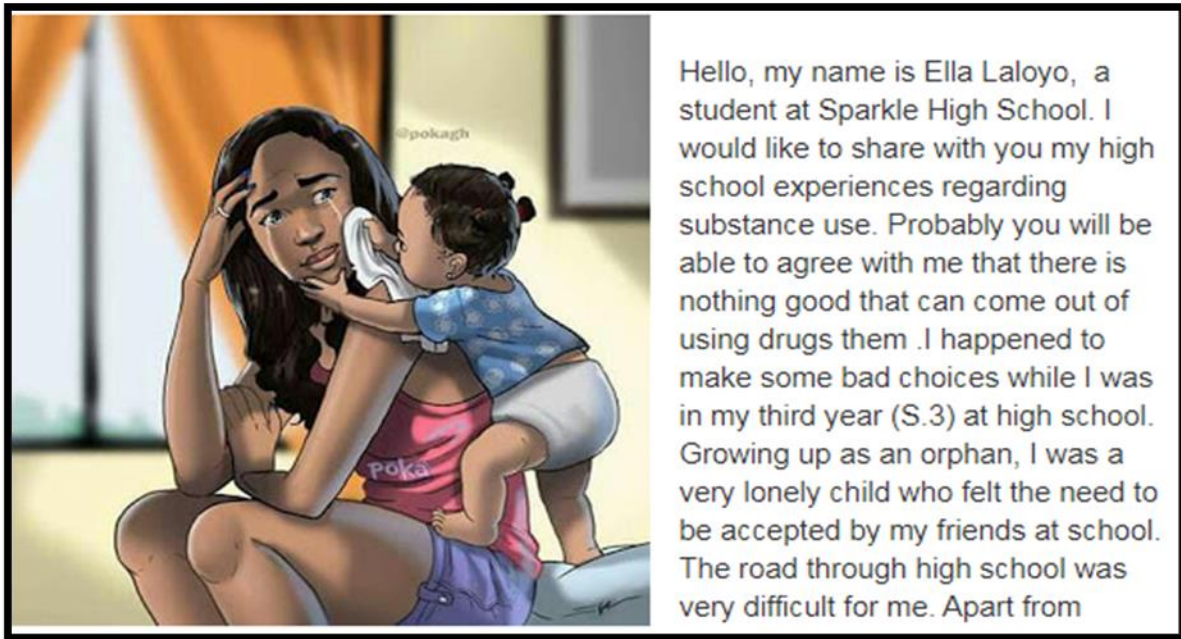


Figure 7.7: An image to support students' arguments

(Image obtained from <https://www.google.com/imghp?hl=en>)

To corroborate the findings above, participants were interviewed to explain how they benefited from participating in online role play collaborative arguments. The findings were summarized in Table 7.5.

Table 7.5: Interview findings at step four-promoting collective meaning making of ESL texts

Interview question	Themes formulated from participants' responses	Out of 18 participants	Salient comments
Briefly explain how you benefited from participating in online role play collaborative arguments.	Obtained understanding through exposure to multiple perspectives shared on the platform.	9	The ideas shared by various members on the topic 'mobile phone policies in schools' was detailed, well-researched and had adequate illustrations, images, and videos as evidence which facilitated my understanding of the topic (Participant A3). I read multiple views from other members of the role play and compared with my own

			reading. So, I gained some form of collective understanding of the topic (Participant A8).
	The role play debates fostered students' sense of belonging and allowed for an in-depth exploration of issues.	4	I felt a sense of belonging to debate upon issues that affect us as today's youth. Besides the sharing of multiple perspectives from the different role play personas such as lawyers, student representatives, teachers, school administrators, religious leaders, and the civil society enabled us to explore the topic at deeper levels and finding a common ground for potential solutions (Participant A17).
	The real-world relevance of online role play increased motivation for engagement in the tasks.	5	The real-life scenarios of the role play gave us opportunity to apply a range of practical skills we are likely to meet and use in real life situations. For example, in my role as a school nurse, I needed to present arguments from a medical point of view. As such, I accessed and interpreted authentic medical documents, reports, videos, web-links and interviewed practicing doctors on medical challenges of substance abuse, management and treatment of addicts. Indeed, I was challenged to put in extra effort in whatever I was doing (Participant A13).

Following Table 7.4, data from interviews was coded and categorized into themes and accompanied with some of the participants' salient comments. Out of the 18 participants (two missed the interviews) who responded to the interview question on how they benefited from participating in online role play collaborative arguments, nine students' responses were related to the theme of obtaining understanding through exposure to multiple perspectives shared on the platform, five participants revealed that the real-world relevance of online role play increased their motivation to engage in the tasks. Four participants stated that the online community which emerged created a sense of belonging which led to in-depth exploration of issues. Subsequently, the sociocultural theory-driven analysis was utilized to analyze the students' excerpts.

Analysis example 1

Theme: Obtained understanding through exposure to multiple perspectives shared on the platform.

Extract: *The ideas shared by various members on the topic 'mobile phone policies in schools' were detailed, well-researched and had adequate illustrations, images, and videos as evidence which facilitated my understanding of the topic (A3).*

Explanation: The student explains that, "the ideas shared by various members on the topic were adequate enough to facilitate her understanding of issues surrounding mobile phone policies in schools. She uses words... "detailed", "well-researched" and "had adequate illustrations, images and videos as evidence". These findings suggest that the current generation of learners appreciate the fact that their understanding is facilitated better if they are collaboratively sharing knowledge with peers via technologies. These findings also suggest that sharing of resources, (images, videos, links), that are afforded by online platforms are increasingly becoming popular among current learners. This has implication to the way literacy instruction should be handled. Writing instructors need to transform their pedagogical practices to accommodate what Tarling and Ng'ambi (2016:554) describe as the "changing learner styles that enhance learner-centric pedagogies". These involve students' active participation in writing texts mediated by digital technologies. Thus, in the context of this study, collective meaning-making in writing texts was enhanced through students' active participation in dialogues, negotiations and questions and answers with their peers/educator mediated by the Wiki platform. The argument advanced in this study is that innovative pedagogy in writing ESL texts would complement the predominant teacher-centred approaches predominant in many literacy classrooms.

Moreover, the multiple perspectives from other members of the role play that student A8 reads about and compares with other sources of information to gain an in-depth understanding of the topic, also play a critical role in supporting students to make sense of the written texts. Having multiple interpretations from the different members, points to Bakhtin's (1981:168) view of dialogism which suggests that there is no objective or subjective truth, but rather understanding is obtained when 'conversants' or 'talk partners' remain open to dialogues from which multiple perspectives can continue to occur. This implies that understanding of meanings in texts is an endless process that can be mediated by digital tools like Wikis or blogs. This closely aligns to the DBR approach used in this research which advocates for continuous testing and verifying of multiple sources and experts. This can be a means through which to provide scrutiny of information and ideas for purposes of obtaining true meaning. This view aligns with Vygotsky's argument that understanding is achieved if there is sharing ideas with others and being cognizant of personal biases arising from one's past experiences (Vygotsky 2004:52).

Analysis example 2

Theme: The role play debates fostered students' sense of belonging and allowed for an in-depth exploration of issues.

Extract: *I felt a sense of belonging to debate upon issues that affect us as today's youth. Besides, the sharing of multiple perspectives from the various role play personas, such as lawyers, student representatives, school administrators, religious leaders and the civil society enabled us to explore the topic at deeper levels and finding a common ground for potential solutions (A17).*

Explanation: Student A17 appreciated the fact that she was in the right place debating upon issues that affect them as today's youth. This is indicated in the student's statement, "I felt a sense of belonging to debate upon issues that affect us as today's youth". The student's words were analyzed in two ways: first, 'feeling a sense of belonging' reflects an understanding of being part of a practice that is geared towards a 'common good'. Second, the expression that the different personas' perspectives allowed for an in-depth exploration of issues is pertinent in writing instruction in ESL contexts. As earlier argued that when students in ESL writing classrooms are supported to write by relating to topics or issues that directly affect them, they will find relevancy as well as the motivation to engage in writing tasks. Writing educators need to support students to participate in conversations about issues they can directly relate to, such as the issue of technology

restrictions in schools today. Findings indicate that students shared multiple interpretations regarding the topic on the Wiki platform. Consequently, several contradictions associated with the current phone restrictions in schools were uncovered.

According to Beach and Doerr-Stevens (2013:193), the students' ability to recognize contradictions in the status-quo compels to search for joint solutions to the problem. This happens when students learn to respect each other's positions or perspectives as potential sources of useful information. Davidson (in Beach and Doerr-Stevens 2009:461) explains that these positions or perspectives are "tentative or exploratory". In other words, they are "passing theories"- hunches, or hypotheses that need further testing. By adopting these "passing theories, students learn to accommodate differing opinions and counter-arguments from their peers". This is for purposes of obtaining what Johnson and Johnson (2014:418) describe as "constructive controversy"- a process of exploring alternative perspectives on a problem- "listening to others, gathering new information, adjusting positions and clarifying what course of action would be most effective in solving a societal problem". Student A17 states that the different role play personas' perspectives enabled them to explore the issue at deeper levels, suggesting that meanings were continuously validated through ongoing debates and negotiations of ideas on the Wiki. Thus, in this study, the Wiki learning environment mediated collective meaning-making process of ESL texts through students' multiple interpretations and validation of each other's contributions. In agreement with this view, Beach and Doerr-Stevens (2009), emphasize the importance of 'shared deliberations' related to civic or community issues which can be conducted online using social networking sites, blogs or Wikis.

Analysis example 3

Theme: The real-world relevance of online role play increased students' motivation for engagement in the tasks.

Extract: *The real life scenarios of the role play gave us opportunity to apply a range of practical skills we are likely to meet or use in real life situations. For example, in my role as a school nurse, I needed to present arguments from a medical point of view. As such, I accessed and interpreted authentic medical documents, reports, videos, web-links and interviewed practicing doctors on medical challenges of substance abuse, management and treatment of addicts. Indeed, I was challenged to put in an extra effort in whatever I was doing (A12).*

Explanation: Students recognized the value that online role play in providing them with opportunities to learn practical skills that could be applied to real-life situations. This is reflected in student A12 sentiments “the real life scenarios of the role play gave us opportunity to apply a range of practical skills we are likely to meet or use in real life situations”. This is relevant for two reasons; first, it highlights the importance of the sociocultural context in supporting learning. Brown, Collins and Duguid (1989:34) confirm that when learning is embedded within context and students are able to see that what they are learning is relevant to them and has a practical application in real life, they are likely to feel more motivated to engage fully with the tasks. Indeed, student A12 confirms that she put in extra effort and exercised a number of practical skills, such as conducting extensive research on the topic and interviewing of medical practitioners in order to build a credible role play character of a school nurse. Therefore, the real-world relevance of the role play is significant in motivating students to transfer their knowledge and skills to real world context in order to actively participate in the process of meaning-making and knowledge construction. In addition, the role play activity provided insights on how students could use such approaches to actively participate in shared construction of meanings in writing texts and also to increase their likelihood to use similar methods with their future students. It was evident from the above findings that students actively engaged in collective meaning-making processes when generating argumentative texts on a Wiki platform.

Thus, the following sub-section presents findings at step five- supporting reflections in ESL writing.

7.10.2: Findings at step five: Supporting reflections in ESL writing

The sociocultural philosophy guiding this study stipulates that knowledge is generated in a social environment when learners engage in critical dialogues and also by reflecting on their own and each other’s learning (Chang 2017:2). It is thus important that participants are provided with a space to reflect on their experiences in the Wiki writing intervention as well as on the process of creating meanings of the generated texts (particularly during the role play). Correspondingly, students were requested to critically reflect on the opportunities of using the Wiki platform (such as their interactions with other members on the platform, the multiple perspectives generated and so on), challenges experienced during their participation on the platform and also suggest the

possible ways the Wiki pedagogical experiences could be improved as illuminated in the Figure 7.8.

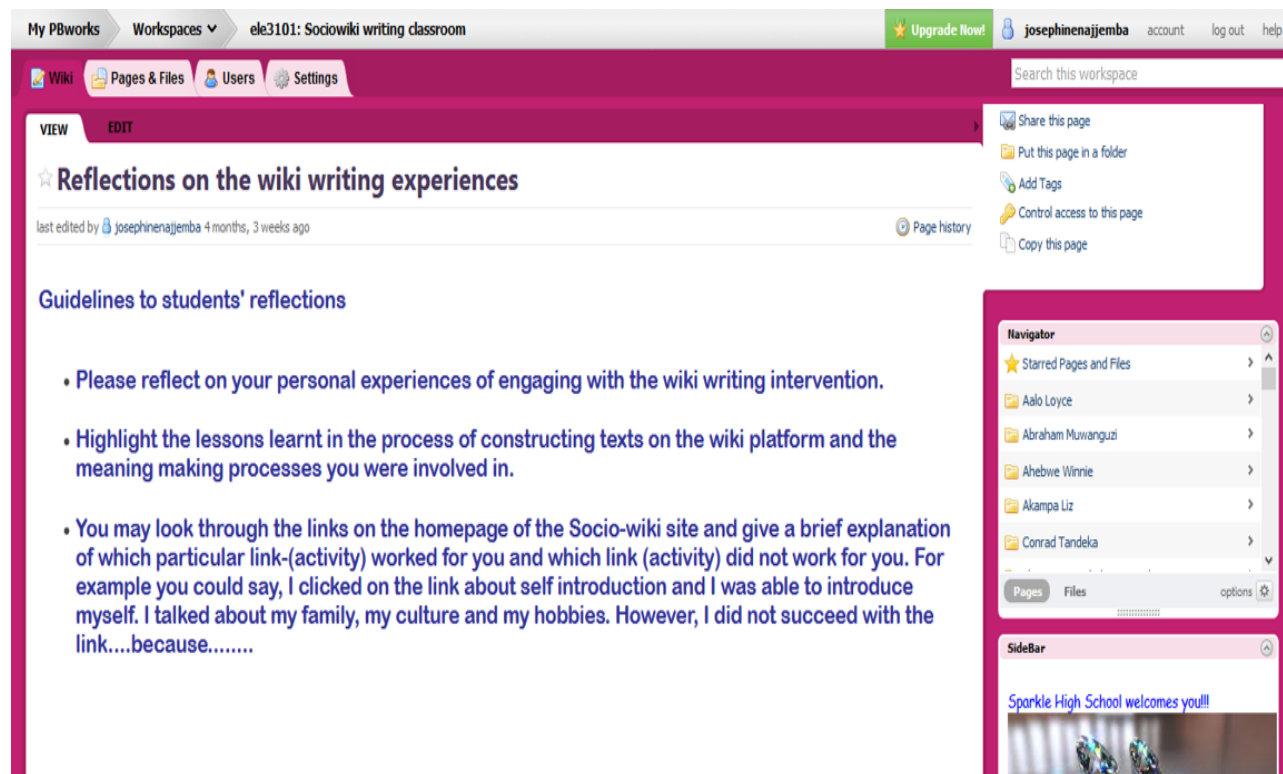


Figure 7.8: Instructions for students’ reflections on Wiki writing experiences

Following Figure 7.8, students were required to make reflections by sharing their personal experiences of engaging with Wiki meaning-making/writing activities.

7.10.2.1: Findings on students’ reflections of the Wiki writing experiences

Students reflected on the opportunities, challenges, and ways of improving Wiki writing experiences and the subsequent processes of making meanings on the Wiki platform. The findings were summarized in the Table 7.6.

Table 7.6: Observational findings at step five-reflections of the Wiki writing experiences

Themes generated from data	No of participants (out of 17)	Representative comments
The shared multiple perspectives broadened students’ understanding	8	The different posts shared by members in their various roles made me realize how complex school policies on

		technology are. No matter how you look at the issue, whether from a legal, family or school management perspective, there was always bound to be a problem. We just needed to be as open-minded as we could possibly be (Participant B5).
Improved knowledge about writing and topics engaged with.	14	My knowledge about writing and the topics discussed improved as I read the posts that members shared on the Wiki platform (Participant B15).
Improved digital skills	6	My digital skills dramatically improved as I gathered confidence to continuously type and share my ideas on the Wiki platform (Participant B10).
New approach to writing was fun and exciting	7	I found the joint Wiki writing activities fun and exciting because we had the opportunity to exchange ideas and negotiate positions regarding the topic (Participant B8).
Improved social interactions and online collaborations	9	I got to know my classmates better as I had regular online interactions with them while completing our tasks. This would not have been possible in the few hours of face-to-face contact sessions (Participant B2).
Obtained critical thinking and analytical skills	5	I was exposed to multiple perspectives especially from members of the online role play. I had to think through them, analyze them to be able to come to a logical conclusion (Participant B9).
Wiki writing activities were time consuming and exhausting	6	I found it very time consuming to complete the Wiki writing activities especially those related to the role play. For example, I and my friends used to work online for long hours in the night uploading texts, editing them, searching and loading suitable images. As such, I would wake feeling exhausted the following day (Participant B11).
Internet fluctuations and low bandwidth	8	We often faced a challenge of low bandwidth, especially during peak hours. Loading large files was difficult and saving information we had typed was always slow (Participant B4).
Fear of making errors in the content posted on the Wiki platform	5	There was always that fear that the content I am going to share on the platform is going to be read by so many people. So I would always worry about making mistakes (Participant B16).

Participation in the Wiki writing activities should be made open to more members	3	It would be a good idea to invite more students with different abilities to participate in the Wiki activities as this would broaden the writing experiences (Participant B14).
Organize trainings for integrating technology into writing classrooms.	2	We gained a lot from the Wiki writing activities. So, there is a need to sensitize other educators and students about the importance of integrating digital tools into writing classrooms (Participant B7).
Fix internet fluctuations and low bandwidth at university	4	The internet problems at School of Education need to be fixed (Participant B1).

Following Table 7.6, data findings regarding the opportunities, challenges and suggestions for improvement of the Wiki learning activities were summarized into themes. The potential of the Wiki writing activities were highlighted first. Eight out of 17 participants revealed that the shared multiple perspectives broadened their understanding. Fourteen participants revealed that their knowledge of writing improved, while six stated that their digital skills had improved. Seven out of the 17 participants revealed that the new writing approach was fun and exciting. Nine revealed that Wiki writing activities improved their social interactions and online collaborations. Five participants revealed that they obtained analytical and critical thinking skills. Participants also highlighted the challenges they faced and also made suggestions for improvement. Some of the participants' salient comments from each category of themes are analyzed as follows:

Analysis example 1

Theme: New approach to writing was fun and exciting.

Extract: *I found the joint Wiki writing activities fun and exciting because we had the opportunity to exchange ideas and negotiate positions regarding the topic (Participant B8).*

As an opportunity, Participant B8 found the Wiki writing activities “fun and exciting” because they were able “to exchange ideas and negotiate positions regarding the topic.” The argument advanced in this study is that exploiting the affordances of digital technologies that are readily available to the 21st century learners could improve the teaching and learning of ESL writing. As explained earlier, the active involvement of students through activities, such as consulting each other, sharing images or videos, and engaging in dialogical conversations on the Wiki platform has potential to

motivate reluctant learners to participate in the writing of ESL texts. This new approach to writing corresponds with the demands of “Generation Z” students whose motivation to learn is biased towards digital manipulation, social net-working, and collaboration (Miller and Mills 2019:79).

Analysis example 2

Theme: The shared multiple perspectives broadened students’ understanding.

Extract: *The different posts shared by members in their various roles made me realize how complex the school policies on technology are. No matter how you look at the issue, whether from a legal, family or school management perspective, there was always bound to be a problem. We just needed to be as open-minded as we could possibly be (Participant B5).*

The student’s sentiments indicate that the multiple perspectives shared by the different role players on the Wiki platform broadened their understanding that they were dealing with a complex societal issue related to family, technology, institutional cultures and the legal system. According to Johnson and Johnson (2009:418), this exposure mediated through digital platforms gives students ample time to study the alternative perspectives and weigh their validity, thus creating a willingness for a person to interrogate their own perspectives. Just as Student B5 suggests that there is a need to have an open mind, another student shares a similar thinking when he writes in his reflective journal:

I began the role play with a totally different perspective. I fully supported the school’s position to dismiss children who violated school policies. I always felt that rules must be respected, no matter what. However, my interaction with other roles especially the lawyer and his legal interpretation of the school’s position on dismissing the children, sort of opened my mind to a new way of thinking. I realized that these policies were cruel, and thus change in these policies is inevitable (Student’s reflective journal, October 2018).

In the excerpt above, the student recognized that in spite of her support for the school’s position to dismiss children who violate school policies, the lawyers’ interpretation opened his mind to a new way of thinking. He accepted to interrogate his own position basing on alternative perspective and was willing to work through his preconceived ideas, leading to the realization that “change in these policies is inevitable”. When further probed on how the experience of participating in Wiki meaning-making activities influenced his thinking, the student responded:

It was more about learning to listen to and accommodate other members' views and not being stuck in my own shell. So, merging my views with the views of others sort of brought me to a clearer understanding of things (Interview with Participant A2 who played the role of school counsellor).

The student's sentiments suggest a willingness to accommodate other people's views as potential sources of information and also an engagement in what Davidson (2010:Online) described as "collaboration by difference" which constitutes an openness to different levels of culture, perspectives, insights, and knowledge about an issue. Johnson and Johnson (2009:418) share similar views with Davidson in their notion of "constructive controversy" where learners in an online community recognize the validity of opposing perspectives, develop a willingness to accommodate them and work towards a common understanding. In addition, having shared conversations on the Wiki platform allows students to exercise their reflective and problem-solving skills.

The students also highlighted challenges of engaging in the Wiki meaning-making activities and suggested ways to improve the pedagogical experiences.

Example 3: Low band width and internet fluctuations.

Extract: *We faced a challenge of low bandwidth, especially during peak hours. Loading large files was difficult and saving information we had typed was always slow (Participant B4).*

Example 4: Organize trainings for integrating technology into teaching of writing.

