

**A FRAMEWORK FOR LEARNING DESIGN IN DIFFERENT MODES OF DELIVERY IN AN ADULT
LEARNING PROGRAMME**

by

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DECLARATION

I hereby declare that the work which is submitted here is the result of my own independent investigation. Where help was sought, it was acknowledged. I further declare that the work is submitted for the first time at this university/faculty towards the Philosophiae Doctor degree in Higher Education Studies and that it has never been submitted to any other university/faculty for the purpose of obtaining a degree.

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*...to all adult learners in pursuit of
growth and development –
you enrich, encourage and inspire us*

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To my heavenly Father – Soli Deo Gloria!

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Figure 8.2: Proposed learning design process for adults in the BML programme

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LIST OF ACRONYMS AND ABBREVIATIONS

BML	Bachelor in Management Leadership
CAEL	Council on Adult Experiential Learning
CHE	Council for Higher Education
DoE	Department of Education
ENM	Environment Domain
LEM	Leadership Domain
LMS	Learning management system
MAM	Management Domain
MBA	Master's in Business Administration
MPW	Major piece of work
NPHE	National Plan for Higher Education
NQF	National Qualifications Framework
PDC	Portfolio development course
RPL	Recognition of prior learning
RSA	Republic of South Africa
SAQA	South African Qualifications Authority
SAUVCA	South African Universities Vice Chancellors Association
UFS	University of the Free State

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SUMMARY

This study has been undertaken against the background of a higher education environment that is changing, especially under the influence of the knowledge economy, the influx of adult learners and the impact of technology. Among other things, technology has led to the development of different modes of delivery in teaching and learning. This study set out to develop a framework for learning design in three different modes of delivery (face-to-face, modular and online) in an adult learning programme.

The literature review focused on answering three subsidiary questions, namely (i) identifying the influence of the changing higher education environment on learning and the design of learning; (ii) identifying the most prominent perspectives on effective teaching and learning in different modes of delivery on the design of learning; and (iii) identifying the characteristics that adult learners bring to the learning environment that need special consideration in effective learning design.

The literature review provided guidelines for learning design for effective teaching and learning in different modes of delivery using the community of inquiry of Garrison *et al.* (2000) as an organising mechanism. Furthermore, guidelines for learning design for effective teaching and learning for adults were also identified using the Four Lens Framework of Kiely *et al.* (2004) as an organising framework. These guiding principles formed the directives that were used to measure the compliance of an adult learning programme (the Bachelor of Management Leadership programme at the University of the Free State).

The empirical investigation focused on the compliance of the adult learning programme together with identifying the shortcomings of the current learning design and enhancing the current learning design of the programme. A triangulation mixed methods design was used. Through the use of a questionnaire survey, data was collected from students enrolled in the different modes of delivery. The analysis and interpretation of the data led to the identification of some shortcomings in the programme. The main criticism against the current learning design

of the BML programme was the differences in the alignment between the various modes of delivery. In order to address this shortcoming a blended learning design is proposed that could be implemented on a programme as well as a module level. On the programme level the blended learning design introduces an online learning component for the face-to-face and modular modes of delivery and face-to-face contact sessions for the online mode of delivery. The learning design on a module level introduces a process where students can develop as self-directed learners and is based on the work of Huang and Zhou (2006) and Knowles *et al.* (2005). The proposed framework was evaluated by a panel involved in the programme to provide feedback on the feasibility of the learning design and to provide suggestions to further refine the framework.

The significance of the study lies in the development of a framework for learning design using directives in teaching and learning and in the design of learning for adults that are applicable in the changing higher education environment. The study has incorporated the newest trends that address contemporary higher education. The framework is not only based on sound theoretical principles (as discussed in the literature review) but provides a practical framework that could be used by the management and the lecturers of the programme. The study could be applicable to other adult learning programmes due to the generic nature of the directives for different modes of delivery.