Extract: *We gained a lot from the Wiki writing activities. There is a need to sensitize other educators and students about the importance of integrating digital tools into the writing classrooms (Participant B7).*

In example 3, the challenges of low bandwidth and internet fluctuations were highlighted. Student B4 states that loading large files on to the Wiki was difficult and saving information they had typed was always slow. A similar finding is highlighted by Heng and Malimuthu (2012:273) who posit

that the internet challenges and weak bandwidth always constrains the successful operations of the Wiki. However, students were able to find a solution to the challenge of low internet connectivity by working late in the night and also uploading the large files and videos on the Wiki, during off-peak hours. Other participants decided to utilize internet bundles provided by service providers on the market. Similarly, Sebbowa and Muyinda (2018:126) suggest that utilization of affordable internet packages can help to solve some of the internet problems students are facing at university. On the hand, as a way forward, Participant B7 suggests the need to organize trainings for integrating technology into teaching of writing. This suggests the need for training programmes to strengthen the integration of digital technologies into the writing classrooms.

The observational findings were further triangulated with data from interviews as explained below.

Participants were asked to reflect on the skills obtained through their engagement in Wiki writing and meaning-making activities. Findings indicate majority of participants acquired several skills from their engagement in the Wiki activities. For example, twelve participants admitted to have acquired the skill of thinking critically, eight acquired information literacy skills, and nine acquired problem-solving skills. In addition, ten participants said they acquired collaborative and argumentative skills, eleven acquired dialogical and negotiation skills, and eight participants reported that they acquired analytical skills. Nine participants said they acquired typing/writing skills, while twelve participants revealed to have acquired reflective skills. These findings indicate that engagement with Wiki meaning-making activities did not only have significant cognitive benefits for the students, but also helped them to gain valuable practical learning skills. Haynes-Moore (2015:35) argues that online role play discussions have potential to improve the quality of students' learning. Given the skills acquired during engagement in online role play on the Wiki platform, the next interview question tasked students to explain how they acquired the skills identified above. The students' responses are summarized in Table 7.7.

Table 7.7: Interview findings at step five-supporting reflections on Wiki writing experiences

Interview question	Themes arising out of the data	No of participants (out of 20)	Representative comments
Briefly explain how you acquired the skills you identified above.	Consulting with knowledgeable people and learning from	9	I acquired collaborative skills by consulting with people

	peers.		who were knowledgeable about the topic and also through reading my peers' posts, and commenting about them. This led us to a negotiation process in which we collectively agreed on a common position (Participant A13).
	In-depth reading of multiple sources of evidence from both the online literature and member's argumentative posts.	6	I acquired analytical skills through a careful study of the different pieces of evidence through available literature and argumentative posts shared by members of the role play. I compared them with other sources, to arrive at some kind of logical conclusion (Participant A7).
	Thinking critically through the roles adopted for the role play.	5	Participation in online role play encouraged me to think critically about the role I was about to take on. That is, what was my role going to be like? What position was I going to take? What arguments was I going to present to defend my position? What image was I going to portray? All these aspects were important for me to think about, if I was going to build a character that would create an impression (Participant A20).

Following Table 7.7, two examples of students' extracts were analyzed basing on the fact that they were aligned to answering the second research question.

Analysis example 1

Theme: Consulting with knowledgeable people and learning from peers

Extract: *I acquired collaborative skills by consulting with people who were knowledgeable about the topic and also through reading my peers' posts and commenting about them. This led to us to a negotiation process in which we collectively agreed on a common position (Participant A13).*

Explanation: The extract above indicates that students gained collaborative skills during engagement with online role play which was one of the meaning-making activities on the Wiki. For instance, the student says, "I acquired collaborative skills by consulting with people who were knowledgeable about the topic and also through reading my peers' posts and commenting about them..." This implies that there was a dialogical engagement involving consulting with the 'knowledgeable others', reading peers' posts and exchanging ideas about them. These aspects are essential for students to obtain true meanings out of their writing. However, this requires engagement collaborative dialogues involving sharing multiple views and negotiations of meanings. Therefore, building meanings on the Wiki platform fostered learners' skills of reading peers' posts, listening to the knowledgeable other and exercising analytical skills which are important for the 21st learning. This is in line with the sociocultural theoretical perspective which encourages listening to the knowledgeable other if we are to make meaning out of the available evidence (Vygotsky 1986:94).

Analysis example 2

Theme: In-depth reading of multiple sources of evidence from both the online literature and member's argumentative posts.

Extract: *I acquired analytical skills through a careful study of the multiple pieces of evidence through available literature and argumentative posts shared by members of the role play. I compared them with other sources and interpreted them to arrive at some kind of logical conclusion (Participant A7).*

Explanation: The students’ sentiments highlight the importance of reading, comparing and interpreting multiple sources of evidence from peers and knowledgeable others to arrive at an understanding. The student affirms that he acquired analytical skills through carefully studying and interpreting multiple pieces of evidence. The argument in this study is that using digital platforms for ESL writing pedagogy has potential to encourage students to exercise various skills, including reading and exploring multiple sources of information about a topic, as well as analyzing them. This increases chances for creation of knowledge and in-depth understanding. This aligns with the sociocultural theoretical notion that understanding is facilitated if there is a collaborative environment in which multiple perspectives are shared and negotiated to come to a common position (Thompson 2012:89).

Basing on the skills acquired through engagement in an online role play and the Wiki writing intervention in general, the final question required participants to briefly explain the suitable teaching methods they would use to support the development of literacy skills amongst their learners. Responses indicated that participants would use several methods to support learners’ literacy skills. Fourteen participants said they would use story-telling method, twelve would use collaborative methods such as group discussions, ten students said they would use role play/drama, five would use inquiry methods, three would use field visits, while four participants would use discovery methods. The participants were asked to describe why they would use the methods mentioned above to facilitate the learning of literacy skills. The responses were categorized under themes, accompanied by participants’ salient comments as summarized in Table 7.8.

Table 7.8: Interview findings at step five- Reflections on the possibilities of Wiki writing intervention

Interview question	Themes arising out of students’ responses	Number of participant method	of per	Salient comments
Briefly explain the suitable teaching methods you would use to enhance learners’ literacy skills.	Group discussions to enhance debates and learning.	12		‘I would utilize group discussions to provide learners with an opportunity to express their views, provide feedback on each other’s views, while learning from each other’ (Participant

			A12).
	Storytelling to motivate and arouse learners' interest.	14	'Story telling is a powerful tool in arousing learners' interest. I would definitely use it to focus my learners' attention to key issues I would wish them to write about' (Participant A3).
	Role play/drama to create empathy among learners as they practice literacy skills.	10	'Participation in role play or drama allows learners to fit into someone else's shoes and also to think and feel like them. So I would use it in my writing class to support learners' in-depth understanding of the topic' (Participant A16).
	Inquiry method to enable research about a topic of engagement.	5	'Inquiry into the topic by reading different sources of information could improve my students' understanding' (Participant A13).
	Discover and learn on their own.	4	'I would let my students explore and discover the skills on their own' (Participant A7).
	Field visits to get real views on the topic and experience practical skills.	3	'Field visits have an advantage of bringing real life experiences into the classroom. So I would encourage my learners to visit work places, and conduct interviews with practitioners in the field. By so doing, they would exercise practical literacy skills' (Participant A8).

The findings from Table 7.8 indicate that the methods pre-service students suggest to use to develop their learners' literacy skills would vary depending on the learning goals envisaged to be achieved. This implies that literacy instructors ought to shift towards learner-centred pedagogies which empower students to do most of the work as opposed to their teachers (Nganga and Kambutu 2017:201). Moreover, engaging with learner-centered methods as suggested by the students has potential to open up opportunities associated with the 21st century learning (Nganga and Kambutu 2017:201; Benavot 2018:5; UNESCO 2018[1945]:5; Diaz-Lauzaria and Moreno-Salinaz 2019:2). Perhaps, the most rewarding way to enhance students' literacy skills among the current generation of learners is to allow them to explore and discover for themselves about the hidden skills they have. Therefore, to enhance understanding, literacy instructors need to provide learners with a conducive learning in order to nurture their dialogical skills.

That said, the next section explains how the research findings above responded to second research question: **In what ways do the interactions and collaborative conversations in the Wiki intervention impact pre-service students' writing and argumentative thinking?**

A summary of responses to research question 2 as evident in study findings

The findings from steps four and five responded to the second research question as follows. Findings suggest that the interactions and collaborative conversations on the Wiki platform motivated students to actively engage with constructing texts and making meaning out of them. In this study, collaborative conversations were viewed in terms of students actively working together in sharing the written texts, images and any other pieces of evidence on the topic and making sense of them through exchanging feedback in form of ideas, opinions or comments (dialogical conversations) on the Socio-wiki platform. Dialogical conversations encouraged students to participate in joint construction of meanings of texts through utilizing digital tools. In addition, data presented above reveals that in order to make writing relevant to learners, it must be closely related to students' interests and prior knowledge. Appreciation of each other's family background, cultures, interests and hobbies as was the case with step three-promoting online introductions indicates potential for building a sense of belonging were students openly share personal information without fear of being judged. This was a critical stage for further engagement with the writing tasks and knowledge construction at later stages. This was also considered as an important aspect in reducing the sense of isolation during writing that students commonly experienced during the traditional print-based writing classrooms. Finally, the dialogical learning approaches,

including exchanging comments, interrogating issues, and negotiating meanings between students, peers and educators reveals potential to support students' argumentative skills, critical thinking and analytical skills that are important in students' writing. As such, these findings were important in providing insights that revealed how pre-service students make sense of their writing within a specific context.

7.11 Chapter summary

Basing on Salmon's procedural model, the chapter has presented a description of each of the revised design principles and the subsequent change in names for the different stages. Consequently, the Wiki learning environment was redesigned and renamed the Socio-wiki to accommodate the revised design principles and to reflect the theory guiding this study. To ensure participants obtained adequate support regarding the operations of the Socio-wiki online platform, weekly workshops were conducted. Data collected from this iteration was analyzed following the sociocultural theory-driven analysis procedure. The findings obtained were aligned to providing answers to two research questions:

1. To what extent does the Wiki intervention foster social interactions and collaborative dialogues among ESL pre-service students?
2. How do social interactions and collaborative conversations in the Wiki intervention impact on pre-service students' writing and argumentative thinking skills?

Subsequently, findings indicate that the Wiki writing intervention largely fosters social interactions and collaborative dialogues among pre-service students. For it provides a safe space for students to engage in dialogical conversations as they engage with the writing tasks seen from the way students supported one another to access the platform. As a means to socially interact, participants introduced themselves on to the Wiki platform, and shared personal information and images of their families, cultures, interests, and created meanings through dialogical conversations on the Wiki platform. In this study, the social interactions and collaborative dialogues were closely interlinked. For the second research question, social interactions and collaborative conversations on the Wiki platform motivated students to actively engage with constructing texts and making meanings out of them. Participants actively engaged in learning activities, such as the online role play in which they shared written artifacts: images, photos, videos, and visual arguments regarding the topic on the Wiki platform. This opened opportunities for engagement in dialogical conversations in which students participated in co-construction of knowledge and new meanings.

The next chapter presents reflections on the four phases of DBR employed in this study leading to a pedagogical framework for enhancing students' literacy skills.

CHAPTER EIGHT

REFLECTION ON DBR PHASES TO PRODUCE DESIGN PRINCIPLES

8.0 Chapter overview

This chapter presents reflections on the four phases of the DBR approach used in this research. This focuses specifically on the various activities that took place at each phase. In addition, highlights of the systematic processes conducted during the two implementations of DBR phase three leading to creation of the design principles are described. Subsequently, a discussion is presented of the answers to the three research questions aligned to the design principles. The chapter concludes with a description of how issues of quality in this research were addressed.

8.1 The procedural processes of DBR approach used in the study

The DBR approach (Reeves 2006) was carefully analyzed and found to be a suitable methodology to guide this study (see Chapter 4, Section 4.4). The four phases of DBR approach were followed while conducting the study. These include: Phase One: “Analysis of practical problems by researchers and practitioners in collaboration”. Phase Two: “Development of solutions informed by existing design principles and technological innovations”. Phase Three: “Iterative cycles of testing and refinement of solutions in practice”. Phase Four: “Reflection to produce design principles and enhance solution implementation” (Reeves 2006:59). The section below illustrates how each of the phases above was systematically implemented to produce the final guidelines (pedagogical framework).

8.1.1: Phase One: Identification and refinement of the research problem by the researcher in collaboration with practitioners

The educational challenge that is under scrutiny in this study originated from English as a Second Language (ESL) classroom. It was observed that in many language classrooms, especially ESL classrooms, there is more emphasis on the teacher-centred monologic writing tasks that merely cover authoritative content, than on interactive and participatory tasks that allow students to explore and exercise creativity in their writing. As a result, a number of students became passive consumers of knowledge who attach very little relevance to writing ESL texts. Thus, the dominant use of teacher-centred pedagogies in the language classrooms reduces active learner engagement and create a disconnection in the way today’s learners communicate and learn (see Chapter 1,

Section 1.2). The argument advanced in this study is that the didactic approach to teaching writing renders students incapable of becoming creative or even developing stronger ownership of their writing. In the end, the students consider writing as “a no more than an exercise of knowledge telling” (Bereiter and Scardamalia 1987:183) that has no relevance to their current study needs.

Having explored various digital technologies for education purposes as a postgraduate student of ICTs, I was exposed to the possibility of using digital tools as an intervention. This was intended to make writing more relevant to the students through enhancing social interactions and collaborative conversations between student to student or student to educator (see Chapter 1, Section 1.3). Guided by phase one of DBR, it was important to interact with other stakeholders in order to refine my understanding of the research problem. Therefore, I held consultations with practitioners, particularly ESL teacher-educators (who are also literacy instructors). Having conversations with these practitioners was important in two ways. First, the shared classroom experiences helped to clarify my understanding of the research problem. Second, given the fact that these practitioners are part and parcel of the experiences and challenges in their day-to-day literacy practices, they were considered better placed to suggest possible solutions (see Table 4.2). In their insights, practitioners confirmed that in the conventional writing classrooms, there is indeed limited shared dialogues and social interactions between students and their peers or students and their educators. This is because most of the learning is usually monologic. Subsequently, students do not find writing ESL texts motivating or meaningful to their current study needs. The practitioners suggested utilizing the affordances of technology to mediate interactions, and increase shared conversations among students, peers and educators in the writing classrooms.

Subsequently, a literature review was conducted to determine how other researchers had approached similar challenges (see Chapter 2). Studies in the area of language education indicate that most contemporary students find learning to write ESL texts boring and lacking in the way they learn or even process information. Many of these students belong to the “Generation Z” category (Shatto and Erwin 2016:253; Mohr and Mohr 2017:84). This generation of learners has grown up with technology as “a natural part of their lives” (Maurtin-Caincross 2014:565). Thus, they expect educators to integrate technology into their learning experiences (Miller and Mills 2019:79). They are also fluent technology multitaskers who always desire to interact with others online and work in collaborative ways whether in class or while studying (Miller and Mills 2019:79) Therefore, subjecting them to behaviourist teacher-centred pedagogies not only makes them inactive, but also disconnects them from their way of life. Yang and Walker (2015:193) argue

that in the current digital age, teachers have ceased to be the sole source of information as learners can now use the digital tools at their disposal to obtain diverse information about the topic under study. Therefore, my thesis in this study is that, unless students are supported to socially interact and hold continuous dialogues aimed to attach meanings to their writing mediated by the available technologies, there is a risk that many of them will continue to be alienated from deriving meaningful experiences from writing ESL texts.

Having explored, analyzed, and clarified the educational challenge, I engaged with the sociocultural theory to inform my understanding of the nature of interactions and collaborations needed to support writing among students in ESL (see Section 5.3). The theoretical underpinnings have been critical in providing the constructs to work with and propose a solution to the identified educational problem. In addition, the sociocultural theoretical concepts, such as social interactions, dialogues and collaborations were explored in detail to establish their potential to address the research problem (see Chapter 2, Sections 2.6 and 2.7). Moreover, additional solutions to handle the identified educational challenge were suggested under DBR phase two as explained in the next section.

8.1.2: Phase Two: Development of solutions informed by existing design principles and technological innovations

DBR Phase Two involved establishing the existing design principles and developing solutions to the current educational challenge. This was done by consulting literature to establish the available design principles or how other practitioners had addressed similar problems. The design principles were viewed as reusable guidelines for practitioners who want to devise solutions to educational problems in their contexts (Amiel and Reeves 2008:35). Various studies indicate the potential of Salmon's (2002) five-stage model to mediate interactions and dialogues between students and educators and for supporting meaningful pedagogical activities in online learning environments. Besides, this model offers a step-by-step training for learners to effectively interact, communicate and study within an online learning environment (see Chapter 5, Section 5.2). Therefore, to produce the draft design principles used in the study, Salmon's design principles for online learning were aligned with the sociocultural theory as shown in Table 5.1. As explained in the preceding sections, the sociocultural theory was important in providing the theoretical constructs (the language) to guide the intentions behind the interactions and dialogical encounters between students, peers and educator.

As guided by phase two of DBR, the Wiki online learning environment was developed as the technological innovation and tailored to the formulated design principles (see Table 5.1) with an intention of addressing the identified research problem. The choice of Wikis as a technological innovation was guided by their affordances in fostering interactions and shared conversations of meanings of written texts (see Chapter 2, Section 2.10). Having formulated the design principles and developed the Wiki learning environment, next was DBR phase three.

8.1.3: Phase Three: Iterative cycles of testing and refinement of solutions in practice

DBR phase three was important in the implementation, testing and evaluation of the Wiki writing intervention at an actual educational context. Subsequently, the Wiki intervention was implemented and tested through two implementations (see Chapters 6 and 7). The first implementation was conducted as a pilot study for eight weeks, (from October 24th – December 17th 2017), with forty-eight participants (see Chapter 6, Section 6.1). While the second implementation was conducted for a period one year, (from April 2018 –April 2019), with twenty participants who had exhibited high interest levels in the first implementation (see Chapter 7, Section 7.1). The topic of engagement in the first implementation was ‘*School practice experiences of novice teachers*’ which was to be completed in form of essays posted on the Wiki platform. While in the second implementation, the topic was ‘*Mobile phone (technology) policies in schools*’ that was to be completed through participation in an online role play (see Chapter 7, Section 7.7). Being an intervention, the current study aimed to respond to the challenge of the anti-dialogical writing classrooms caused by the predominant use of behaviourist approaches. Thus, it was important to support interactions and create dialogical conversations between student-students, student-educators as well as student and the content mediated by a digital tools (Wikis). This attempt resonates with the way contemporary students learn. To operationalize this approach, the sociocultural theoretical underpinnings were utilized to provide the constructs (language) to implement the learning solution. To align theory to practice, Salmon’s five-stage model provided the design principles to work with in practice, which were carefully aligned with the sociocultural theoretical constructs (dialogue, social interactions, and collaboration). It is these design principles that were tested and refined through the two implementations. Subsequently, the methods of data collection used in the two implementations were: interviews, observations, analysis of students’ reflective journal entries and Wiki artifacts, as well as researcher’s field notes and blog entries.

The next section presents reflections on the first implementation of the design solution.

Table 8.1: The systematic procedural process of the two implementations in the current study

Aspect of consideration	First implementation (Chapter Six)– pilot study	Second implementation (Chapter Seven)- main study
No of participants	48 participants	20 participants
Theme/topic of engagement	‘School practice experiences of novice teachers’ (Wiki-generated essays)	‘Mobile phone policies in schools’ (online role play)
Technological innovation	Wikispaces	PBWiki- (Socio-wiki)
Theoretical perspective	Sociocultural theory	Sociocultural theory
Design principles	Formulated design principles from Salmon’s five-stage model	Modified design principles from Salmon’s five-stage model
Duration of study	October 24 th – December 17 th 2017 (8 weeks)	April 2018 –April 2019 (1 year)
Data collection methods	Interviews Observations Researcher’s field notes and blog entries Students’ reflective journals and written texts on the Wiki	Interviews Observations Researcher’s field notes and blog entries Students’ reflective journals and Wiki-generated artifacts

8.2 Reflections on the first implementation of the design solution (Wikispaces intervention)

The first implementation of the Wiki writing intervention was conducted as a pilot study for a period of eight weeks with forty-eight third year pre-service students at one university in Uganda (see Chapter 6). Salmon *et al.* (2010:170) design principles such as ‘enable access and motivation’, ‘promote online socialization’ among others, provided the steps to follow in implementing the activities of the Wiki intervention (see Chapter 5, Section 5.2). To implement step one: enable access and motivation, the volunteer participants were invited to a number of successive workshops in which they were provided with an overview of the intervention and also guided on how to access the Wiki online learning platform. In addition, the volunteer participants were shown how to obtain technical support in case of challenges. Having succeeded in gaining access to the platform, participants were divided into groups and assigned group pages on the Wiki platform

(see Figure 6.3). In their groups, students requested to discuss and agree on the topic they would like to write about. The students unanimously agreed to engage with the topic: ‘*School practice experiences of a novice teacher*’ (see Section 6.2.1). Data at this stage was collected through online observations of the Wiki activities, students’ interviews and analysis of students’ reflective journal entries as well as the researcher’s field notes and blog entries. The findings were summarized into lessons attained and these provided ground for improvement at the second implementation (see Section 6.4).

The subsequent sections present reflections at each step of the design principles highlighting the successes and failures at each step.

Step one: To enable access and motivation

At this step, participants continuously supported one another until each one of them successfully accessed the Wikispaces online learning platform. The students used personal computers, mobile phones and desktop computers to access the platform. Eventually, all the forty-eight participants were able to access the platform and exhibit their online presence by making introductory posts on the platform (see Chapter 6, section 6.5). Although step one, was to a large extent, successfully accomplished, the lessons learnt are that: It is necessary to give participants enough time to get acclimatized to the Wiki platform. It is also necessary to provide students with a relaxed environment without any strict rules or procedures, so that they can freely engage with the activities of the Wiki learning environment. Such observations, together with comments from the participants provided basis for revising and improving step one at the second cycle of implementation.

Step two: To promote online socialization

At this step, students were provided with a pre-engagement task. They were asked to introduce themselves on the Wiki online learning platform by stating their names, year of study and their expectations of the course. While the majority of the participants responded to the task, some declined to disclose their identities online and others posted very brief introductory remarks (see Figure 6.5). It was necessary to invite participants for face-to-face workshop so that they could physically interact and also engage in activities intended to build trust and confidence in one another before they could move back to the Wiki online activities. Thus, in their assigned groups, students were asked to share ideas about the topics they would like to engage with on the Wiki and cite reasons why they would engage with those topics. Step two was largely successful since most

students disclosed their online identities and shared ideas about the topics for their Wiki writing activities. However, to a smaller extent, some students were still hesitant to share their identities and their motivation levels were generally low. It was presumed that the little time students had to interact with each other on the Wiki platform did not allow them to develop enough trust to share personal information with others online. Another reason could have been that the students may have lacked adequate support to motivate them to engage with the Wiki tasks. These issues were documented as lessons learnt (Section 6.4), to be used as reference in refining Step two, at the second implementation of the design solution.

Step three: To promote information exchange

At this step, students were asked to upload images, videos, texts, and audio recordings of their '*School practice experiences as novice teachers*', a topic they had unanimously agreed upon. The students were also requested to post comments and exchange views about what was happening in those videos or images (see Chapter 6, Section 6.2.3). Although the majority of the participants successfully posted comments and shared views about the uploaded material, there were fewer uploads made on the platform compared to the number of participants. This was probably because many participants did not get enough practice on how to upload videos or other materials on the Wikispaces platform. In addition, the participants had very little time (one week) within which to complete this activity. These issues were highlighted under the lessons learnt to serve as a ground for improvement of Step three at the second implementation.

Steps four and five: To promote knowledge construction and to foster development

Step 4 which was the actual writing phase, participants were tasked to collaboratively construct texts on the topic '*school practice experiences of a novice teacher*'. These participants were divided into six groups of eight members and each group was assigned a page on a Wiki platform to use for their writing (see Chapter 6, Figure 6.3). In their Wiki group pages, participants were required to share ideas on what their stories would look like, develop them into texts, revise, edit, and upload them on their pages. They were also asked to give feedback on each other's uploaded texts. This activity was allocated four weeks to complete. While it was expected that students would work with their group members to collaboratively upload, edit, construct knowledge (texts) and engage in further negotiations about them, there were very few students in each group who actively engaged with these tasks. One possible reason could have been that the big number of members in each group (eight members per group), could have hindered some participants, thinking others would complete the work on their behalf. In addition, some students may have

lacked the confidence to give feedback on each other's work. It is also possible that some students did not feel obliged to complete these group tasks because they did not contribute any marks to the final coursework assignments. Since there was limited participation and engagement of the students at this Step 4, it was considered unsuccessful. Subsequently, Step 5- fostering development was impossible to implement. These two steps had to be re-tested and refined for better results at the second cycle of implementation of the design solution.

The reflections on the first implementation of the design solution are summarized in Table 8.2.

Table 8.2: Reflections on the first implementation: Challenges, recommendations, and supporting authors

Existing design principles (Salmon, 2002; 2011)	Challenges/what did not work out at the first implementation	Recommended modifications in the design principles	Supporting authors and researchers
Step One: To enable access and enhance motivation	<ul style="list-style-type: none"> -Participants had difficulties in accessing the platform. -Had an unclear understanding of learning online. -Wiki platform was novel tool to many of the participants. -There was a sense of anonymity due large numbers of participants. 	<ul style="list-style-type: none"> -Provide a clear purpose for learning online. Provide adequate technical support. -Encourage peer support in accessing the platform. -Make the platform less intimidating through informal means, such as play. -Provide face-to-face consultative meetings. 	(Salmon 2002; 2011; Mokoena 2013; Moule 2007; Sebbowa <i>et al.</i> 2014; Chen <i>et al.</i> 2013).
Step Two: To promote online socialization	<ul style="list-style-type: none"> -Participants were hesitant to share their identities online. -Some participants declined to disclose their identities online, while others shared very brief introductions about themselves online. -Mistrust among participants. -Limited time for interactions and engagement on the Wiki 	<ul style="list-style-type: none"> -Create an open, interactive environment for participants to freely express their feelings, thoughts and concerns. -Engage participants in activities intended to build trust and confidence to learn with each other online. -Provide adequate time within which participants can interact and engage with the tasks. 	(Boling <i>et al.</i> 2012; Mokoena 2013; Salmon <i>et al.</i> 2010; Chen <i>et al.</i> 2013; Sebbowa <i>et al.</i> 2014; Kim 2013; Herrington n.d.; Yang, Yeh and Wang 2010).

	platform.	-Encourage sharing personal information, experiences and interests through multiple modes. -Reduce uncertainty, and mistrust through face-to-face meetings.	
Step three: To support information exchange	-Limited communication and exchange of information. -There were few uploaded materials on the platform (images, photos, videos) regarding the topic. -Fewer comments and exchange of views regarding the uploaded materials were posted. -Many participants did not get enough practice on how to upload artifacts on the platform. -Participants did not adhere to the set deadlines within which to complete the task. -Limited engagement with the task.	-Encourage students to use and select relevant information and authentic resources. -Encourage students to be proactive in assisting each other and provide constructive feedback. -Create a positive learning environment where learners can feel free to share personal experiences related to the topic under study. -Monitor students' uploads regularly to detect challenges or missed opportunities. -Offer individualized training/support on how to upload materials on the platform. -Encourage students to read, respond and learn from peers' posts -Highlight the importance of good time management and make students accountable for the set deadlines.	(Herrington <i>et al.</i> 2010; Boling <i>et al.</i> 2012; Sebbowa <i>et al.</i> 2014; Akbari <i>et al.</i> 2016).
Step 4 and 5 To promote knowledge construction and foster development	-There was limited participation and engagement with the learning tasks. -The learning tasks needed to encourage more engagement with real world issues. -Feedback was limited to grammatical correctness as opposed to meanings of the created artifacts.	-Encourage interaction and active participation for all participants. -Present complex and open-ended tasks such as; role plays, scenarios etc. to encourage collaborative sharing and interpretations of multiple views. -Provide learning tasks that have real world	Boling <i>et al.</i> 2012; Kim 2013; Herrington <i>et al.</i> 2010; Mokoena 2013; Abrami <i>et al.</i> 2013; Beach and Doerr-Stevens 2013).

	<p>-Some participants lacked the confidence to edit or give feedback on each other's work. Others did not feel obliged to complete the tasks since there were no incentives or marks attached.</p> <p>-There were few students in each group who actively participated to complete the tasks.</p> <p>-The big numbers in each group (8 members) hindered some participants from actively engaging with the tasks, leaving others to complete the tasks on their behalf.</p> <p>-Step 5 could not be implemented because of the limited engagements experienced at Step 4.</p>	<p>relevance and require students to engage in collective sharing of knowledge for in-depth understanding.</p> <p>-Have students work collaboratively to enable sharing of different perspectives and points of views.</p> <p>-Encourage students to focus on the content for meaning-making, rather than on grammatical correctness.</p> <p>-Organize face-to-face discussions with the collaborative groups to enable collective reflections on lessons learnt and future strategies.</p> <p>-Monitor students' discussions regularly and direct the discussion towards building new meanings and understandings.</p>	
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Table 8.2 presents reflections on the first implementation, highlighting the challenges experienced at each step of the tested design principles, the recommended modifications in the design principles and the authors supporting the modifications. The evaluation process of each design principle was obtained through documenting what was successfully accomplished and what was not achieved at each step. This process was to enable the re-testing of the design principles in the proceeding implementation. At the second cycle of implementation, there was a change in the naming of the design principles following the recommended modifications at the first implementation, as well as the findings at each stage of the new implementation. This follows Herrington's (in Sebbowa 2017) argument that "after the implementation and assessing of the proposed solution, the draft principles that have guided the design of the solution are revised and re-tested to reflect new findings".

8.3 Reflections on the second implementation of the design solution (Wiki writing intervention)

In the second implementation, the Wiki learning platform was redesigned and renamed the ‘Socio-wiki’ (see Chapter 7, Section 7.2.3). The intention was that the pedagogical activities conducted during the Wiki intervention would be customized to suit the local ESL learning context. It would also reflect the sociocultural theoretical philosophy guiding the study. Correspondingly, the design principles were revised and renamed in alignment to the ESL education context and the sociocultural theory (see Chapter 7, Table 7.2).

The second iteration of the design solution was conducted within a period of one year. It involved twenty third year pre-service students offering Methods of Teaching English as a Second Language course who had participated in the first implementation (see Section 7.4). Having the same cohort of students who had participated in the first cycle of implementation of the design solution was advantageous as the students had become familiar with the study requirements and the Wiki online learning environment. Thus, these students required minimal assistance to complete the Wiki tasks. The face-to-face workshops were organized to get the participants acclimatized to the Socio-wiki online learning environment (see Sections 7.5). Correspondingly, participants were invited for the face-to-face weekly workshops to practice using the Socio-wiki platform and to deliberate on issues such as increasing students’ motivation to engage with Wiki activities (Section 7.6). Data from online observations, interviews, researcher’s field notes, students’ Wiki artifacts and reflective journals were closely aligned to the revised design principles, while at the same time subjected to the sociocultural theoretical driven analysis as reflected in the following sections.

Reflections on findings aligned to revised design principles

Reflections on the key findings were made in alignment to the revised design principles (see Table 7.2) in order to obtain answers to the first and second research questions. These were highlighted under themes; promoting social interactions and active online participation, and knowledge construction and meaning-making on the Wiki platform (see Sections 7.9 and 7.10). In order to maintain the consistency and uniformity, the reflections were conducted under similar headings.

8.4 Promoting social interaction and active online participation (discussion of findings)

Step One: Accessing the play space

According to Akbari *et al.* (2016:2 of 22) today's learners have innumerable opportunities to access, create, share, and expand their knowledge base through social networking sites. Thus, having been active social media users was an important factor in motivating students to participate in the Socio-wiki writing intervention. In addition, the students had internet-enabled personal devices, including: mobile phones, iPads, laptops, and desktop computers which they could use to access the platform. Besides the ICT infrastructure, (Wi-Fi hot spots and desktop computers connected to the internet), available at faculty also eased students' access to the Socio-wiki platform. Salmon *et al.* (2010:170) posit that utilizing the existing ICT infrastructure and tools to gain access is essential to support any online learning engagements. Thus, students practiced how to access and use the Wiki platform for their writing tasks through playing around with the Socio-wiki platform features. The students' engagement in the trial and error method (play) as well as the dialogical conversations they had with other people, such as peers, the facilitator, and the technical personnel, provided additional support for students to confidently use the Socio-wiki platform. Gachago, Morkel, Hitge, Zyl, and Ivala (2017:3 of 14) argue that a learning environment that supports play and free exploration of ideas without fear of failure or criticism is crucial in fostering digital competence as well as design thinking mindset among participants.

Accordingly, findings revealed that it is possible to relate to learners' interests, feelings and thinking when a less intimidating learning environment, (that engages students at different sites of expression) is created. For example, in this study, the affordances of a Wiki platform enhanced interactions and open dialogue among participants. They created texts on the agreed topic, exchanged ideas, and shared images, videos, and web-links to enhance their arguments. This made writing on the Socio-wiki platform more interactive and appealing to the students as compared to the conventional print-based writing they had been used to. According to Thompson (2012:89) active involvement of learners in dialogical conversations with others in composing texts not only motivates them to engage in writing but also improves their understanding of the process. This is in line with the sociocultural theoretical tenet that posits that knowledge is constructed in a social environment where learners interact, share, and reflect and on their own and each other's ideas (Vygotsky 2004:52; Nilson 2010:149).

In addition, social interaction is an important factor in creating trust and motivation among learners in ESL writing classroom. Students found creating of texts on the Wiki platform through ‘play’ and dialogue more exciting than conventional print-based texts. This was evident in the jokes students exchanged while working on their Wiki activities. In fact one student stated in a post-intervention interview:

Classroom writing, for me, has always been a serious activity; no fun, no jokes, no play. It is always, write! write! write! But my attitude changed when I engaged in this Wiki project. We exchanged jokes and teased each other as we fooled around with the Wiki buttons. The trial posts and uploads we made finally put us into a place where we were ready to start some serious writing. I loved it.

Such students’ enthusiasm and views are relevant in terms of providing insights that link the teaching of writing to students’ current interests and passions. The argument advanced in this study is that having a shared space where students freely interact and participate in creating and attaching meaning to texts can transform writing into a flexible, interactive and interesting activity. Therefore, the relevance of this study lies in urging writing instructors/educators to use the affordances of the digital tools in writing to connect to students’ interests This approach is also considered critical in supporting writing among students who are especially reluctant and disengaged to write texts (Thompson 2012:88).

Similarly, Yi, Kao, and Kang (2017:11) encourage educators to foster students’ engagement in writing through multiple representation of meanings, such as images, films, videos, and digital story-telling as a way to connect to the way today’s students learn. The current study contributes to this debate by providing evidence of a pedagogical strategy-‘Accessing the play page’- that focuses on informal ways of learning to write texts in ESL classrooms. For it opens possibilities for making learning more interesting and relevant to the current generation of learners. The findings at ‘Accessing the play page’ partly provide answers to the first research question by revealing that the Wiki writing intervention largely mediates social interactions and collaborative practices which motivate students to actively participate in creating and making meaning of texts in the ESL classrooms.

Step Two: Promoting online introductions

At this step, students introduced themselves and made their online presence by stating their names, and year of study. They also shared something interesting about their families, interests, and

cultures (see Figures 7.5 and 7.6). This type of socialization afforded by the Socio-wiki platform is considered a significant innovative pedagogy, as it enables students to share their online identities and to appreciate each other's interests. This type of socialization also motivates students to write better online texts through orchestrating multiple modes such as images and signs (see Figure 7.6). In addition, students revealed that reading their peer's online introductions motivated them to share their personal information and even to put in extra effort to make their introductions more interesting through the use of images (see section 7.6). To this end, Yi *et al.* (2017:12) argue that meanings are created through multiple modes of representations and communication sources.

Moreover, this study has revealed that students' use of images does not only enhance meanings, but also depicts them as having potential to exercise a certain degree of agency over their own writing (see Figure 7.6). Thompson (2012:88) argues that sharing personal experiences, interests or cultural values is a good starting point to encourage reluctant students to engage in writing. This study has indicated that student's interests can be stimulated through relating personal experiences to the writing of ESL texts. Therefore, this pedagogical strategy partly addresses the challenge where today's students often find writing ESL texts boring and irrelevant to their current study needs (see challenge cited in Chapter 1, Section 1.1). This means that language educators in general, and writing instructors, in particular ought to allow students to build on their own histories or capture their interests by integrating them in the ESL writing curriculum (Thompson 2012:89). However, the biggest challenge of integrating student's personal experiences into the ESL curriculum is that there are a multitude of them and in most cases they are subjective in nature. Thompson is of the view that if students' personal experiences are to be appropriately integrated into writing courses, there is a need to exercise caution in doing so. It is also necessary to provide multiple understandings for those experiences integrated in the curriculum.

This study also showed the desire for students to engage in story-telling while sharing their personal information and experiences on the Wiki platform. The desire to engage in an open dialogue through story-telling was important in that it appeared to convey student's personal thinking that peers would willingly listen to or read about. Murugaiah and Thang (2010:21) indicate that social interaction in form of dialogue about a shared experience is a crucial developmental component for learners constructing meaning. As such, this research has provided evidence that this mode of online socialization encourages students to invest time and energy in their own learning. This is through playing multiple roles, including creating personal online introductions and sharing them on the platform, reading, commenting on each other's stories, and

orchestrating images to enhance meanings (Yi *et al.* 2017:4). All this is made possible through encouraging use of students' prior experiences and knowledge. This aligns with the sociocultural tenet of situated practice where there is an "immersion in meaningful practice within a community of learners who are capable of playing multiple and different roles based on their background and experiences" (New London Group 1996:85). This study uncovered how educators can leverage on the affordances of digital tools, such as Wikis to motivate students to engage in writing texts.

Step Three: Sharing experiences of writing instruction

Yang, Yeh and Wong (2010:288) emphasize the importance of interaction in online learning which includes: student-to-educator, student-to-student, and student-to-content interactions. These kinds of interactions play a significant role in determining students' levels of engagement in online learning. Accordingly, Step three aims to extend interactions among participants and the course content by allowing the exploration of relevant information regarding ESL writing. Since this study is based on the writing module whose aim is to boost students' confidence to effectively communicate in writing, it was important that students reflect and share their writing instruction experiences, challenges and successes on the Wiki platform. Salmon (2002:28) suggests that at this stage e-moderators ought to assign tasks (e-tivities) that require learners to initiate conversation with peers, educators and the content by exploring any relevant information available to them. In line with this view, Fleming *et al.* (in Sebbowa 2017:80) argues that allowing students to explore their experiences or preconceived ideas about a subject, (in this case- writing instruction), provides an understanding of how students' personal feelings, experiences, and social background influence the study or how such understandings can be integrated in the study.

Findings suggest that students are able to share their experiences, challenges and also make suggestions for improvement of the ESL writing instruction (see Chapter 7, Table 7.4). The pedagogical, cultural and social challenges in ESL writing instruction that are highlighted by the students, provide useful insights about students' writing experiences that educators need to pay closer attention to. For example, a student highlighted that many educators assume that students can learn to write by 'osmosis' and, therefore, focus more on completing the topics in their course outlines as opposed to giving enough support to the students to learn how to write. The students' interaction on the Wiki regarding ESL writing instruction yielded a lot of debate on how writing should be made relevant to the current generation of learners. Some students suggested utilizing the available technologies to 'walk the difficult journey' into writing that cannot easily be covered in few hours of face-to-face sessions. Others suggested the need for educators to relate the

teaching of writing to learners' experiences. The students' views uncovered a call on ESL educators to embrace innovative ways of teaching writing by integrating learners' interests as well as technologies. This is in line with Vygotsky's argument that the teaching of writing has to be based on "the interests of the learner, be relevant to life, meaningful for learners and taught naturally rather than mechanically" (Vygotsky 1978:118). In other words, writing instruction ought to be adjusted to embrace learner-centred methods that would facilitate democratization in learning (Lyle 2008:227). These study findings are particularly relevant to bridge the gap between theory and practice. In other words, learning to write becomes border-less activity where the classroom is no longer the only central place for formalized learning, but other places, such as online environments and students' communities, are emerging as appropriate contexts for practicing writing (Thompson 2012:89).

Further analysis of students' interactive conversations regarding their writing experiences reveal the role of engagement in learning (Akbari *et al.* 2016:4 of 22). Students explained that while some of them were not formally taught how to write, that did not stop them from mastering the skill of writing. They sought for assistance from peers, their teachers, as well as the internet to supplement the few times they practiced writing (see analysis example 3, Table 7.4). This view aligns with Astin's conceptualization of engagement as "the amount of physical and psychological energy the student devotes to the academic experience" (Astin 1993:297). Participants in this study attested to actively devoting a considerable amount of time and energy to practice writing through interacting with peers and teachers and consulting the internet. Active participation is critical in the process of learning. However, research indicates that many ESL writing instructors predominantly use teacher-centred pedagogies that are characterized by passive, monologic and anti-dialogical pedagogical sessions aimed at merely covering authoritative content (Lyle 2008:227; Wegerif 2016:4). This research has demonstrated that active involvement of the students in their writing by communicating, consulting, interacting with peers, and resource persons can create a positive trend in student's writing. The argument in this study is that there is need for an interactive pedagogy that encourages shared interactions and active participation between students, peers, and educators in the production and creation of meanings in writing. This can be mediated by digital technologies such as the Wiki. Having shared interpretations in writing ESL texts is one way language/literacy educators can make writing relevant to the 21st century pedagogy (Najjemba *et al.* 2018:515).

Discussion of findings of Steps one to three suggest that the Wiki writing intervention largely fosters social interactions and collaborative conversations among ESL pre-service students. Yang

et al. (2010:288) and Abrami *et al.* (2011:84) posit that the two aspects, (social interactions and collaborative dialogues), play a significant role in determining the levels of student engagement required for successful construction of knowledge in online learning. In this study, Step four of Salmon's (2002) model – 'knowledge construction' was revised as 'promoting collective meaning-making of written artifacts', while Step five- 'development' was revised as 'encouraging reflections in ESL writing'. Subsequently, Steps four and five were used to seek answers to the second research question: How do social interactions and collaborative conversations in a Wiki intervention impact on pre-service students' writing and argumentative skills? Analysis was conducted under the theme: Collective meaning-making of ESL artifacts on the Wiki platform.

8.5 Collective meaning-making of written artifacts on the Wiki platform

Step Four: Promoting collective meaning-making of written texts

Findings at Step four indicate a positive impact of the Wiki-mediated collaborative activities on students' writing (literacy) skills. These incorporated the use of online role play to promote collective meaning-making of written artifacts. For example, students' engagement levels were seen to be very high during the preparation and execution of the various roles of the online role play. This was because of the deep connection students had with the topic of engagement- 'mobile phone policies in schools'- during the online role play. By engaging with this topic through online role play arguments, students felt that their writing would create an impact in to society. One student who played the role of a head teacher stated, that it was important that they plan every detail of their online role play posts, taking into consideration that someone out there would one day, read their role play posts and draw lessons from them (see analysis example in Section 7.10.1). Subsequently, students immersed themselves in the task of developing role play personas. They researched and consulted about the various role play positions/arguments to present, before they could share them on the Wiki platform. This level of commitment and engagement with the role play tasks suggests that students had embraced what Coleridge describes as a "willing suspension of disbelief" Coleridge (in Pais Marden 2016:93). This is where students willingly accept the learning context that had been created for them and became completely involved in the scenarios as if they were real. Pais Marden (2016:93) further argues that such engagement with the learning context and willingness to accept it as real, is an important process that needs to occur in order to support students' learning, particularly in online settings. It was important that students

identify with the role play tasks and become completely involved, if they were to present arguments or positions that reflect real life situations.

Besides, the commitment students exhibited in completing the online role play activities was reflected in the long studying hours students put in, especially in the night, to complete the Wiki tasks. This indicated a positive influence that the Wiki intervention had on the students. Although it was argued that learning for long hours in the night afforded by the Wiki intervention may not be a highly recommended study practice (Coniam and Lee 2008:64), it reflected a positive impact of utilizing digital tools to motivate students to write texts. This is because digital platforms such as Wiki, allows students to extend their learning beyond the normal classroom hours. It also allows students to learn at their own convenience as opposed to the educator's convenience. Similar findings by Coniam and Lee (2008:64) showed that students benefit from what they perceive as a convenient and comfortable virtual space that is easily accessible to them at all times, and which allows them to discuss issues related to learning in a relaxed, and informal manner. Such form of learning often exceeds what students might have learnt when working in a confined classroom space. To this effect, Coniam and Lee (2008:64) emphasize that educators ought to use effective teaching approaches that can help to establish a positive learning environment which motivates students to learn and also takes into consideration students' learning preferences.

Findings at Step four also indicated the importance of students' prior knowledge and experiences in promoting learning/writing. Students crafted role play personas and constructed arguments basing on their prior experiences. For example, a student from a family background of lawyers used this background to research, consult and come up with compelling arguments regarding the topic which attracted the attention of peers (Section 7.10.3). This is consistent with the sociocultural notion of situated learning which posits that knowledge is contextually situated (Vygotsky 2004:25). That is, when learners are provided with the opportunity to establish a direct connection between their prior experiences and the new material or are supported to transfer their prior knowledge to a new situation, they can actively construct new understandings. Thompson (2012:88) explains that this new knowledge is meaningful because it is influenced by context and culture in which it is developed and is also grounded and integrated in students' own life experiences.

Moreover, the students commented that they were motivated to research, formulate, and share arguments on the agreed topic- 'mobile phone restrictions in schools'- on the Wiki platform

because they had they had prior experiences. Some of the participants revealed that they had their phones confiscated or destroyed as punishment for violation of these policies. Due to these prior experiences, the participants considered the online role play as an opportunity to ‘let out what they felt about phone restrictions in schools’ and they also wanted ‘to create something that could be useful to other school going children’ (see Section 7.10.2). According to Beach and Doerr-Stevens (2009:466), ESL students are more likely to engage in argumentative thinking if they consider an issue being debated to be a “big deal for them”. Having been punished for using mobile devices during school time in this era of technology was a ‘big deal’ for the student- participants in in this study. They felt the urge to contribute to the debate that could lead to change in these school policies. Thus, this study has demonstrated that students’ interests in the writing classrooms can be aroused through linking writing of texts to their prior experiences. The prior experiences are important in boosting learners’ confidence in what they are writing about and also in shaping their understanding of the subject content (Thompson 2012:89). The pedagogical approach which primarily focuses on arousing students’ interest partly provides a solution to the challenge (cited in Chapter 2, Sections 2.1 and 2.8). Therefore, writing instructors ought to engage with content knowledge that captures students’ present interests in reflection of their prior experiences.

Findings further indicate that digitally-mediated role plays motivate learners to employ multiple literacy practices, such as crafting credible role play personas, story-telling and adopting competing discourses to challenge each other’s position (see Sections 7.10.3 -7.10.5). These aspects have a positive influence on students’ writing and argumentative thinking abilities. Students employed their knowledge of building profiles and embedding images on social media platforms to enhance credibility among their role play personas. For example, a student who crafted the character of the school head teacher embedded an image of a well-dressed, neatly kempt man with an imposing personality, which served to project symbol of authority and a strict disciplinarian (see Chapter 7, Figure 7.3). Through this symbol of authority and aura of discipline, the student prepares his audience to expect a strict, non-compromising school administrator when it comes to children’s discipline. In other words, the student engages in the hybrid literacy practice of using images and symbols to create meaning around his character.

In addition, the student carefully aligns the arguments of the head teacher (role play character) to the image of the strict disciplinarian he had already created in the audience’s mind. This is important in building credibility of the character and also in positioning him (head teacher) as a person who has high stakes in controlling students’ activities in the school. This allows him as an

administrator of the school to defend the school's actions. As such, the student created what Beach and Doerr-Stevens (2013:188) described as a "rhetorical persona who serves to achieve own rhetorical goals of convincing others to adopt their positions". These findings demonstrate that students have the potential to enact multiple literacies, if they are provided with a suitable online learning environment. This has implications for ESL writing instructors who may wish to take advantage of the current proliferation of digital tools to shift from conventional print-based pedagogies to those that engage students in multiple modalities of knowledge construction.

Also evident in this study is that engagement in online role play has potential to foster students' use of competing discourses to challenge each other's role play positions. Analysis was based on the sociocultural view which considers literacy as a social practice stretching beyond reading and writing of print-based texts to include literacy events embedded within the social, cultural, and power structures in society (Wertsch in Thompson 2012:87). Literacy as a social practice plays a fundamental role as it exists naturally in people's everyday lives and communities (Gee 1996: vii; Barton and Hamilton 2000:7). In this study, students employed varying discourses to project the beliefs and ideologies of various social groups they represented in the role play. For example, a student who played the role of a school head teacher used a school management and protectionism discourse to frame his position. He argued that it was in his power as the school administrator to protect the school image and ensure children's well-being while at school. On the other hand, the legal representative used a legal discourse to challenge the school management position to dismiss students for violating the school's mobile phone policies. He argued that schools that restrict students from using their mobile devices during school time and retributive actions taken against them, such as dismissing them is a violation of students' constitutional freedoms to enjoy technology. It was clear that the student who crafted this role was aware of the values and rules governing the legal system. It is these rules and values that he based on to highlight the legal implications of the school policies. The legal discourse projected by the student not only reveals the student's critical thinking abilities, but also reflects that persona's allegiance to a legal system. This is directly opposed to a school system whose values are geared towards protecting the school image as well as ensuring the well-being of the children.

In defense of the school policies, the student who played the role of a school counselor used a psycho-social discourse to argue that children in the adolescence stage experience serious behavioral challenges which render them incapable of making proper judgment about their lives. Therefore, this calls for adult control of the children's behavior, even if it means infringing on the

rights. In addition, other students who played the roles of a parent, child rights activist, students' representative among others, also used family, civil rights and resistance discourses respectively, to challenge the school policies (see Chapter 7, Section 7.10.4). It was evident that students had learnt the socially recognized ways of "thinking, feeling, believing and acting" in society (Gee 2005:111), to qualify their characters as members of particular social groups. By experimenting with the various perspectives associated with the different systems, students became aware that they were not simply dealing with individual perspectives, but with larger societal issues related to the law, family, human rights, and technology (Beach and Doerr-Stevens 2013:193). This study shows that when educators use pedagogical approaches that are appealing to students or those that address their interests, students are motivated to engage with the learning experiences. The collaborative sharing and exchanges of discourses mediated through the Wiki online role play, (conducted in this study), could serve as basis for educators to promote student engagement and positively impact on their learning outcomes.

This study's findings also indicates the benefits of students' engagement in online role play collaborative arguments. The students confirmed that exposure to multiple perspectives that were shared during the online role play facilitated their deeper understanding of the topic. Others said that the real-world relevance of the online role play increased their motivation to engage in the tasks. Other participants stated that the online community which emerged out of engaging in online role play created a sense of belonging and led to in-depth exploration of issues (see Chapter 7, Table 7.5). These findings suggest that communication and collaboration are key in facilitating online learning among today's learners. The current generation of learners appreciate the fact that their understanding is facilitated better when they are collaboratively sharing knowledge with peers resulting from their engagement with online platforms. According to Larson (in Ganapathy and Kaur 2013:548) and Thalluri and Penman (2015:456), contemporary ESL students come into university with experiences of communicating and learning through online platforms. As such, literacy instructors and educators ought to transform their pedagogical practices to accommodate the "changing learner styles that enhance learner-centric pedagogies" (Tarling and Ng'ambi 2016:554). Thus, in the context of this study, collective meaning-making in writing texts was enhanced through taking part in dialogues between student-to-educator, student-to-student and student-to-content on the Wiki platform. This echoes the earlier argument advanced in this study that innovative pedagogy in writing ESL texts have potential to complement the predominantly use teacher-centred approaches common in many of today's writing classrooms.

Similarly, the multiple perspectives afforded by digitally mediated role plays offer students opportunity to compare and contrast the information with other sources of information. This helps the students to gain some form of collective understanding of the topic. Multiple interpretations from the different members of the learning community are critical in broadening students' understanding as well as authenticating information. Bakhtin (1986:168) highlights in his notion of 'dialogism' that there is no subjective or objective truth, but rather understanding is facilitated by being open to the views of others - 'conversants' from which multiple perspectives can continue to occur. Similarly, Vygotsky argues that learning is achieved through sharing ideas with others and being aware of personal biases from prior experiences (Vygotsky 1986:182). The implication here is that understanding of meanings in texts is an endless process that can be mediated by digital tools such as Wikis.

The findings also indicate that a sense of belonging emerges as a result of students' engagement in online role play, leading to an in-depth exploration of issues. The real-world relevance of the online role play played a critical role in motivating students to engage with the learning tasks. These aspects highlight the importance of context in promoting learning. Similar findings by Thompson (2012:94) confirm that when learning is embedded within context and students are able to see that what they are learning or writing about is relevant to them or has a practical application to real life, they are likely to feel more motivated to engage fully with the learning tasks. The fact that the online role play focused on a real-life issue, that is, 'mobile phone restrictions in schools', students found a very strong motivation to exchange ideas regarding the moral and ethical reasons as to whether these policies should continue to guide the use of technology in schools.

By engaging in multiple perspectives from the different role play characters regarding the topic, (phone restrictions in schools), on the Wiki platform, several contradictions associated with the policies were uncovered. According to Beach and Doerr-Stevens (2013:194) these competing agendas create contradictions, and by acknowledging these tensions in the status-quo systems compels students to work together to find a solution to the problems. This is possible when students learn to trust and respect each other's perspectives as potential sources of useful information. Davidson (in Beach and Doerr-Stevens 2009:461) describes such perspectives as "passing theories that are tentative or exploratory, and need further testing". By adopting these passing theories, students learn to accommodate differing opinions for purposes of collaboratively coming up with a solution.

Students in this study confirm that the different perspectives shared by the role play personas facilitated an in-depth exploration of issues. This suggested that meanings are continuously validated through dialogical conversations, (debating and negotiating), among participants on the Wiki platform. This research has demonstrated that collective meaning-making of written artifacts can be promoted through Wiki-mediated role plays as students engage in sharing of multiple interpretations and validation of each other's contributions. Findings further reveal that students engaged in several consultations of multiple sources of information, (e.g. the internet, written sources as well as real-life practitioners, including teachers, human rights activists, lawyers, and parents), to clarify the roles they played and to validate their understanding of topic. Through consulting and analyzing the various sources of evidence, students were able to obtain an in-depth understanding of the school policies and to present arguments from an informed point of view. Therefore, literacy instructors/educators who wish to create meaningful learning experiences for their students ought to leverage on the affordances of digital platforms to engage students in interactive activities such as dialogical conversations of their writing.

In response to the second research question, findings indicate that the social interactions and dialogical conversations afforded on the Wiki platform allow students to engage in collective meaning-making processes, such as consulting and analyzing various sources of information, sharing multiple interpretations on the topic as well as validating each other's contributions. These processes are vital in facilitating the students' argumentative thinking and facilitating in-depth understanding of the topic. Having successfully completed Step four, the final step is 'supporting reflections in ESL writing'.

Step 5: Supporting reflections in ESL writing

Thalluri and Penman (2015:456) argue that in a learner-centred online activity, students are expected to be responsible for constructing their own knowledge, while engaging in learning. This includes reflecting upon their actions, thoughts and monitoring their own learning processes and knowledge processes (Salmon 2002:33). It is against this background that students were provided with a space to reflect on their experiences of the Wiki writing intervention, particularly on the possibilities, challenges, and ways of improving Wiki writing experiences. Among the possibilities afforded by digitally-mediated writing classrooms highlighted by the students include: the fun and excitement created as students exchange ideas and negotiate positions regarding the topic as well as the shared multiple perspectives on the Wiki platform (see Table 7.4). The benefits highlighted align with the argument advanced in this study that engaging with digital technologies innovatively

has potential to improve the teaching and learning of ESL writing. Active involvement of students through activities, such as consulting each other, sharing images or videos and engaging in dialogical conversations on the Wiki has potential to motivate reluctant and disengaged students to participate in the writing activities. This new approach to writing aligns with the characteristics of “Generation Z” students whose motivation to learn is biased towards digital manipulation, collaboration, and multi-tasking (Mohr and Mohr 2017:84; Miller and Mills 2019:79). However, for this to happen, Ganapathy and Kaur (2013:548) note that educators need “to make a quantum leap from teaching old things in new ways to teaching new things in new ways”.

Moreover, when asked the skills obtained during their engagement in the Wiki writing intervention, students revealed that they acquired a number of skills including digital skills, information literacy, problem-solving, collaborative, analytical and critical thinking skills (see Table 7.6). These results provide insights into the importance of aligning ESL writing pedagogies with generic skills required for survival in the 21st century academic and labor market.

Basing on their Wiki writing experiences, findings further suggest that pre-service students would employ multiple approaches to support the development literacy skills among their learners. These include: inquiry, group discussions, story-telling, role-play/dramatization and field visits (see Table 7.7). These results indicate that ESL writing instructors/educators need to engage with various approaches that allow learners to actively construct and interpret meanings of texts. For example, the use of group discussions/interpretations enables students to gain deeper understandings of particular topics. While field visits provide students with opportunity to experience real-world views from experts on a topic. On the other hand, role play activity allows students to step into someone else’s shoes regarding an issue (Haynes-Moore 2015:35). While the inquiry approach allows students to conduct research and discover information on a topic in ways that are meaningful to them (Sebbowa 2017:171). Therefore, literacy pedagogies need to foster dialogues between students, peers and educators to allow learners to collaborate and find answers to the ‘how and why’ questions. This process is significant in supporting students to manage their own writing (learning). Subsequently, the dialogical approaches to writing ESL texts that were manifested through dialogues between students and peers, students and instructors on the Wiki platform provide a good starting point in helping students to learn in a socially participatory and democratic way (Garcia-Carrion *et al.* 2020:2).

Correspondingly, the findings to research question two confirm that social interactions and collaborative conversations of a Wiki intervention positively contributed to students’ literacy and argumentative skills. Students were able to stretch beyond the conventional print-based texts to enacting ‘knowledge, skills, and values needed to negotiate and transform the world around them’ (Giroux 1993:376). In other words, when students gain interest and establish relevance in their learning (writing), they are able to collaboratively generate meanings intended to cause change in their society. Having successfully completed phase three of DBR, the fourth phase involved “reflections to produce design principles and enhance solution implementation” (see Chapter 4, Figure 4.1). Correspondingly, this phase aimed to generate design principles that could guide future implementation decisions (Herrington, n.d). As such, research question three was formulated for purposes of obtaining the design principles to enhance students’ literacy skills. The question states: **What design principles guide a pedagogical framework to support literacy skills among pre-service students?** The responses were obtained by reflecting on the procedural steps of the originally formulated design principles in the first implementation to the revised design principles in the second implementation as reflected in Table 8.3.

Table 8.3: Formulated design principles, revised design principles and final guidelines to be reflected in practice

First implementation (Chapter Six) – pilot study	Second implementation (Chapter Seven)- main study	
Formulated (existing) design principles (Salmon 2002)	Modified design principles	Final guidelines to be reflected in practice
To enable access and motivation	Accessing the play space	To support online presence
To promote online socialization	Encouraging online introductions	To build online cultural experiences
To support information exchange	Sharing experiences about ESL writing	To validate information
To promote knowledge construction	Promoting collective meaning-making of written texts	To promote dialogue in literacy pedagogy
To foster development	Supporting reflections in ESL writing	To apply literacy

Following Table 8.3, the process of validating each design principle was achieved through documenting the successes and failures at each step, so that they would be tested again in the subsequent implementations (see Chapter 6 and 7). The renaming of the design principles was informed by the results at each implementation and the sociocultural philosophy used in this study. The answers to research question three were obtained through a systematic analysis of the procedural steps which yielded into final guidelines to be utilized to inform future practice. Moreover, the terms used for the final guidelines emerged out of words, phrases, and themes from the research findings, which included ‘dialogue’, ‘online presence’ and ‘online cultural experiences’. According to Herrington (n.d) after each implementation, the draft principles that have informed the design solution are re-tested and improved to reflect the findings. Therefore, the response to research question three, were the final guidelines that emerged out of this study including: ‘to support online presence’, ‘to build online cultural experiences’, ‘to validate information’, ‘to promote dialogue in literacy pedagogy’ and ‘to apply literacy’ (see Table 8.3). Thus, the next section presents a summary of findings aligned with the answers to the three research questions.

A summary of findings aligned with the answers to the three research questions illuminated under the reflection phase

Phase four of DBR aimed to produce design principles and enhance solutions in practice. Correspondingly, research question three was premised on this phase. To find answers to research question three, in-depth reflections on the changes in design principles from the two implementations of the design solution were conducted. The design principles adopted in this study were based on Salmon’s five-stage model for online learning. Salmon’s model was suitable for this study because of its potential to support effective scaffolding in online collaborative learning environment (Salmon *et al.* 2010:170). Besides, it is easily adaptable to specific contexts and has its foundation on constructivist, learner-centred principles (Murugaiah and Thang 2010:21). Moreover, engaging with Salmon’s model in this study, demonstrates that it is possible to apply an existing model to build social interactions and collaborative relationships between students and peers, students and educators hosted on a Wiki platform (Najjemba *et al.* 2018:515).

Correspondingly, the Table 8.4 provides a summary of findings aligned with the answers to the three research questions illuminated under the phase of reflections of design principles.

Table 8.4: Answers to the three research questions as linked to the revised principles

Research question	Responses in line with the revised principles
Q1) To what extent does the Wiki intervention foster social interactions and collaborative conversation among pre-service students?	<p>In order to promote social interaction and online participation, engagement on the Wiki should meet the educational goals below:</p> <ul style="list-style-type: none"> • To access the play area (on the platform) • To promote online introductions • To encourage sharing of writing experiences
Q2) How do social interactions and collaborative dialogues mediated by the Wiki intervention impact on ESL pre-service students' literacy skills?	<p>In order for the Wiki-mediated social interactions and collaborations to positively influence students' literacy skills, the following educational goals must be met:</p> <ul style="list-style-type: none"> • To promote collective meaning-making of written artifacts (e.g. through online role plays). • To support reflections in ESL writing
Q3) What design principles guide the pedagogical framework for supporting students' literacy skills?	<p>The following design principles (outcomes) arising out of the Wiki intervention can be used to inform literacy pedagogy</p> <ul style="list-style-type: none"> • To support online presence • To build online cultural experiences • To validate information • To promote dialogue in literacy pedagogy • To apply literacy

8.6 Quality considerations in this research

Quality considerations in this research were crucial for two reasons. Firstly, to ensure that the collection of data as well as analysis was conducted in a reliable way in order to enable credible conclusions to be drawn. Secondly, given that the current study was qualitative in nature, the aspects of validity and reliability were considered important in determining the interpretations done

in this research. Subsequently, the constructs of quality expressed as, credibility, dependability and transferability (Shanton 2004:64-65 and Loh (2013:5) were adopted for this study. In other words, focus was put on qualitative aspects that are in line with the DBR methodology used in this study, as explained in the following sections.

8.6.1: Credibility

According to Shanton (2004:64), credibility in research relates applies to the trustworthiness and quality of the data leading to valid conclusions. As such, credibility involves ensuring that the study findings are convincing. In the current study, credibility was maintained in the following ways:

Multiple methods of data collection were used to cross-validate findings and ensure richness of data. For example, the semi-structured interviews afforded an open and in-depth exploration of how participants interpreted meanings in ESL writing in relation to situations and their social cultural significance (Loh 2013:5). In the first implementation, the semi-structured interviews conducted with the students at the end of the implementation. These enabled reflections on the possibilities and challenges of utilizing digital platforms, especially the Wikis for collaborative constructions of meanings in ESL writing. Subsequently, lessons learnt were documented for purposes of refining and improving the second implementation of the design solution (see Chapter 6, Section 6.4). All interviews were audio-recorded with permission from the participants to ensure accuracy and richness of data, and later transcribed and analyzed in line with the research questions.

Interviews were supplemented with observations to obtain a bigger picture of how collaborative construction of meanings at an ESL context in Uganda was achieved (see Chapter 7, for examples of observational findings). Moreover, each data collection method employed in this study, such as researcher's field notes and blog entries, analysis of students' Wiki-generated artifacts and reflective notes, complemented the other in order to enhance the credibility of the research process (see Chapter 4, Sections 4.8.1- 4.8.5). According to Crotty (1998:7) corroborated interpretations and experiences with data are closely intertwined with the philosophical underpinnings of the interpretive paradigm. Denzin and Lincoln (1994:2) share a similar view when they posit that the triangulation of the methods of data collection provides for more vigorous interpretation of the research findings.

The successive iterative cycles afforded by DBR methodology used in this study served to enhance credibility in this research. Two implementations were conducted, the first one involving forty-eight participants conducted for a period of eight weeks, while the second one involving twenty participants was conducted for a period of one year (see Chapters 6 and 7 respectively). Lincoln and Guba (1985:39) are of the view that having a “prolonged engagement” within the research context, (as the case was in the second implementation), is a great step towards ensuring credibility of the research. This is because the researcher invests sufficient time to become “orientated to the situation” and conducts “persistent observations” to obtain details of those characteristics and elements that are relevant to the inquiry. Thus, in the first implementation, a reflection on the possibilities and challenges of using the Wiki for meaning-making in ESL writing was conducted and lessons learnt were documented to inform the re-testing and refining of the second implementation. Subsequently, the results obtained after testing and evaluating the design solution at the second implementation informed the formulation the final design principles to guide future practice.

In addition, my position as a researcher and instructor in this study made it necessary to engage in reflexive practice, where I had to take account of how my position could have impacted on the research process (see Chapter 9, Section 9.4). Ruby (1980:154) states: “being reflexive in doing research is part of being honest and ethically mature in research practice.” Moreover, reflexive practice aligns with naturalistic inquiry (Lincoln and Guba 1985:39), in that it provides for opportunity for flexible instructor and students’ interactions with the Wiki intervention in a naturalistic manner. In addition, being a participant observer who engaged in online observations and viewing of students’ online presence and posts allowed to gain first hand experiences of how meanings were being constructed on the Wiki platform. Thus, a responsive approach was inevitable since the current study was interventional in nature. However, as Dowling and Brown (2010) emphasize that researchers need to maintain a certain level of distance from the research site, my presence as a researcher was limited to certain activities (such as setting the learning tasks, encouraging participation and offering the necessary support) for the intervention to move smoothly. In other words, the activities that were improvised depended on specific on-going interventional task, whose purpose was to enhance design solution, as opposed to evaluating or passing judgment on the participants.

Data collection was conducted for a period of three years from 2017 to 2019 (see Chapter 6 and 7). The longer periods of the implementations provided ample time for growth in students’ online engagements, evaluations and modifications of the design solutions. This in turn, increased the

chances of obtaining credible research outputs. In addition, data analysis followed a sociocultural cycle-driven analysis with documented evidence obtained from the two implementations, following what worked and what did not work. These observations were useful in refining the design solution as well as the theory guiding data collection and analysis processes in this study.

8.6.2: Dependability

According to Miles *et al.* (2014), dependability in qualitative research is conceptualized as the ability of the research to be reliable. Therefore, dependability in this study was maintained in the following ways:

The DBR methodology used in this study dictates that the procedures of the study are systematically followed and recorded in a way that if other researchers were to perform similar study again in another research context that has similar characteristics, it would be easy to follow the systematic procedures documented. In this study, Chapter four provides these systematic procedures. Besides, during analysis of data, a systematic procedural structure was followed and all the steps taken to analyze data were documented. In other words, data analysis was guided by the sociocultural cycle-driven analysis and all steps that were followed to analyze this data were documented (see Chapter 6 and 7). This systematic structure of data analysis is important in strengthening the dependability of the research findings.

Lastly, in addition to the researcher's field notes, a research blog site was used. This is where all issues that emerged out of the implementations were systematically recorded (see example in Figure 4.1). Unlike field notes which involved a direct record of events or sometimes participants' responses as they happened in the study, a researcher's blog site was used to document personal observations and insights that were not captured anywhere. These observations were helpful in making informed decisions regarding the types of modifications that needed to be made in the subsequent implementations, observation schedules as well as the questions that needed to be asked during the follow up interviews. Thus, the journal entries illuminated the research process in relation to the DBR methodology that guided this study, which further strengthened the reliability of the study findings.

8.6.3: Transferability

According to Miles *et al.* (2014), transferability in qualitative research applies to instances where ideas, concepts and theories generated could be applied to similar contexts. Therefore, transferability in this study was supported in the following ways:

It is argued that the research findings from any qualitative study may be rather difficult to generalize to other contexts, given the fact the study is conducted in a specific sociocultural context at a particular point in time (Shanton 2004:69). However, transferability is possible when a detailed description of the research context is provided (see Chapter 2, Section 2.8), as well as the practical guidelines (pedagogical framework) to support construction of knowledge and meaning-making practices in ESL writing contexts are clearly documented (see Chapter 9, Table 9.1). This is intended to enable practitioners/educators who wish to transfer similar practices into their contexts to do so with ease. Moreover, the DBR methodology that was followed in this study offers a systematic procedural structure to guide on how research should be conducted as well as the systematic drawing of conclusions from the data (see Chapter 4). Such guidance is pertinent in determining the extent of transferability to other settings.

Lastly, this research resulted into presentations at various workshops and international conferences. For example, the findings from the two implementations of this study were presented at the University of Free State, Bloemfontein Campus, Faculty of Education 2nd and 3rd Annual Postgraduate research conferences held on 28 - 29, September 2018 and 26 - 27 September 2019 respectively. In addition, a paper was presented at the 13th International Conference on e-learning held on 5-6, July 2018 at Cape Peninsula University of Technology (CPUT) Granger Bay Campus, Cape Town. Subsequently, two journal articles were published in international journals (see Najjemba *et al.* 2018 and Najjemba and Cronje 2020). Presenting the research findings at the different fora provided useful feedback that helped to build confidence in the research as well as improve the understanding of the research problem. Sebbowa (2017:232) argues that conference discussions and feedback provide opportunities for researchers to reflect on the emerging ideas during presentation which is relevant in articulating the research content and process. Sebbowa (2017) further highlights the importance of conference feedbacks stating that they strengthen the credibility and transferability of the research findings to the settings of the practitioners in attendance (*ibid* 2017:232).

8.7 Chapter summary

The purpose of this chapter is to provide a reflection of how the four phases of DBR were systematically implemented leading to addressing the three research questions. Research findings were discussed in line with the procedural steps of the design principles as was experienced in the first and second implementation of the design solution. Correspondingly, a detailed structure of how data was collected and analyzed to ensure credibility of the findings was presented. For example, credibility of the results was enhanced through successive iterative cycles that were afforded by the DBR methodology used in this study. In addition, a considerable amount of time and effort was committed to collecting and analyzing data in a systematic way. This allowed the design principles to evolve leading to the creation of practical guidelines or pedagogical framework to support the development of students' literacy skills. The chapter concludes with an explanation of how the research findings are transferable to other educational contexts despite the fact that qualitative studies such as the current one have been criticized for lack of generalizability.

CHAPTER NINE

RESEARCH CONTRIBUTION

9.0 Chapter overview

In this chapter, a brief overview of the research process is provided. The DBR approach which was utilized in this study was fundamental in providing the procedural process needed to guide the design of the Wiki intervention and the subsequent testing of the design principles. Consequently, a theory-driven pedagogical framework mediated by the Wiki as a technological innovation emerged. This bears several implications to the educational practice as well as future research.

9.1 The research process

The aim of this study has been to investigate how meanings in ESL writing are collaboratively constructed and keep evolving among students on the Wiki platform. As earlier highlighted that this study originated from the experiences of the second language classroom, where teaching of language methods courses, including language skills such as writing, is predominantly through the use of behaviourist approaches. These approaches constrain dialogues and interactions between students and students, and students and educators, thus making learning to write texts in ESL classrooms less interesting and disconnected from the way students in today's classrooms learn (see Chapter 1, Section 1.1). As a teacher-educator handling Methods courses for pre-service students, I always faced a challenge of students being bored of writing, and thus reluctant to write their course assignments (see Chapter 1, Section 1.2).

Having engaged in a postgraduate course in ICTs in education, I became interested in exploring the affordances of digital technologies to improve writing. In other words, to respond to the educational challenge above, there was a need to increase the interaction levels and create dialogical conversations between the students and peers and students and educators with an intention of improving language pedagogy. To implement this approach, I anchored on the sociocultural theoretical perspective to provide the concepts needed to understand the problem and find a solution (see Chapter 1, Section 1.6). The fact that most students today use digital platforms to communicate, network and to obtain updates on contemporary events (Ganapathy and Kaur 2013:359), utilizing these digital platforms in the language (also known literacy) classroom was

seen as one of the potential avenues to connect to students' interests and to support them to find relevancy in their writing. Wikis were the preferred choice for this study because they afford collaborative adding and editing of content and the subsequent tracking of the progress of meanings constructed and shared among students, peers, and educators. That aside, this research is intended to provide a deeper understanding of how Wikis can be innovatively utilized in language pedagogy at a particular higher education context. The sociocultural theory has been significant in guiding the social interactions and dialogical interpretations of the constructed texts on the Wiki platform.

Subsequently, the research questions in this study focus on understanding the extent to which the Wiki intervention (design solution), fosters social interactions and collaborative conversations among pre-service students, how these interactions and conversations impact on the students' literacy skills as well as the design principles that would guide pedagogical framework for supporting students' literacy skills (see Chapter 2, Section 2.11). Thus, the DBR methodology on which the entire research process and design activities are structured proved appropriate to implement, test and evaluate an educational intervention at an authentic context (see Chapter 4, Section 4.4). As such, the four phases of DBR played an instrumental role in guiding the design process and implementation of this study (see Chapter 4, Section 4.6).

9.2 Theoretical contribution

The theoretical contribution of this research is in its very essence of utilizing the DBR methodology to implement the sociocultural theoretical constructs at a particular language education context in Uganda (see Chapter 5, Table 5.1). There have been several empirical studies that have engaged with the sociocultural theoretical perspective with the aim of obtaining understanding of its applicability in education (Alexander 2008; Alvermann, 2008; Janks, 2010; Mercer and Littleton, 2013; Loh, 2013; Nambi, 2015; Akbari *et al.* 2016). However, none of this research focuses on utilizing the sociocultural theoretical constructs to develop a rigorous intervention to tackle a complex educational challenge in an authentic setting. Correspondingly, the sociocultural theoretical constructs: social interactions, collaboration, and dialogue were useful in providing an understanding of how joint construction of meanings in writing ESL texts can be achieved (see Chapter 5, Section 5.3). Hence, the sociocultural theoretical constructs were important in informing the design principles as practical guidelines for enhancing students' literacy skills mediated by digital tools such as the Wikis. The argument advanced in this study is that DBR provides a systematic approach for operationalizing theory in line with the existing design

principles (practice) to implement interventions in literacy pedagogy. Tarling and Ngambi (2016:554) emphasize that if the current pedagogy is to be improved, theory and practice must be concurrently considered.

On the other hand, the sociocultural theoretical perspective has often been criticized for being too theoretical, “without specifying how this approach would apply to concrete settings” (Werstch 1998:115). In addition, researchers such as Mercer and Littleton (2013) and Werstch (1998), have questioned this theory’s applicability to universal settings with diverse cultures, since it was developed with very specific groups of learners within a particular culture. The current study has extended this debate by utilizing DBR approach and Salmon’s five-stage model to implement this theoretical perspective at a specific language education context in Uganda. In other words, the DBR methodology was important in testing and modifying the sociocultural theoretical constructs at a specific language education context (see Chapters 6 and 7). This led to the development of pedagogical framework (practical guidelines) to enhance future practice (see Chapter 8, Table 8.3). Hence, the sociocultural theoretical perspective was important in underpinning the design principles which evolved as practical guidelines for supporting writing using digital tools such as the Wiki.

It is also worth noting that drawing on Salmon’s five-stage model was instrumental in providing a design solution to address the identified educational challenge in this study (see Chapter 5, Table 5.1). Having been premised on constructivist principles, Salmon’s five-stage model proved relevant in providing guidelines to activate social interactions and collaborative conversations in Wiki writing intervention by highlighting educator scaffolding processes as well as the students’ roles. Moreover, the resultant practical guidelines in form of a pedagogical framework suggested in this study, (see Section 9.3), emerged out of a combination of Salmon’s principles for online learning and the sociocultural theory (see Table 5.1).

On the other hand, the Wiki online learning environment was proposed as the technological innovation used to mediate joint writing and collaborative interpretation of meanings of the generated texts. The Wiki platform was selected for its affordances, such as allowing groups of users (educators and students) to create, add, and edit content collaboratively. Having designed the Wiki learning environment, DBR phase three was relevant in guiding the iterative cycles of testing and refining the design solution in practice (see Chapters 6 and 7), leading to providing answers to the three research questions in this study. Thus, DBR phase three provided a procedural structure

through which a systematic implementation of the design solution was conducted. This was done in two different implementations leading to the final practical guidelines for supporting the development of students' literacy skills (see Figure 9.1). As earlier mentioned, the final guidelines that emerged out of the two implementations in this study were based on Salmon's model for online learning (see Section 5.2). Throughout the different implementations, the procedural steps in Salmon's model were consistently followed. However, the names of the steps were changed to accommodate the modifications in the design principles (see Chapter 7, Section 7.3). Subsequently, the names used for the final guidelines emerged from the key words, phrases and dominant themes arising out of the study findings. These include: Support online presence, Promote dialogue, Validate information, Promote dialogue in literacy pedagogy, and Apply literacy. Correspondingly, Table 9.1 below illustrates the transition from the original design principles in Salmon's model to the proposed guidelines for teaching literacy (writing) using the Wiki technology.

Table 9.1: Transition from the original design principles in Salmon's five-stage model to the new guidelines for teaching literacy using Wikis

Salmon's five-stage model (2002)	Guidelines for teaching literacy using Wikis
Access and motivation	Support online presence
Online socialization	Build online cultural experiences
Information exchange	Validate information
Knowledge construction	Promote dialogue in literacy pedagogy
Development	Apply literacy

9.3: Practical contribution of this study

9.3.1: Supporting online presence

Following Figure 5.1, Salmon *et al.* (2010:170) stage one of "Access and motivation" dictates that educators or online facilitators should provide the necessary information and technical support for students to be able to access online learning platforms and establish their online presence. It is also crucial at this stage that e-moderators motivate learners to participate in online activities and make them appreciate the benefits of the new online learning environment. Mokoena (2013:98) suggests that educators should enhance learners' motivation right from the on-set of the online course by facilitating discussions around students' interests. Subsequently, in the phase of "Supporting online presence", educators (digital immigrants) in emerging technological contexts must be willing to change from the traditional teacher-centred to learner-centred pedagogies that exploit the

affordances of digital tools. This is intended to relate with the way today's "digital natives" or "Generation Z" students communicate, socialize, and learn. In this 'third' space, it is important that the educator/e-moderator establishes the level of accessibility to internet-enabled technologies among students. This can be done through informal conversations, direct interviews or through surveys to establish which types of online access students have in their specific contexts. Salmon (2002:2) emphasizes that each technological solution developed should suit its context and culture. Moreover, since some learners are quicker to access online learning platforms than others, they can be encouraged to help others who are facing difficulties. This can be done through playing around with the platform features or making several trials with the platform until all of them have gained access. Accordingly, the change in the name from "Access and motivation" in stage one of Salmon's model to "Accessing the play area" in the second implementation of the design solution (see Chapter 7, Section 7.3.1) aimed to support access to the Wiki platform through 'play' or trial and error method. According to Salmon *et al.* (2010:170), encouraging students to participate in online learning activities through informal means is essential as it stimulates their interest to study using online modes. Educators (e-moderators) should not assume that students will continuously participate in online learning activities without being motivated. If the activities are too structured or not exciting, the students will not participate.

Similarly, Mokoena (2013:98) highlights that educators should be aware that online engagements take time to develop, and also access to online learning platforms is a big challenge. Therefore, the educator's role should be to nurture the process whereby students could be oriented towards joint writing of ESL texts on the Wiki platform without setting any ground rules (see Figure 7.4). Creating a fun and relaxing environment through encouraging students to introduce themselves in interesting ways and exchange jokes is important, as it reduces the anxieties students may have for online platforms. Such online introductions also arouse students' interest for online participation (Murugaiah and Thang 2010:21). These views partly provide a solution to this study's educational challenge. That is, students often find ESL writing classrooms boring and disconnected to their current study needs (see Chapter 1, Section 1.2). The argument in this study is that relating writing of ESL texts to what interests the students in the contemporary times is one way to provide a solution to the educational challenge. This means that educators who wish to develop students' literacy skills ought to link to students' current interests and motivate them to learn in ways that make sense to them. Moreover, it was confirmed that all the twenty students who took part in this study were active users of social media platforms, and whose online presence was well established on platforms like such as Facebook, WhatsApp, and Twitter among others (Najjemba *et al.*

2018:515). Thus, the rationale behind the design principle of ‘promoting online presence’ at the second cycle of implementation was to utilize the digital platforms that are popular among students to arouse their interest in writing. This sheds some light on how educators can take advantage of the attraction students have for digital platforms to improve their literacy/writing skills. Thus, the argument I develop in this study is that ‘promoting online presence’ becomes successful if educators can ensure that students can easily access the online platform, they are comfortable using it and their interests are catered for.

9.3.2: Building online cultural experiences

“Building online cultural experiences” is in line with Salmon’s second step of progression titled “Online socialization” (see Figure 5.1). The “Online socialization” stage involves understanding the value that students’ socializations through online networks and friendships has towards the success of online communities (Salmon 2003:29). Correspondingly, educators or e-moderators need to promote and facilitate social interactions by creating a safe climate that promotes mutual trust and respect to enable participants to freely express themselves (Salmon 2002:12). During the phase of “Building online cultural experiences”, literacy educators ought to encourage students to introduce themselves online by sharing personal information (see Figure 7.5). The argument advanced in this study is that having a shared space (on a Wiki platform), where students can freely interact and share experiences directly related to their personal lives would arouse interest and build trust among learners. Thus, the role of the educator needs to shift to that of a facilitator who will nurture students to trust one another through online exchanges, comments and questions about one another’s cultures and personal interests supported by the Wiki technology.

The rationale behind “Building online cultural experiences” is to ensure a gradual development of an online community where learners can trust each other to share personal experiences and identities for purposes of building solid foundation from which new knowledge can emerge. In this view, Murugaiah and Thang (2010:21) confirm that social interactions in form of dialogue about shared experience is crucial for knowledge construction. The nature of socialization afforded on the Wiki platform is relevant in promoting active student involvement in the learning process. This process is important as it not only encourages students to share their online identities and appreciate each other’s cultural backgrounds, but also motivates them to produce interesting online introductions through orchestrating multiple modes, such as images and pictures (see Figure 7.6). Such students’ enthusiasm and views are relevant in providing new insights (new understanding of research problem) that link the teaching of writing to students’ interests and passions.

Correspondingly, the relevance of this study lies in the need for writing instructors/educators to connect with students' interests by leveraging the affordances of digital tools. This approach is considered critical in supporting writing among students who are especially reluctant and passive in the writing classrooms. This is because it encourages active participation in constructing texts by exploiting affordances of Wiki technologies. Yi, Kao, and Kang (2017:12) encourage educators to foster engagement in writing through multiple representation of meanings as a way of connecting to the way today's students learn. The current study contributes to this debate by generating evidence of a pedagogical strategy (building online cultural experiences) that focuses on learners' cultural experiences as a springboard for learning to write texts in ESL classrooms.

The next step in Salmon's model is "information exchange" and is closely related to "Validating information" as illuminated in the following section.

9.3.3: Validating of information

Salmon's next step of progression is "Information exchange". This step challenges the educator or e-moderator to encourage active learner participation and positive online relationships while providing direction for learning by ensuring that students contribute to the learning tasks. Correspondingly, in "Validating of information" phase, the role of the educator is to ensure that the students conduct extensive research to obtain valid information on the topic under study (course content), while at the same time reflect on prior experiences (or preconceptions) about the writing pedagogy in order to create room for new understandings. "Validating information" phase is informed by the sociocultural theoretical notion of "situated cognition- that is, knowledge is situated, being part of a product of the activity, context, and culture in which it is developed and used" (Brown, Collins and Duguid 1989:32). In other words, to be able to construct new understandings of ESL writing, students must connect with their previous experiences or something that happened before (Nilson 2010:149). As such, students were requested to reflect and share their writing experiences on the Wiki platform with an argument that by exploring their prior experiences and preconceived ideas about writing instruction, this would provide an understanding of how students' personal feelings, experiences, and social background influence the study Fleming *et al.* (in Sebbowa 2017:80). Correspondingly, students shared multiple perspectives regarding their experiences, challenges and suggestions for improvement of the ESL writing instruction (see Chapter 7, Table 7.4). The pedagogical, cultural, and social challenges in ESL writing instruction that were highlighted by the students, suggest insights about students' writing

experiences that educators need to pay attention to. For example, students highlighted the need for ESL educators to integrate technology into the teaching of writing. Similar findings were reported in Ganapathy and Kaur's (2013:549) study who state: "students expect teachers to weave technology into classroom activities as part of the learning process as they perceive this to be important." In line with these views, Vygotsky (1978:118) argues that the teaching of writing has to be based on "the interests of the learner, be relevant to life, meaningful for learners."

Subsequently, the "Validating of information" phase entails encouraging students to share multiple perspectives through which learners validate information regarding the challenges at hand, and apply critical thinking skills in order to arrive at a new thinking or solution to the problem. Indeed, the educator's role at this stage should be to scaffold the learning process by encouraging multiple responses, supplementary comments to students' responses as well as motivating learners by providing feedback. In this study, "Validating of information" is achieved when educators are able to motivate students to share multiple perspectives from their past, validate them with evidence from sources and post comments on each other's responses mediated by the Wiki learning environment.

The next sub-section is about "Promoting dialogue in literacy pedagogy" phase.

9.3.4: Promoting dialogue in literacy pedagogy

Following Figure 5.1, Salmon's fourth stage of progression is "Knowledge construction". This stage involves high level interaction and frequent discussions among participants, as well as engagement in active and productive collaborative learning, leading to knowledge construction (Salmon 2002:28). At this stage, the role of the educator or facilitator is to support building and reviewing of ideas through discussion and collaboration. Subsequently, in "Promoting dialogue in literacy pedagogy" phase, participants jointly interpret and attach meanings to the texts created using the Wiki technology (see Chapter 8, Section 8.5). The educator's role at this point should be to provide appropriate learning tasks to motivate students to make their own interpretations by considering the multiple perspectives and sources of evidence shared on the platform. It is these multiple perspectives that participants base on to engage in open dialogues in form of conversations, questions and negotiations to derive meanings of their writing. In this study, the online role play task was instrumental in promoting dialogue and collaborative interpretation among participants (see Chapter 7, Section 7.10). There is evidence to show that the different perspectives shared by students during the role play allowed for an in-depth exploration of issues.

This suggests that meanings were continuously being validated through dialogical conversations (debating and negotiating) among participants on the Wiki platform. This research has demonstrated that collective meaning-making of written artifacts can be promoted through Wiki-mediated role plays as students engage in sharing of multiple interpretations and validation of each other's contributions.

In the sociocultural perspective, dialogical conversations are viewed as processes through which participants (students and educators) reach an understanding by listening and being open to what the other has to say (Bakhtin 1986:168). Therefore, under the guideline of "Promoting dialogue in literacy pedagogy", students have to engage in dialogue and construct meanings of the texts on the Wiki platform. This can be done through interpreting and negotiating positions, asking questions, posting comments or building a conversation around a topic for purposes of reaching a common understanding (see Section 7.10). The educator's role is to design learning activities that require students to critically think and collaboratively work on problems that have multiple interpretations. This process will afford joint construction and interpretation of literacy meanings between students and educators mediated by the Wiki platform. Thus, "Promoting dialogue in literacy pedagogy" phase will be successfully achieved if educators design learning/writing tasks (such as a role play or creating scenarios), that can provoke multiple interpretations and encourage learners to work together to arrive at meanings. Hence, the educators' tasks are essential in complementing students' understandings.

9.3.5: Applying literacy

The focus of Salmon's final stage of "Development" is to enhance participants' confidence as they build on the knowledge obtained from the e-learning activities and apply them in authentic contexts (Salmon 2002:31). At this stage, the educator's role is to challenge students to explore their own thinking, actions and knowledge-building processes (Salmon, 2002:31). Thus, the "Development" stage was connected to "Applying literacy" (see Chapter 8, Table 8.3), where educators ought to motivate students to think critically about their classroom experiences and generate solutions to real world challenges. For example, students were tasked to reflect on the opportunities and challenges experienced during their engagement in the Wiki writing intervention. Basing on their Wiki experiences, the students were also requested to suggest appropriate teaching techniques/methods that they can use to enhance the literacy skills of their learners. Students suggested several methods, including: inquiry, group discussions, story-telling, role-play/dramatization and field visits to encourage dialogue in the writing classrooms (see Chapter 7,

Table 7.8). These findings suggest that ESL writing instructors/educators ought to listen to their students and engage with pedagogical approaches that allow students to actively construct knowledge and interpret meanings as opposed to the teacher-centred approaches commonly used.

Similarly, students revealed that they acquired several skills during their engagement with the Wiki activities, including: digital skills, information literacy, problem-solving, collaborative, analytical and critical thinking skills (see Chapter 7, Table 7.7). These results suggest the importance of aligning ESL writing pedagogies with generic skills required for survival in the 21st century academic space and the labor market. Correspondingly, during the phase of “Applying literacy” students should be provided with opportunity to apply skills they have acquired during the learning process in practice. This process is significant in supporting students to establish relevance of engaging in classroom writing (learning) if it helps to solve real-life challenges. Ganapathy and Kaur (2013:549) emphasize that “the learning that takes place in classrooms today has to be relevant to the reality of real-world developments in the face of globalization of world economy and various information and communication technologies.”

Studies have indicated that students tend to see very limited value in ESL writing which is often characterized by passive, monologic, and anti-dialogical sessions aimed at merely covering authoritative content (Lyle 2008:225; Mukundan 2011:179). The current research has demonstrated the importance of relating theory covered in the writing classroom to the actual practice in learners’ day-to-day lives. The challenge remains with the literacy educators to demonstrate the significance of ESL classroom writing in a manner that is convincing to the learners. Therefore, “Applying literacy” phase is important in linking students’ classroom writing to practice by drawing lessons that can help to solve everyday problems. Therefore, an alignment of students’ classroom writing to their everyday lives could provide a solution as well as cast some light on the new understandings of the research problem.

That said, Table 9.2 below summarizes the guidelines illustrated above for purposes of highlighting the practical contribution of this research.

Table 9.2: Summary of the practical guidelines arising out of the current research

Guidelines for teaching literacy using Wikis	Supporting features	Questions to reflect upon
<p>Promoting online presence</p> <ul style="list-style-type: none"> -Literacy pedagogy if carefully aligned to technology has potential to connect with contemporary students' interests. -Educators should exploit the affordances of the tools learners will use to gain access to online platform. -Educators should encourage students to support each other to gain online presence. -There should be no structure or ground rules imposed to allow learners to freely explore the platform through several trials and encounters. 	<ul style="list-style-type: none"> -Students must have access to an online learning platform such as the Wiki. -There has to be high level participation to create fun and excitement in the writing classroom. -There is potential to share, edit content and upload pictures, images and videos. 	<ul style="list-style-type: none"> -Do you want to connect with students' interests in today's classrooms? -Do you want to motivate students who are reluctant to engage in ESL writing? -Do you want to make ESL writing interesting to learners in the contemporary classrooms? -Do you want to extend students' writing outside classroom hours?
<p>Building online cultural experiences</p> <ul style="list-style-type: none"> -Literacy pedagogy must relate to students' lives and make them feel part of the learning community. -The classroom writing experiences must incorporate elements of students' personal lives, including their interests, cultures, and family histories. -This creates a positive learning environment through which students learn to trust one another to build knowledge together. -Encourage learners to read and respond/comment one another's posts 	<ul style="list-style-type: none"> -Relate writing to students' lives and thinking. -Active participation in building online identities and cultural experiences. -Learners freely interact and share experiences directly related to their personal lives. -A nurturing environment for students to trust one another through online exchanges, comments and questions about each other's lives. -Sharing pictures/images of hobbies, families and other cultural experiences arouses interest and helps learners to identify with the experiences. 	<ul style="list-style-type: none"> -Do students in writing classrooms learn in ways that make sense to them? -Do you want learners to feel part of the writing/learning community? -Do you want to create a positive learning environment where learners can learn to trust and work together? -Do you want to transform reluctant learners into active ones in the writing classroom?
<p>Validating information</p> <ul style="list-style-type: none"> -Writing about a topic involves consultation with multiple sources as well as consideration of how prior experiences influence current understandings. -Encourage sharing of multiple perspectives to allow for validation of information to take place. -Encourage learners to share prior experiences or preconceived ideas on the topic/course. 	<ul style="list-style-type: none"> -There should be opportunity for students to consult or analyze multiple sources or evidence. -Space for reflection on prior experiences/information should be available in order to create room for new understandings. 	<ul style="list-style-type: none"> -Do you want to validate information shared by participants? -Do you want students to achieve true understandings of the theme/topic under study? -Are students aware of the importance of past experiences in creating new understandings of a

<p>-Encourage construction of new understandings by connecting with learners' previous experiences.</p>		<p>topic? -Do the students know that their personal interests and personal experiences are useful in validating meanings?</p>
<p>Promoting dialogue in literacy pedagogy -Indeed literacy pedagogy should encourage conversations or dialogues as a means for students to derive meaning out of their writing.</p> <p>-This can be achieved when educators provide appropriate learning tasks. These tasks must provoke multiple perspectives (e.g. role play, creating scenarios) from which learners base to engage in open dialogues in form of interpreting and negotiating meanings of the shared texts.</p> <p>-Design authentic and challenging learning tasks that would provide students with purpose to engage in collaborative dialogues and collective meaning-making processes.</p> <p>-Support students to engage in critical thinking and collaborative discussions.</p>	<p>-High level engagement in dialogical conversations between students and peers or students and educators.</p> <p>-The multiple perspectives shared by participants supports in-depth exploration of the topic/theme under study.</p> <p>-Learners collaboratively interpret, negotiate and attach meanings to texts.</p>	<p>-Do you want to increase students' involvement and engagement in the writing classroom?</p> <p>-Do you want to encourage shared conversations among students in the writing classroom?</p> <p>-Do you want students in the writing classroom to be part of the collaborative meaning-making processes?</p> <p>-Do you want students to construct knowledge and build new understandings?</p> <p>-Do you want to motivate reluctant, or passive students in collaborative meaning-making processes for purposes of building new understandings?</p>
<p>Applying literacy -Literacy pedagogy can be translated into actual practice by relating it to students' real life experiences.</p> <p>-This can be achieved by encouraging students to reflect on their learning experiences to derive solutions that can tackle real life challenges.</p> <p>-Encourage students to share their own understanding of the complex relationship between, content, pedagogy and the context in which they function.</p> <p>-There is a need to align ESL writing pedagogies to generic skills required for the 21st century academic and labor market.</p>	<p>-Theory covered in the writing classroom is aligned to actual practice.</p> <p>-Students view writing through their personal experiences.</p> <p>-Students reflect on their actions, thinking and knowledge-building processes.</p>	<p>-Do you want to make classroom writing relevant to real world development?</p> <p>-Do you want students to use the knowledge obtained from literacy classroom to handle current problems?</p> <p>-Are students able to use their lived experiences to challenge the inherited pedagogical problems?</p>

Table 9.2 provides a summary of the practical guidelines (pedagogical framework) for enhancing students' literacy skills using digital tools such as the Wikis. The argument I advance in this study is that, although technologies such as Wikis have been utilized to serve various educational purposes in many contexts (Konieczny 2014:80), there is scanty research engaged with construction of meanings of written texts mediated by the Wiki technology. The sociocultural theoretical perspective is relevant in providing the constructs to implement the design solution (Wiki intervention) aimed to address the research problem. In line with this view, relating to students' present interests and motivating them to engage in creating meanings of written texts using the available digital tools is useful in linking theory to practice. Thus, the study has utilized Wikis as an example of digital tools used by contemporary learners to engage in dialogical conversations between students, peers and educators that in line with the way 21st century students communicate and learn. Basing on Vygotsky's argument about supporting students' writing, this study has highlighted that "the teaching of writing has to be based on the interests of the learner, be relevant to life, meaningful for learners" (Vygotsky 1978:118). This has been visually illustrated in the theory-driven pedagogical framework in Figure 9.1.

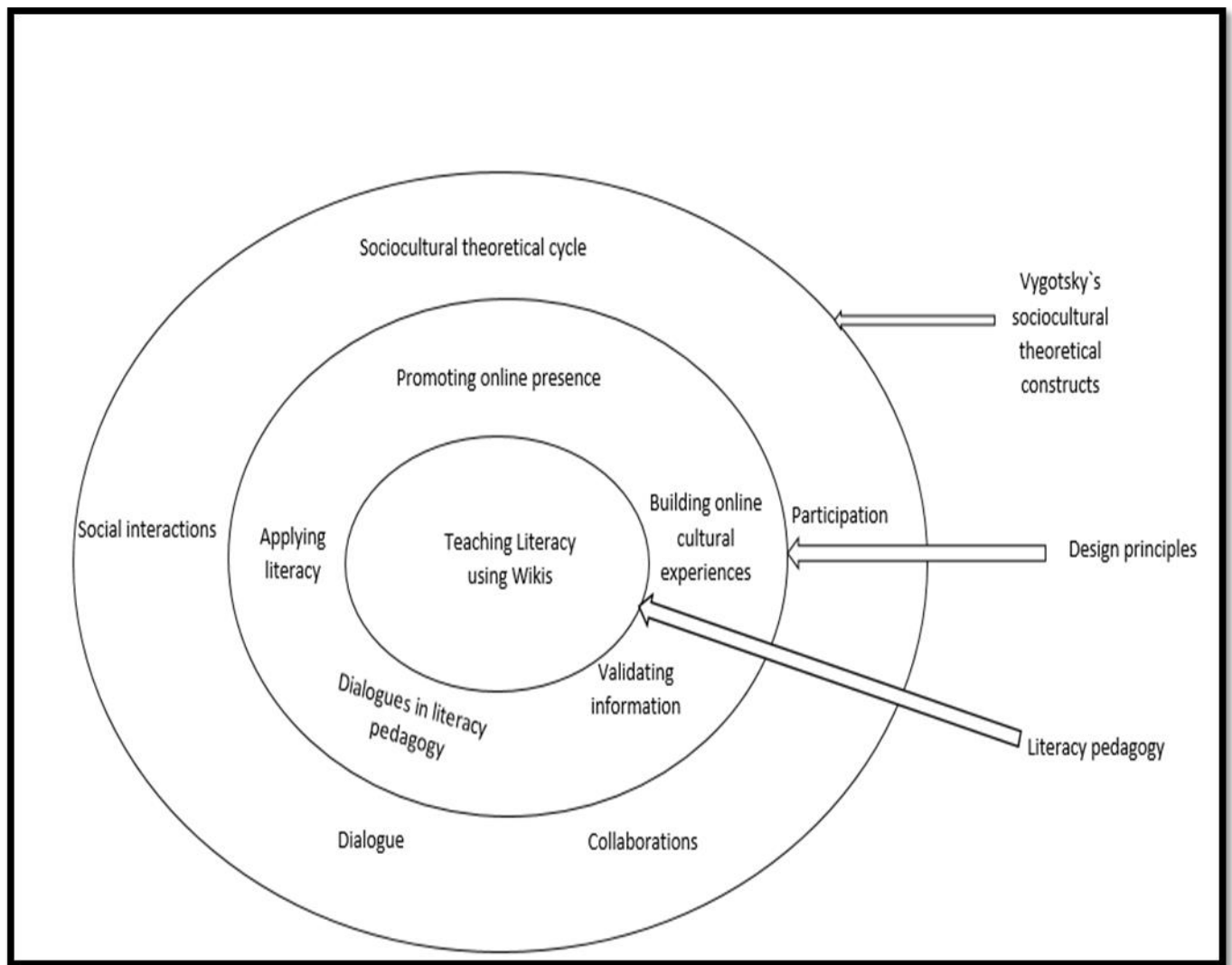


Figure 9.1: Theory-driven pedagogical framework for teaching literacy using Wikis

Figure 9.1 illustrates a theory-driven pedagogical framework which has three interrelated layers linking theory to practice. The outer circle illuminates Vygotsky's sociocultural theoretical constructs including: social interactions, dialogues, collaboration, and participation. Thus, theory is pertinent in guiding the development of the design guidelines (middle circle) and the final pedagogical framework for teaching literacy using the Wiki technology (inner circle).

That aside, the next section illustrates researcher positioning and reflectivity.

9.4 Researcher positioning and reflectivity

According to Charmaz (2006:330), all qualitative research that is anchored within the interpretive tradition needs to be reflexive. In the interpretive tradition, knowledge is viewed as a social and

cultural construction. Therefore researchers ought to engage in self-scrutiny to establish how their researcher positions, personal beliefs, assumptions, and cultural backgrounds may have influenced the research process (Levy 2003:203). In other words, it is important that issues related to researcher positioning and reflectivity in the study are addressed. According to Ruby (1980:154), “being reflexive in doing research is part of being honest and ethically mature in the research practice”. Van Manen (2007) defines researcher positioning as a practice through which the researcher uses personal experiences, assumptions and biases to analyze data and interpret meanings during the research process. Researchers are urged to practice reflexivity at all stages of the research process (Ruby 1980:154).

Therefore, in this section I explain how my personal beliefs, assumptions and researcher positioning may have influenced the data collection, analysis and interpretation of the research findings. For example, the decision to undertake this study in context where I serve as a teacher-educator and with a particular focus on the use of collaborative writing tools such as the Wikis was influenced by my personal assumptions, interests and experiences (see Chapter 1, Section 1.2). However, my ‘insider’ position as a teacher-educator could have caused an automatic bias in the selection of the study participants. It could also have raised issues of power related to the educator-student relationship. First, during DBR phase one, I collaborated more with particular educator-colleagues in the ESL field at the language education unit as opposed to other educators in the faculty. This systematic bias could have compromised a balanced interaction as well as a provision of useful guidance from other faculty members. However, this bias was based on the ability of the ESL practitioners to sustain critical conversations regarding supporting the development of literacy skills among contemporary students.

Second, my ‘insider’ position as teacher-educator of an ESL methods course at a specific university context could have caused a bias in the selection of the study participants. For example, only those students I teach ‘Methods of Teaching English as Second Language’ course and had shown interest in participating in the study were selected. Moreover, I took keen interest in those students who owned or had easy access to internet-enabled devices and were active social media users. This could have partly affected the data collected in this study as compared to when data had been obtained from various cohorts of student-participants. However, my dual position as a researcher as well as teacher-educator had some benefits to the research process. For example, it eased access to the learning context and the student-participants. Having an ‘insider’ position was important to observe, learn and understand the dynamics of the learning context in order to

strengthen the research problem and the data collection process. Besides, having employed a DBR approach for this study which traversed a longer period of time of three years (2017-2019), it was beneficial to utilize a research context which I was more familiar with in order to minimize disruptions. As argued by Hamilton and Corbett (2013), researchers may disrupt activities in the research context, especially when working within limited time frames or in research settings where they are ‘outsiders’.

In addition, my position as a teacher-educator and a researcher collecting data from participants who are my students created issues of power because many students did not consider me as a researcher, but rather, as their ‘lecturer’ which could easily affect their responses especially during interviews. As Jimmy-Gama (in Sebbowa 2017:247) points out, “if participants are familiar with the researcher as their teacher, they might respond in a way they know will not offend the researcher’s known or perceived identity”. Therefore, understanding my dual position- as an educator and researcher- in this study, I constantly reminded my student-participants that the purpose of this research was not to evaluate or judge them, but to seek knowledge for purposes of improving the pedagogical practice. In addition, I documented the participants’ views in a manner that was respectful in order to avoid making them ‘feel let down, at risk or disempowered’ (Simmons, 2009:97).

In addition, my experiences as a teacher-educator and research interests in the field of educational technologies and innovative pedagogies in ESL teaching biased my design choices towards the Wiki design solution. This was for purposes of enhancing interactions and collaborative dialogues between students, peers, and educators (see Chapter 1, Section 1.4). This was relevant in improving the literacy pedagogy given the fact that students in today’s classrooms are attracted to digital tools (social media) for communication and socialization (Yi *et al.* 2017:1). Moreover, this study provided a platform for students to explore and exhibit their literacy skills at a deeper level by exploiting the affordances of the Wiki tool. Besides, the participants showed great interest in the Wiki learning activities and post-intervention interviews and discussions that were held. As such, the students appreciated the opportunity to participate in collaborative engagements on a Wiki and also to hold discussions about their experiences of the intervention in a forum that was quite different from the one they had been used to.

Last but not least, understanding my position as a teacher-educator and researcher whose personal beliefs, assumptions and experiences or cultural backgrounds could easily influence the research

process, I utilized Crotty's (1998:4) theoretical framework to give me the tools to mitigate these challenges during the research process. For example, I adopted constructionism as the epistemological stance (see Chapter 3, Section 3.2) where meaning is constructed by engaging with reality in the social world (Crotty 1998:8). As such, I explored how students generate knowledge and collaboratively construct meanings of the written artifacts mediated by the Wiki tool. Thus, I did not impose my personal beliefs or assumptions on the participants. Subsequently, I aligned with the interpretive theoretical perspective, particularly the sociocultural theory to interpret meanings as they evolved within the naturalistic research context. Theory was important in informing and interpreting the research findings without necessarily relying on my personal biases or assumptions.

9.5 Limitations of the study

This study bears several limitations in aspects of its research design and generalization of findings. First, even though conducting research in the same context where I teach eased access to the research participants, and also gave me opportunity to build a close relationship with the participants, my role as a qualitative researcher and a primary tool of data collection could have affected some aspects of data collection, analysis and interpretation of results as explained above (see Section 9.4).

Second, this was a qualitative case study which followed a DBR approach to implement a Wiki intervention to support meaning-making processes in writing of texts at a particular ESL context. Since the intervention was implemented at a specific ESL education unit at one public university in Uganda, generalizing the findings of this study to other pre-service students in other universities would be difficult. This is because the small number of participants (20 ESL pre-service students) dealt with in this study, cannot represent all the ESL pre-service students in universities in Uganda or Africa in general. However, transferability of the findings is made possible in the following ways: First, I provided a detailed description of the research context (see Chapter 2, Section 2.8), to enable educators/practitioners who have similar research contexts and wish to utilize the pedagogical practices in this study to do so with ease. In addition, the practical guidelines in form of a pedagogical framework to support construction of knowledge and meaning-making practices in ESL writing contexts are clearly documented in this study (see Chapter 9, Section 9.3). This is intended to offer a systematic procedural structure on how to support the development of literacy skills among learners using digital tools.

A third limitation relates to the fact that the pedagogical model developed in this study was based on the collective biases within my interpretation of particular participants' responses, selected educational theories as well as literature in the second language and educational technology field. However, there are other equally good design principles that could have been formulated if alternative research approaches and educational theories are utilized, such as: the Community of Practice theory (Wenger 1998) and literacy as a social practice theory (Barton and Hamilton 1998).

The fourth limitation relates to my role as an educator and a researcher conducting research with my own students. As highlighted in Section 9.4, this raises issues of power imbalance which may have heightened the contradictions between the researcher (myself) and the researched (student-participants). This might have compromised the data collection process, especially in "the research interviews where both the interview and interviewee will act in certain ways according to their perception of each other's power" (Alex and Hammarstrom 2008:170). However, procedures were undertaken to mitigate such challenges. These involved; prolonged engagement with the research context (from 2017-2019), documenting and recording all research activities in the researcher's journal and blog site so as to improve the monitoring process, and also by following the ethical guidelines stipulated by the University Ethical Committee.

Nevertheless, despite the limitations, this study provides a base for enacting dialogues and building of meanings of ESL written artifacts between students, peers and educators mediated by the Wiki tool. This will be beneficial to literacy instructors as well as ESL educators.

9.6 Recommendations for future research

The current research provides an opportunity to gain a deeper examination of a group of ESL learners as they interact and engage in collaborative conversations and meaning-making in an online learning environment. The findings presented in this study illuminate the following potential areas for further investigation.

Guidelines in form of design principles for teaching literacy using Wikis emerged from this study. These principles were generated basing on Salmon's model for online learning and the sociocultural theory of learning. It would be interesting for future research to establish how other alternative educational theories such as Community of Practice theory (Wenger 1998) and Literacy as a Social Practice theory (Barton and Hamilton 1998) would intersect with the design of any

other educational intervention to enhance students' understandings and meanings of the written artifacts.

In addition, the pre-service students in this study were encouraged to exploit the affordances of Wiki technology to interact and engage in collaborative conversations intended to create meanings of their writings. Given the diverse and prevalent digital tools in today's era, future research could be conducted into how other online collaborative platforms would affect the quality of interactions, construction of artifacts, and meaning-making processes among students. To this end, a theory-driven discourse analysis could be a useful alternative to analyze the students' generated artifacts in those online learning environments.

Besides, it would be interesting for future research to follow a similar research approach (DBR) of this study to develop other discipline-specific models for supporting knowledge and meaning-making among students. Moreover, given the fact that the DBR methodology employed in this study emphasizes theory to practice approach (Amiel and Reeves 2008:35), it would be insightful if future researchers conduct research with in-service ESL teachers to establish how these teachers exploit the digital tools in the teaching of literacy. This would be relevant at a time, such as this when there are persistent criticisms that there is a disconnection between the theory taught at higher education institutions and the actual classroom practices of teachers (Sebbowa *et al.* 2014:24; Nganga and Kambutu 2017:200).

Finally, given the hyped students' engagement with diverse digital technologies in which "more and more English language learners around the world participate in online media to be connected with people who share similar interests, disseminate and obtain information, and keep up with current issues" (Yi *et al.* 2017:1), it is highly recommended that research is conducted to open up explicit academic debates regarding the multiplicity of literacy practices that students are likely to engage in, as they try to satisfy their contextually defined needs brought by the digital era. Ganapathy and Kaur (2013:549) point out that it is the teachers who need to understand the significance and necessity of implementing multiple literacies that come along with the utilization of diverse technologies. Thus, this new era demands that practitioners and researchers explore ways in which the concept of multiliteracies could support "second language learners to meet the changing communication demands in contemporary schooling and society" (Yi *et al.* 2017:17).

9.7 Concluding remarks

The present research has demonstrated the potential of using design-based research to motivate students to engage in collaborative writing and make meanings of their written artifacts mediated by the Wiki digital tool. The study findings suggest that incorporating students' interests or passions through the use of digital tools to mediate interactions and increase shared conversations in writing texts could support their learning. By connecting with how today's students communicate and learn is not only useful in making writing texts more meaningful and relevant to the learners, but also it also provides insights and increases the likelihood for the pre-service students to transfer similar knowledge to their future students. Moreover, the pedagogical framework that emerged out of this study in form of guidelines for teaching writing (literacy) using Wikis corresponds with how contemporary students' learn. In other words, language (literacy) educators are able to connect ESL writing to the students' present interests and thinking using the guidelines provided in this study. Thus, resultant framework of this study is timely and relevant to contribute to academic debates regarding transforming the current literacy curriculum to suit students' needs and interests.

This study also demonstrates the potential of the Wiki technology to promote collective meaning-making of written artifacts generated by participants. Students shared multiple perspectives of the topics under study on the platform. They also engaged in commenting, exchanging ideas and negotiating meanings (dialogical conversations) which served the purpose of validating each other's contributions. This evolving and continuous process of meaning-making allows students to engage an in-depth exploration of issues and also nurtures them to trust and respect each other's perspectives as potential sources of useful information. Davidson (in Beach and Doerr-Stevens 2009:461) describe such potential sources of information as "passing theories-hunches, opinions, or hypothesis that need further testing". By adopting these "passing theories", students learn to accommodate differing opinions for purposes of collaboratively coming up with a solution. Thus, this study has demonstrated that pre-service students are absolutely capable of thinking critically and engaging in dialogical conversations for purposes of building new understandings.

Besides, this research has contributed to the efficacy of Salmon's model from its original function of directing asynchronous learning in online environments (Salmon 2002:12) in the global north, to formulation of design guidelines for teaching literacy using Wikis in the global south, particularly, in Uganda. This research has tested ways in which to think about utilizing technology in alignment

with the five stages of the model to structure online learning activities for educators and students. This plays a critical role of reducing anxieties or uncertainties among teachers, educators, and students about using other digital tools within their own practice. This adds to the debates and discourses of how educators should think about the use of technologies in their own educational contexts.

Finally, this study has demonstrated the importance of determining a theory that is appropriate in achieving the learning goals before any technology is integrated into the pedagogical context. For example, the sociocultural theoretical perspective is very useful if the educator wants students to learn through social interactions and collaborative dialogues. Therefore, integrating learner-centred dialogical approaches enables students to manage their own learning. It also encourages collaborative answering of 'how' and 'why' questions intended to find solutions to challenges in the future, as opposed to the behaviourist methods that constrain learning.

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APPENDIX A

INTERVIEW GUIDE

INTERVIEW ITEMS RELATED TO RESEARCH QUESTIONS AND REVISED DESIGN PRINCIPLES

Social interactions on the Wiki platform

Step One: Accessing the play space

1. How did you access the Language Education Socio-wiki online learning site?
2. Briefly explain how you got acclimatized to the features of the Accessing the play space of the Socio-wiki site.

Step Two: Promoting online introductions- personal information/cultures/family histories

3. What resources/materials (pictures, home videos, audio recordings, written texts) did you share for your online introductions?
4. Why do you think it was important to share the resources you have stated above?
5. How did sharing personal information, family histories and cultures during online introduction help you to bond with other members of the Socio-wiki platform?
6. How did reading about your peer's personal information and cultures improve your appreciation of other people's identities and cultures?

Collaborative conversations and meaning-making on the Wiki platform

Step Three: Sharing experiences of ESL writing instruction

7. What are your views on the current teaching of ESL writing in Uganda? (That is, methods, techniques, approaches used to teach writing to learners of ESL).
8. Which methods, techniques or approaches would you utilize to support the teaching and learning of writing in Uganda?

Step Four: Promoting collective meaning-making of written texts

9. Briefly describe how you prepared (i.e. the resources or people you consulted) for the online role play mediated by the Wiki platform.
10. How did the preparation described above help you to understand the role(s) you played?
11. The role play activities you engaged in had real-world relevance and reflected real-life tasks. What do you think of engaging in these types of real-life activities?

12. How did taking part in the online role play for joint meaning-making of the written arguments motivate you to engage with the Wiki writing activities?
13. What literacy practices did you engage in to strengthen your role play arguments/positions on the Wiki platform?
14. How did reading arguments from other role players on the Wiki platform affect your thinking regarding the topic under discussion?
15. Mention the skills you acquired as a result of participating in online role play collaborative conversations (arguments) on the Wiki platform?

Step Five: Supporting reflections in ESL writing

16. How did participation in online role play for joint meaning-making of written arguments on the Wiki platform make ESL writing relevant/interesting?
17. What are the opportunities and challenges of using the Wiki online learning environment for joint construction of meanings in writing ESL texts?
18. Suggest ways of improving meaning-making process in writing texts using the Wiki platform.
19. State any other information you would wish to discuss about collaborative conversations and meaning-making processes on the Wiki learning environment.

APPENDIX B

OBSERVATION GUIDE

OBSERVATIONS OF THE EDUCATOR AND STUDENTS' ACTIVITIES ON THE WIKI PLATFORM ALIGNED TO THE FORMULATED AND REVISED DESIGN PRINCIPLES

Formulated design principles at Implementation one	Revised design principles at Implementation two	Educator's activities on the Wiki platform	Students' activities on the Wiki platform
Step 1: Enable access and motivation	Step 1: Accessing the play space		
Step 2: Promote online socialization	Step 2: Promoting online introduction		
Step three: Support information exchange	Step three: Sharing experiences of ESL writing instruction		
Step 4: Promote knowledge construction	Step 4: Making shared interpretations of meanings in written texts		
Step 5: Foster development	Step 5: Supporting reflections in ESL writing		

APPENDIX C

GUIDELINES TO WRITING A REFLECTIVE JOURNAL

The reflective Journal

A few important points on writing a reflective journal

- Reflective journals are common forms of tracking one's progress in learning in many fields not just with humanities.
- Learning how to write a reflective journal takes a bit of time and practice to become good at it. However, you should not worry if it doesn't work out the first time.
- It is important to write frequently and in little bits, than writing a long journal entry at a given moment.
- Writing a reflective journal is different from taking notes in a lecture or writing essays.
- It involves a deeper thinking about a learning experience and the understandings you derive from it.
- The writing style should be casual and in the first person.
- A note book will be provided for each of the participants to use to write journal entries.

What are the benefits of writing a reflective journal?

- To assess your progress in learning.
- For reflection on your learning experiences.
- For reflection on your social interactions and collaborative conversations with others.
- To promote critical thinking skills.
- To promote a deeper learning approach.
- Develop writing skills in English as Second Language.

What will I be looking for in the students' reflective journals?

- Quality of engagement with learning issues and not quantity (quality).
- Breadth of topics that you will cover (width).
- Deeper and thorough approach with which one engages with the learning experiences (depth).

When should you write your reflective journals?

- Ideally, you should write your journal entries every time you engage with the project, whether online or during face-to-face sessions as you interact or collaborate with peers or educator to complete a task.
- However, if daily entries are not possible you can combine several days' work into one entry, but remember to indicate the day and date for each entry you make. This would give me a clear idea when each entry was taken and learning experiences obtained from it.

What you should write in your reflective journals.

- You can write about your experience of interacting and collaborating with others and the educator, online or face-to-face, as you complete the assigned tasks. It is important to comment about your progress as well as the difficulties you are facing in completing the tasks.
- You can comment on any other aspect that you think might be significant or interesting to the study, in terms of how you or your peers approached it or about the experience of interacting with others on the Wiki activities.
- You can comment on your own experiences of using the Wiki platform for your writing activities as opposed to the regular classroom writing, the difficulties you faced, and the feelings of uncertainty or satisfaction at your own progress.
- You can also comment on how peers approached a similar task or how they interacted with others, and the lessons you learnt from these experiences.
- You may also comment on the useful information you came across and that which was shared by your peers and show how these impacted on your learning. In addition, you can comment any other aspect which struck you as interesting and important either in researching information for completing the tasks or in discussing your findings with others.
- You can also include an entry of your participation and interaction with other members of the Wiki platform and comment on it.

When will the reflective journal be collected?

The reflective journal materials would be collected at the end of each implementation. The study has two implementations, therefore two sets of reflective journal materials would be collected.

APPENDIX D

REQUEST TO CONDUCT RESEARCH

UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
VRYSTAAT
YUNIVESITHI YA
FREISTATA



The Dean,
School of Education,
Makerere University,
P.O. Box 7062, Kampala-Uganda

Dear Madam,

RE: REQUEST TO CONDUCT RESEARCH AT YOUR INSTITUTION

My name is **Najjemba Josephine Lutaaya**, a postgraduate student at the Faculty of Education, University of Free State, South Africa. I am conducting a study entitled “**A social constructivist approach to enhance the academic writing skills of English as Second Language (ESL) pre-service teacher-trainees**” under the supervision of **Professor Johannes Cronje** as part of the requirements towards a PhD degree. I would like to have permission to conduct my research at your institution.

The aim of this study is to examine how a social constructivist approach would help to enhance the academic writing skills of ESL pre-service teacher-trainees. Social constructivist approach in this study refers to active engagement of teacher-trainees (through collaboration and dialogue) with their educators and peers in the process of writing academic texts. I am specifically interested in working with third year ESL pre-service teacher-trainees and their educators because both are directly involved in the education course entitled ‘Methods of Teaching English as Second Language’ whose major component is teaching the writing skill. Participation in this study is on free will and voluntary basis. Participants are free to withdraw from the study any point without any penalty. The trainees’ and educators’ actual role in the study will involve responding to a questionnaire, participating in focus group and semi-structured interviews and making weekly journal entries.

The questionnaire which would take about 10-15 minutes to fill aims to solicit participants’ views/comments on how the social constructivist approach would be used to enhance students’

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writing skills. This study is interventional in nature with two iterative cycles. Thus, participants will also take part in two (pre and post intervention) interviews of not more than 40 minutes each to obtain their views and experiences of the intervention. The interviews will be audio-recorded with permission from the participants. Trainees will be requested to spend about 15 minutes once a week making journal entries. In these entries, trainees will discuss their writing experiences, what they are reading about in relation to the written drafts and also explain whether the intervention has helped or not helped to improve their writing skills. The journals will be collected from the participants at the end of the data collection process.

Issues of confidentiality and anonymity of the participants and their information will be given utmost consideration. Pseudonyms for teacher-trainees and educators will be used throughout this research. Any other identifying data such as course names and codes or real names of participants that could easily be traced back to the owners will not be used at any stage of this research. Access to audio recordings of participants' interviews and discussions, transcripts of interviews, field notes, trainees' written drafts/assignments and journal materials in soft or hard copies will be restricted to the researcher and her study supervisor. In addition, this information will be kept safely under key and lock or in a password protected computer and used only for the purposes of this research. Arrangements will be made to destroy this information once it is no longer needed.

For any further questions regarding this research, please feel free to contact me on +256704500300 or email jlnajjemba@gmail.com or my supervisor, Professor Johannes Cronje at +27825585311 or email johannes.cronje@gmail.com

Yours sincerely,



Najjemba Josephine Lutaaya

PhD candidate, Faculty of Education

University of Free State, SA.

APPENDIX E

CONSENT TO CONDUCT RESEARCH

MAKERERE

P. O. Box 7062 Kampala – Uganda
E-mail: deaneduc@educ.mak.ac.ug



UNIVERSITY

Tel: +256 – 414- 540733
Cables: "MAKUNIKA"

**COLLEGE OF EDUCATION AND EXTERNAL STUDIES
SCHOOL OF EDUCATION
DEAN'S OFFICE**

3rd August 2017


Ms. Najjemba Josephine Lutaaya,
Student/Researcher,
Faculty of Education,
University of Free State, Bloemfontein Campus,
P.O. Box/Posbus 339,
Bloemfontein • 9300 • South Africa.

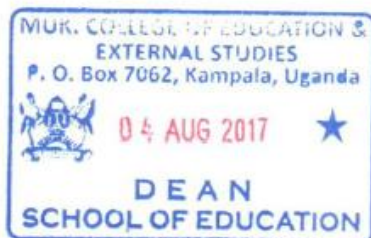
CONSENT TO CONDUCT RESEARCH STUDIES IN OUR INSTITUTION

I give consent for you to approach third year ESL pre-service teacher-trainees and their educators at our institution to participate in your research study titled; **"A social constructivist approach to enhance the academic writing skills of English as Second Language (ESL) pre-service teacher-trainees"**. I have discussed with you and also read the research Information Statement explaining the aim of the research project and understand that:

- Participation is on a free will and voluntary basis.
- Participants who may decide not to participate in the study should not in any way be coerced.
- Participants may decide to withdraw their participation at any time without penalty.
- Third year ESL pre-service teacher-trainees and their educators will be invited to participate and that permission will be sought from them.
- Only teacher-trainees and their educators who consent will participate in the study.
- All information obtained will be treated as confidential and anonymity of participants will be ensured.
- The institution will not be identifiable in any written reports of the study.
- The activities of this research will not in any way interfere with the normal day-to-day academic programmes of the institution
- A report of the findings will be made available to the institution.
- I may seek further information on the research project from the supervisor, Professor Johannes Cronje +27825585311 or email johannes.cronje@gmail.com or Najjemba Josephine Lutaaya at +256 704 500 300 or email jlnajjemba@gmail.com

Yours sincerely,


Betty Ezati (PhD)
Dean,
School of Education



APPENDIX F

CONSENT FORM FOR THE HEAD OF INSTITUTION

UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
VRYSTAAT
YUNIVESITHI YA
FREISTATA



CONSENT FORM FOR THE HEAD OF THE INSTITUTION

My name is **Najjemba Josephine Lutaaya**, a postgraduate student at the Faculty of Education, University of Free State, South Africa. I am conducting a study entitled "**A social constructivist approach to enhance the academic writing skills of English as Second Language (ESL) pre-service teacher-trainees**" under the supervision of **Professor Johannes Cronje** as part of the requirements towards a PhD degree. The aim of this study is to examine how a social constructivist approach would help to enhance the academic writing skills of ESL pre-service teacher-trainees. The purpose of this form is to request for permission to conduct my research at your institution for a period of two semesters.

As I informed you in the earlier communication, I am specifically interested in working with third year ESL pre-service teacher-trainees' cohort of 2017/2018 and their educators because both are directly involved in the education course entitled 'Methods of Teaching English as Second Language' whose major component is teaching academic writing. The educators' and trainees' actual role in the study will involve responding to a questionnaire, participating in focus group and semi-structured interviews and making weekly journal entries. There will also be observations of some selected lessons.

This study will adhere to the ethical guidelines stipulated by the Research Ethics Committee of the University of Free State. Once I have received your consent to conduct my research, I will arrange to obtain informed consent from the teacher-trainees and their educators. I will also arrange a time schedule for data collection and ensure that my research activities do not in any way interfere with the normal day-to-day academic programmes at your institution.

Thank you for giving me an opportunity to conduct my research at your institution. Please sign this form to show that we have discussed the contents together and that you have agreed to them.

Name of the head of Institution..... BETTY ELATI

Signature of the head of institution..... [Signature] Date..... 7/8/2017

Full name of the Researcher..... Najjemba Josephine Lutaaya

Signature of the Researcher..... [Signature] Date.....

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APPENDIX G

PARTICIPANT'S INFORMATION LETTER



25th January, 2018

PARTICIPANT'S INFORMATION LETTER

Dear participant,

My name is **Najjemba Josephine Lutaaya**, a postgraduate student at the Faculty of Education, University of Free State, South Africa. I am conducting a research study under the supervision of **Professor Johannes Cronje** as part of the requirements towards a PhD degree.

This letter serves to inform you of my research project: **A social constructivist approach to enhance the academic writing skills of English as Second Language (ESL) pre-service teacher-trainees** so that you can make an informed decision concerning your participation in this study.

The aim of this study is to examine how a social constructivist approach would help to enhance the academic writing skills of ESL pre-service teacher-trainees. Social constructivist approach in this study refers to active engagement of teacher-trainees (through collaboration and dialogue) with their educators and peers in the process of writing academic texts. I am specifically interested in working with third year ESL pre-service teacher-trainees and their educators because both are directly involved in the education course entitled 'Methods of Teaching English as Second Language' whose major component is teaching the writing skill. The expectation of this course is that for teachers to effectively teach writing to their learners, they must be competent writers. Thus, I am interested in examining how a social constructivist approach with collaborative dialogues would help to enhance the academic writing skills of ESL pre-service teacher-trainees.

In line with the ethical guidelines of the University of Free State Research Ethics Committee as well as your university's regulations for protection of human subjects, your participation in this study is voluntary and you are under no obligation to consent to participation. You are free to choose not to participate or to withdraw from the study at any time without any penalty or adversely affecting your relationship with the researcher or your institution. Your decision not to participate in this study will not result in any loss of benefits to which you are entitled. Upon your request to withdraw, all data pertaining to you will be destroyed. If you choose to participate, all information obtained from you will be held in strict confidence and will have no bearing on your final grades or the services you receive from the university. You will also be given this information sheet to keep for your future reference and be asked to sign a written consent form.

Your actual role in the study will involve responding to a questionnaire and focus group interviews, participating in face-to-face contact sessions as well as making weekly journal entries. The questionnaire which would take about 10-15 minutes to fill aims to obtain your views/comments on how the social constructivist approach would be used to enhance academic writing skills. This study is interventional in nature with two iterative cycles. Thus, you will also take part in two (pre and post intervention) interviews of not more than 40 minutes each to obtain your views and experiences of the intervention. The interviews and discussions will be audio-recorded with your permission. You will be requested to spend about 15 minutes once a week making journal entries. In these entries, you will discuss your writing experiences, what you are reading about in relation to the drafts you are writing and also explain whether the writing intervention has helped or not helped you to improve your writing skills. The journals will be collected from you at the end of the data collection process.

This study will primarily be beneficial to English as Second Language (ESL) teacher-trainees and their educators. The study seeks to investigate ways in which the social constructivist approach would help to enhance trainees' academic writing skills. Despite the fact that higher education ESL students experience difficulties in writing academic texts, they bring to the writing classroom prior knowledge, experiences and varying levels of linguistic competences, which if exploited can reshape how they learn to write. Thus, findings from this research will contribute to understanding of how students learn in an environment that is open to multiple perspectives and interpretations. Besides, this study will add to a body of knowledge with respect to the social constructivist approach and the writing instruction research in higher education contexts.

The anticipated inconveniences/risks associated with this study include; loss of study time and personal or cultural embarrassment. Loss of study time may arise out of the fact that the study is interventional in nature with two iterative cycles that involve testing and refining solutions. While personal or cultural embarrassment may arise if personally sensitive information leaks or can be traced back to the owner. However, the following steps have been taken to mitigate these inconveniences; all research activities are

designed to take a few minutes of your study time. Making journal entries will take place once a week and will last for about 15minutes. The questionnaire will take about 10 minutes to complete while the focus group interviews will last for not longer than 40 minutes. We shall have weekly face-to-face contact session of two hours; thereafter do the rest of the work using an online platform which can be accessed through your mobile phone or laptop at your convenient time.

For inconvenience number two, measures will be put in place to guard against breach of participants' anonymity and confidentiality (see steps taken to address these issues in the section below). In addition, caution will be exercised to avoid focusing on highly sensitive, private or controversial topics for your written projects instead more general topics will be used. Please be assured that the information I will collect in this research project will not in any way be used to find fault/pass judgment on you or to influence your final grades. The information will strictly be used for research purposes. Please note there will not be any form of payment or reward in exchange of the information you give or for taking part in this study.

Issues of confidentiality and anonymity with regard to your participation in this study have been addressed in the following ways; no reference to specific names will be made while transcribing, analyzing or reporting the study findings. Your name will not be recorded anywhere and no one will be able to connect you to the answers you give. Your answers will be given a fictitious code number or a pseudonym and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings. Access to audio recordings of your interviews and discussions, transcripts of interviews, field notes, your written drafts/assignments and journal materials in soft or hard copies will be restricted to only the people involved in this research, that is, the researcher, her supervisor, research assistant who will double as the transcriber.

In addition, the information you will provide will be kept in a secure file cabinet in my office or in a password protected computer and used only for the purposes of this research. The researcher and her team will meet to discuss the precautionary measures of handling participants' data. Interviews will be conducted in an office environment that is free from other people. Transcription of interviews will be mainly done by the researcher and her research assistant to minimize the risk of leakage of information. Services of an external transcriber will be sought only if it is necessary. Once this information is no longer needed, arrangements will be made to dispose it off.

Please note that your answers may be reviewed by Research Ethics Committee of the University of Free State to make sure that this research is done properly. Otherwise, records that identify you will be available

only to people working on the study, unless you give permission for other people to see them. Any use of information you provide in this study will be reported in general terms but not as per individual participants. The anonymous data obtained in this study may be published in academic journals or presented at conferences but your identity will be kept strictly confidential and your name will remain anonymous.

Please keep in mind that it is sometimes impossible to make an absolute guarantee of confidentiality/anonymity especially when focus groups are used as a data collection method. A focus group involves a group of people who are selected to discuss or give their opinion about a particular topic. While every effort will be made to ensure that you will not be connected to the information that you share during the focus group interview, I cannot guarantee that other participants in the focus group will treat information confidentially. For this reason I advise you not to disclose personally sensitive information in the focus group.

If you would like to be informed of the final research findings, a copy of the report will be availed to your institution in both soft and hard copies or you can contact me, Najjemba Josephine Lutaaya on telephone numbers +256704500300/+256772045152 or email address jlnajjemba@gmail.com. The findings will be available in September 2019. Should you require any further information or want to contact me about any aspect of the study, kindly use the email address or telephone contacts given to you above. In case you have concerns about the way in which this research is conducted, you may contact my study supervisor; Professor Johannes Cronje on email; Johannes.cronje@gmail.com or telephone number +27(0)825585311.

If you agree to participate in this research project, you are requested to complete and sign an informed consent letter attached to this letter.

Thank you for taking time to read this information sheet and for considering to participate in this study.

Yours sincerely,

Najjemba Josephine Lutaaya

PhD candidate, Faculty of Education

University of Free State, South Africa.

APPENDIX H

PARTICIPANT LETTER OF INFORMED CONSENT



25th January, 2018

PARTICIPANT LETTER OF INFORMED CONSENT

This study aims to explore how a social constructivist approach would help to enhance the literacy skills of English as Second Language pre-service students.

I, *(full name)* ----- as a participant in this study, understand that I will take part in *participant observations, semi-structured interviews, face-to-face workshops as well as making reflective journal entries and generating artefacts on the Wiki platform* concerning how we could use the social constructivist approach to enhance literacy teaching and learning.

I also understand that all the information I will provide in this study will be kept confidential, and that my identity will never be revealed in the reporting of the findings of the study. There are no foreseeable risks associated to participants who take part in this study; therefore, there are no costs to me in any way. I am aware that the study has been reviewed according to University of Free State Research Ethics Committee and my University's Ethical Committee regulations and procedures governing participation in research.

I further understand that participation in this study is voluntary and that I am free to withdraw from the study at any point without any penalty. I have been assured that the raw data will be kept in a secure location and destroyed five (5) years after it has been analyzed.

That I may seek further information on the project from the supervisor, Professor Johannes Cronje at +27 82 55 85311 or email Johannes.cronje@gmail.com or Ms. Najjemba Josephine Lutaaya at +256 704 500 300 or email jlnajjemba@gmail.com.

By signing below, I state that I am over eighteen (18) years of age and wish to participate in the study being conducted by *Ms. Najjemba Josephine Lutaaya for her PhD Studies in the Faculty of Education, University of Free State.*

Name of participant: -----

Signature of participant: -----

Signed at: -----

Date: -----

APPENDIX I
ETHICAL STATEMENT



Faculty of Education

05-Dec-2017

Dear Ms Josephine Najjemba

Ethics Clearance: A social constructivist approach to enhance the academic writing skills of English as Second Language pre-service teacher-trainees

Principal Investigator: Ms Josephine Najjemba

Department: School of Higher Education Studies (Bloemfontein Campus)

APPLICATION APPROVED

With reference to your application for ethical clearance with the Faculty of Education, I am pleased to inform you on behalf of the Ethics Board of the faculty that you have been granted ethical clearance for your research.

Your ethical clearance number, to be used in all correspondence is: **UFS-HSD2017/1020**

This ethical clearance number is valid for research conducted for one year from issuance. Should you require more time to complete this research, please apply for an extension.

We request that any changes that may take place during the course of your research project be submitted to the ethics office to ensure we are kept up to date with your progress and any ethical implications that may arise.

Thank you for submitting this proposal for ethical clearance and we wish you every success with your research.

Yours faithfully

Prof. MM Mokhele
Chairperson: Ethics Committee

Education Ethics Committee
Office of the Dean: Education

T: +27 (0)51 401 9683 | F: +27 (0)86 546 1113 | E: NkooncMM@ufs.ac.za
Winkie Direko Building | P.O. Box/Posbus 339 | Bloemfontein 9300 | South Africa
www.ufs.ac.za



APPENDIX J

LETTER FROM THE LANGUAGE EDITOR



DIRECTORATE OF RESEARCH AND GRADUATE TRAINING

07 January 2021

The Postgraduate School
University of Free State, Bloemfontein Campus
P.O. Box/Posbus 339
Bloemfontein. 933. South Africa.

RE: Confirmation of editing Ms Najjemba Josephine's PhD thesis

This is to confirm that I have edited Ms Najjemba Josephine's PhD thesis titled: **A social constructivist approach to enhance the literacy skills of English as Second Language pre-service students.**

I do confirm that I have corrected the following: grammar, spelling, punctuation, sentence structure, phrasing, typing errors, and references.

Sincerely,



Bernard Atuhaire

Editor

Makerere University Press

Tel: +256 786 267 014

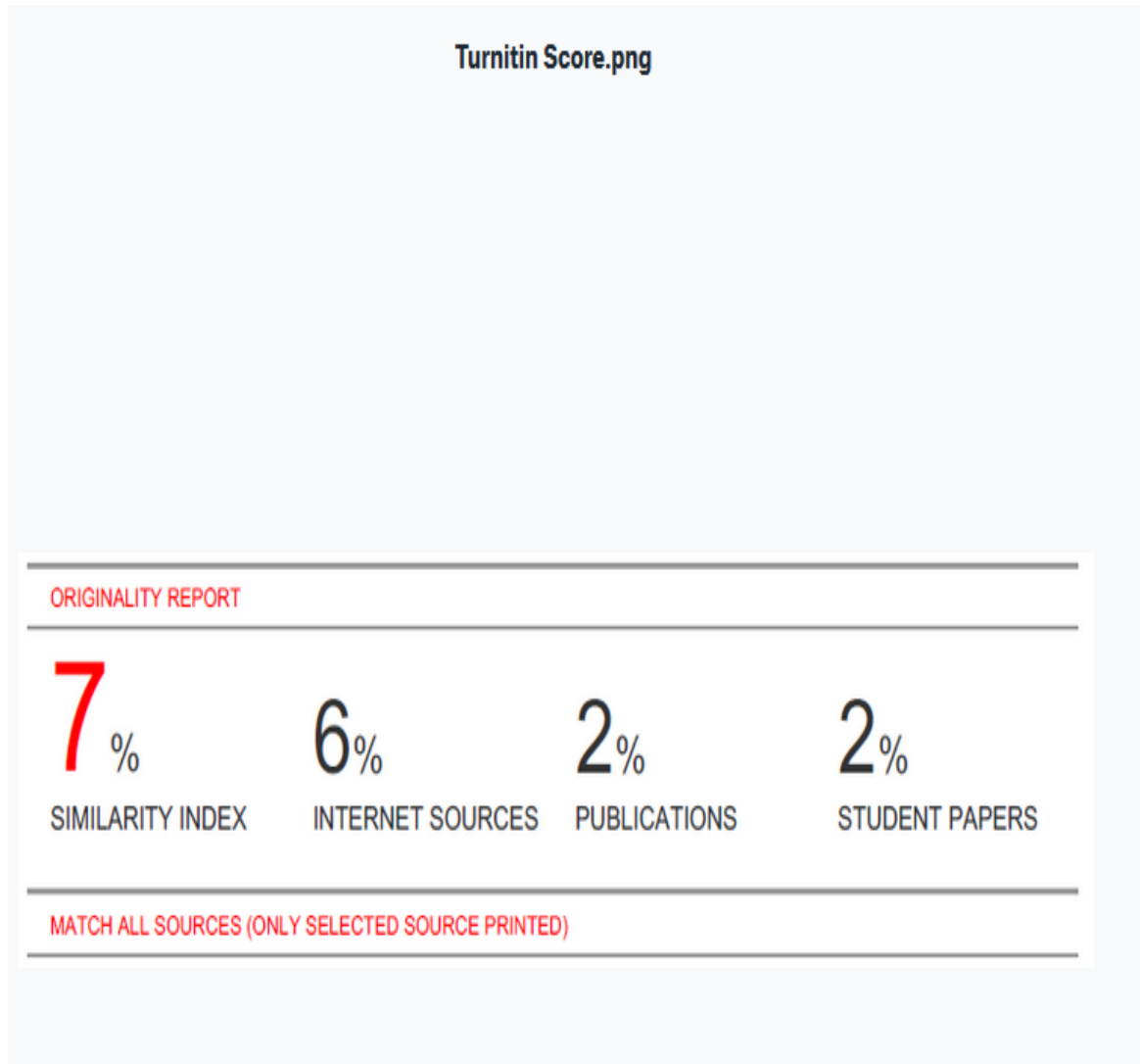
Email: atuhairebernard4@gmail.com

In future correspondence please quote the reference number above

APPENDIX K

TURNITIN REPORT

TURNITIN REPORT FOR JL NAJEMBA PHD THESIS



Johannes Cronjé (Prof)

APPENDIX L

DESIGN-BASED RESEARCH PLANNING TEMPLATE

TEMPLATE

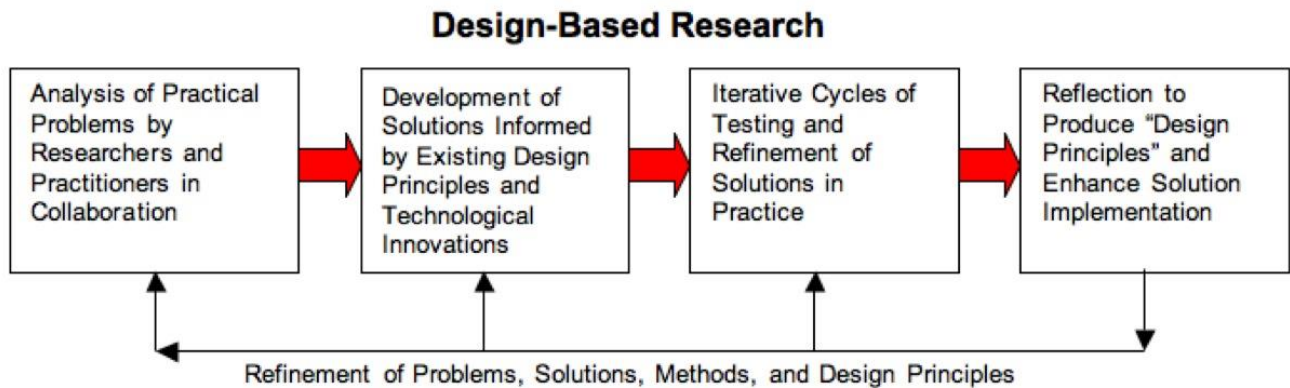
Design-based research planning template

v v v v v v v v v v v
v v v v v v v v v v v
v v v v v v v v v v v

Name of project	
Name of teacher/researchers	

Reeves' model

The design-based research approach (Brown, 1992; Collins, 1992) has been succinctly summarised by Reeves (2006) into four phases (see figure below).



The following template may assist in working through the issues associated with each stage. Key questions for each phase and its components are given, with space to write your own ideas in the columns.

PHASE 1:

Analysis of practical problems by researchers and practitioners in collaboration

1.1 The problem

The first phase is focussed on the analysis of a **significant educational problem**.

<i>Focus questions</i>	<i>Your ideas (Write your ideas in the box below)</i>
What is the educational problem that your research	

will address?	
---------------	--

1.2 The practitioners

Teachers and researchers together explore the nature of an educational issue or problem facing students. It is important for **teachers to be involved** in this phase so that the full extent of the problem is known, rather than being interpreted solely by researchers.

<i>Focus questions</i>	<i>Your ideas</i>
<p>Who are the other teachers/students/practitioners that you can speak to about the problem?</p> <p><i>For example, you might select colleagues who teach the same subject, senior school administrators who have taught in the area, teachers from other schools, or teachers from professional associations, etc.</i></p>	
<p>What data will you collect from these teachers?</p> <p><i>For example, you might interview each one and take notes or audio tape their comments. Or you could conduct a focus group discussion of all of these teachers together.</i></p>	
<p>What questions will you ask?</p> <p><i>For example, you might ask the teachers their views on the problem, and their suggestions for how to solve it. And you might explore your own perception of the problem and ask the teachers questions that relate to your own views, or to issues that you have found discussed in the literature?</i></p>	
<p>How will you collect and analyse these comments?</p> <p><i>For example, you might compare the teachers' comments and create</i></p>	

<i>Focus questions</i>	<i>Your ideas</i>
<p><i>a list of recurring themes, together with a list of suggestions and advice on how to improve the situation.</i></p>	

1.3 The literature review

A **literature review** is also conducted in this phase to refer to the work that has already been done in the area, or in related areas, and how similar problems might have been addressed.

<i>Focus questions</i>	<i>Your ideas</i>
<p>What are some of the key references in your area of interest?</p> <p><i>For example, you might seek help from a librarian to do a keyword search, or do a search in Google Scholar to find the key people working in the area, or use known papers to follow references. Try to ensure that there are both seminal works and recent papers.</i></p>	

1.4 The research questions

After this initial investigation of the problem, related literature and practitioners' ideas, it should be possible to provide draft **research questions**.

<i>Focus questions</i>	<i>Your ideas</i>
<p>What is/are the key research question/s that will guide your research?</p>	

By the end of this phase, you will have a clear idea of the problem and its educational context, and have read the literature related to the problem area. You will also have written preliminary research questions.

PHASE 2:

Development of solutions informed by existing design principles and technological innovations

In the second phase, a solution to the problem is proposed that can be implemented in the classroom or educational setting. In order to create the solution, again **the literature is again consulted** to find

relevant theory that can guide thinking, as well as existing design principles that may have addressed a similar problem.

2.1. Draft principles in the literature

Once again the literature should be consulted. In this case, you are looking for design principles that others have suggested. They might not be called design principles, but could appear to be advice on how to create particular learning environments or address particular problems. For example, the lists in the four boxes below are all forms of design principles because they give advice on designing for particular outcomes:

Example 1

Jonassen (1994): Constructivist learning environments

Jonassen (1994) proposed that knowledge construction may best be facilitated by constructivist learning environments which:

provide multiple representations of reality, which avoid oversimplification

focus on knowledge construction, not reproduction

present authentic tasks (contextualising rather than abstract instruction)

provide real world, case based learning environments rather than pre-determined instructional sequences

foster reflective practice

enable context- and content-dependent knowledge construction

support collaborative construction of knowledge through social negotiation, not competition (p. 35).

Example 2

Bransford, Vye, Kinzer and Risko (1990): Anchored instruction

Bransford, Vye, Kinzer and Risko (1990) proposed that anchored activities were characterised by the following criteria:

A single complex problem should be investigated by the students.

Students identify and define their own questions.

Students must have the opportunity to experience the problem from a number of different perspectives.

Students work on the problem over a 'reasonably long period of time' (p. 394), that is weeks rather than days.

Activities are logically related to the problem (p. 394).

Example 3

Boud and Knights (1996): Reflection in learning

Boud and Knights (1996) proposed that the following are important in introducing and establishing a productive climate for reflection:

articulating an educational rationale for the process

introducing a simple exercise to illustrate reflection

providing an opportunity for students to clarify their understanding of the idea

introducing a framework or model to aid thinking about elements of reflection

modelling a reflective approach in one's own presentation of the idea

identifying areas of the process that students can make their own

providing time

treating reflection as a normal activity.

Example 4
Wiggins (1990): Authentic assessment

Wiggins (1990) characterised authentic assessment as:

Direct examination of student performance on worthy intellectual tasks

Requires students to be effective performers with acquired knowledge

Present the student with a full array of tasks

Attend to whether the student can craft polished, thorough and justifiable answers, performances or products

Achieves validity and reliability by emphasising and standardising the appropriate criteria for scoring varied products

'Test validity' should depend in part upon whether the test simulates real-world 'tests' of ability

Involves ill structured challenges that help students rehearse for the complex ambiguities of professional life

Select some of the best papers from your earlier literature review to **focus on those that provide design principles** or design advice.

Focus questions	Your ideas
<p>What are the most relevant papers?</p> <p><i>List 3 or 4 papers that seem closest to your problem area and provide design principles.</i></p> <p><i>These principles are not always listed as dot points in a paper, but may be described in the papers in paragraphs or under headings.</i></p>	

The next step is to create your own **list of draft principles** to guide the design of your intervention or solution to the problem that you explored in Phase 1. This step can take some analysis, as you will need to combine theory of learning with existing principles as well as ideas from the teachers.

Focus questions	Your ideas
-----------------	------------

<p><i>What learning theory or approach is most helpful in addressing your problem? For example, does your solution involve theory like situated learning, distributed learning, problem-based learning or communities of practice, etc?</i></p>	
---	--

Focus questions	Your ideas	Source/Reference
<p>What are draft principles to guide the design of your solution?</p> <p><i>Using the theory and principles from the literature review, and the interviews you conducted with the teachers list draft principles that are the best guide for the design of your intervention or learning environment.</i></p> <p><i>Try to keep this list manageable at this stage, for example, 5-8 guiding ideas for the design.</i></p> <p><i>Using the stem provided will help you to keep the principles quite specific and naturally prompt each to start with a verb (e.g., allow, provide opportunities for, promote, enable, support, etc)</i></p> <p><i>In the last column, give the reference to the paper/book that was the source of the principle (e.g., Jonassen, 1994) or the consultation with practitioners.</i></p>	<p><i>[Condition x] may best be facilitated by learning environments which:</i></p>	
	Draft Principle 1:	
	Draft Principle 2:	
	Draft Principle 3:	
	Draft Principle 4:	
	Draft Principle 5:	
	Draft Principle 6:	

2.2 Technological affordances

Once you have your draft principles, think about the best way to deliver this intervention or learning environment. Often the solution is technology-based, so **innovative technologies can be part of the solution.**

Focus questions	Your ideas
<p>What technologies appear most useful for your intervention or learning environment?</p> <p><i>Think about technologies that might be useful for the students to use as cognitive tools, as well as for delivery of content. For example, computer programs, websites, mobile technologies.</i></p>	

Once the draft principles have been created, **the proposed solution is designed and developed** (according to the draft principles) ready for implementation.

2.3 The design of the learning environment

Use the table below to describe your **planned intervention** or learning environment in general.

Focus questions	Your ideas
Describe your intervention or learning environment. <i>Describe your plan in general in just a paragraph or two, including: Subject area: Target group: Description of proposed environment:</i>	

Use the table below to describe **how each of your draft principles will be reflected in practice** in your learning environment.

Guide	Draft principles	How each will be implemented in your learning environment
Copy each principle (developed in 2.1 above) to column 2 under ‘Draft Principles’	For example: <i>1. Provide multiple roles and perspectives</i>	For example: Each strategy can be explored from the perspective of at least five different stakeholders <i>Collaborative groups and presentations to the class enable the expression of different points of view</i>
	Draft Principle 1:	
	Draft Principle 2:	
	Draft Principle 3:	
	Draft Principle 4:	
	Draft Principle 5:	
	Draft Principle 6: <i>Etc.</i>	

By the end of this phase, you will have produced draft principles, decided upon appropriate technologies and planned and created a solution to the problem to be implemented in your class.

PHASE 3:

Iterative cycles of testing and refinement of solutions in practice

Once a learning environment or intervention has been designed and developed (in Phase 2), the next phase of design-based research is the **implementation and evaluation of the proposed solution** in practice. Design-based research is not a methodology, but a research approach. While both qualitative and quantitative methods may be used, it is worth noting that: ‘Design researchers do *not* emphasize isolated variables. While design researchers do focus on specific objects and processes in specific contexts, they try to study those as integral and meaningful phenomena’ (van den Akker, Gravemeijer, McKenney, & Nieveen, 2006, p. 5).

3.1 The first implementation/cycle

The solution designed in Phase 2 is implemented and evaluated in Phase 3.

Focus questions	Your ideas (Write your ideas in the box below)
<p><i>Who are the participants?</i> For example, describe the class, the students, the number of students in the class, any additional researchers or helpers, etc.</p>	
<p><i>What procedure will you use to implement the solution with the students?</i> <i>List the steps you will take to implement and evaluate the intervention.</i></p>	
<p><i>What data will you collect to answer the research questions?</i> Think about multiple data sources (triangulation) to ensure that you collect evidence on the success of your solution from different sources. For example: <i>Interviews</i> <i>Surveys/ Questionnaires</i> <i>Focus groups</i> <i>Observation</i> <i>Anecdotal records/Activity logs</i> <i>Artefacts (or student work)</i> <i>Participant journals</i> <i>Usability tests</i> <i>Content analysis</i> <i>Statistical tests</i> <i>Published evaluation instruments</i></p> <p><i>How will you analyse the data?</i> Specify how you will analyse each data source. This will depend upon your data types and research design.</p>	

3.2 Further cycles

After the first implementation of the solution and the analysis of the data, **the learning environment is refined and then implemented again**. Often the second implementation is similar to the first but with a different group of students (such as the next time the subject or course runs). The data collected can be the same, or can be modified because of the analysis and findings.

PHASE 4:

Reflection to produce design principles and enhance solution implementation

Once a learning environment or intervention has been implemented, evaluated and refined in cycles, the last phase is to **produce design principles** that can inform future development and implementation decisions.

There are potentially at least three outcomes of design-based research:

- The design principles
- Designed products or artefacts: the physical representations of the learning environment (e.g., website, CD-ROM)
- Societal outputs, such as professional development and learning

4.1 Design principles

After the implementation and evaluation of the proposed solution, the draft principles that have guided the design of the solution now need to be revisited. After analysis and reflection, **revise the principles** to reflect your findings.

Guide	Draft principles	Refinement to principles	Final design principles
<p><i>What refinements need to be made to the principles? Copy each principle (developed in 2.1 above) to column 2 under 'Draft Principles' then note the refinements that need to be made to each principle (if any). You might also find as a result of your findings from Phase 3, that you need to add another principle, or perhaps combine two principles. Note that these amendments should be refinements, not major changes.</i></p>	Draft Principle 1:		Principle 1:
	Draft Principle 2:		Principle 2:
	Draft Principle 3:		Principle 3:
	Draft Principle 4:		Principle 4:
	Draft Principle 5:		Principle 5:
	Draft Principle 6: <i>Etc.</i>		Principle 6: <i>Etc.</i>

4.2 Practical output of design-based research

The intervention that is designed and implemented in design-based research is often a computer-based or technology-based product that could be published or shared widely. The **product of the design** is viewed as a major output. However, the product may be the approach or program used (such as a particular pedagogical approach) rather than a physical one.

Focus questions	Your ideas (Write your ideas in the box below)
What is the product or artefact that will result from the design-based research? <i>For example, a software package, a computer-based program, website, mobile application, etc. Or a curriculum package, lesson approach and plan, or professional development program.</i>	

4.2 Societal output of design-based research

The collaboration that is so integral to the process of designing and accomplishing a design-based research project has an additional benefit in that it **enhances the professional development of all** people involved, not only the students.

Focus questions	Your ideas (Write your ideas in the box below)
What professional development and learning will result from the design-based research? <i>For example, who will be involved in the project at the professional level (not students), and what will they learn as they complete the project.</i>	

Timeline

Design-based research can take many months to complete because of the need to test the designed solution in different iterations and cycles. There is also a need to review, reflect and re-design between those iterations. While flexible and adaptable to suit the situation, it is a good idea to set out a **timeline for completion** of a design-based research project.

Phases	Month/Year	Activities
Phase 1		
Phase 2		
Phase 3		
Phase 4		

Ethics

Research with human participants involves ethical issues of informed consent and confidentiality. It is important to ensure that these ethical issues are addressed in design-based research.