Key words: higher education, learning design, adult learning, adult learners, modes of delivery, learning environment, blended learning, learning design framework, learning materials, teaching and learning, BML programme

OPSOMMING

Hierdie studie is onderneem teen die agtergrond van die veranderende omgewing van hoër onderwys, wat veral geraak word deur die kennisekonomie, die toevloei van volwasse leerders en die uitwerking van tegnologie. Tegnologie het onder andere gelei tot die ontwikkeling van verskillende modusse vir onderrig en leer (“modes of delivery”). Die studie se doelwit was om ’n raamwerk te ontwikkel vir die leerontwerp in ’n volwasseneleerprogram, wat d.m.v. drie verskillende modusse (kontaksessies, ’n modulêre modus en aanlyn) aangebied word.

Die literatuuroorsig is daarop gerig om drie sekondêre vrae te beantwoord, naamlik: (i) om vas te stel watter invloed die veranderende hoëronderwysomgewing op leer en die ontwerp van leer het; (ii) om die vernaamste perspektiewe op effektiewe onderrig en leer in verskillende modusse en op die ontwerp van leer uit te lig; en (iii) om vas te stel watter eienskappe volwasse leerders in die leeromgewing inbring wat spesifiek in ag geneem moet word in effektiewe leerontwerp.

Die literatuuroorsig het riglyne verskaf vir leerontwerp vir effektiewe onderrig en leer in verskillende onderrigmodusse, georden volgens Garrison *et al.* (2000) se idee van ’n leergemeenskap. Die riglyne vir leerontwerp vir effektiewe onderrig en leer vir volwassenes is voorts georden met behulp van die vierlensraamwerk van Kiely *et al.* (2004). Hierdie rigtinggewende aanwysers is as basis gebruik om te meet tot watter mate ’n volwasseneleerprogram (die Baccalaureusprogram in bestuursleierskap aan die Universiteit van die Vrystaat) voldoen aan aanvaarde beginsels.

Die empiriese ondersoek het gefokus op die mate waarin die volwasseneleerprogram aan hierdie aanwysers uit die teorie voldoen, op die identifisering van tekortkominge van die huidige leerontwerp en op wyses waardeur die huidige leerontwerp van die program verbeter kon word. ’n Triangulerende gemengdemetode-ontwerp is gebruik. Data is met behulp van ’n vraelys ingesamel van die studente wat in die verskillende onderrigmodusse ingeskryf was. Die ontleding en vertolking van die data het ’n aantal tekortkominge in die program blootgelê. Die

vernaamste kritiek teen die huidige leerontwerp van die bestuursleierskapprogram was die ongelyke belyning binne die verskillende onderrigmodusse van oordrag. Om hierdie tekortkoming uit die weg te ruim, word 'n gemengdeleerontwerp voorgestel wat op program- sowel as modulevlak toegepas kan word. Op programvlak bring die gemengdeleerontwerp 'n aanlyn-leercomponent in vir die kontak- en modulêre onderrigmodusse en kontaksessies in die aanlyn-onderrigmodus. Die leerontwerp op modulevlak behels 'n proses waardeur die studente tot selfaangewese leerders kan ontwikkel en is gegrond op die werk van Huang en Zhou (2006) en Knowles *et al.* (2005). Die voorgestelde raamwerk is deur 'n paneel wat by die program betrokke was, geëvalueer vir die uitvoerbaarheid van die leerontwerp en om voorstelle vir verdere verfyning van die raamwerk te bekom.

Die betekenis van die studie lê in die ontwikkeling van 'n leerontwerpraamwerk met riglyne vir meer effektiewe onderrig en leer en vir die ontwerp van volwasseneleer wat op die veranderende hoëronderwysomgewing van toepassing is. Die studie het die jongste tendense in ag geneem wat die hedendaagse hoër onderwys beïnvloed. Die raamwerk is nie net op gesonde teoretiese beginsels (soos in die literatuuoroorsig bespreek) gegrond nie, maar verskaf 'n raamwerk wat die bestuur en dosente van die program in die praktyk kan toepas. Dit kan ook op ander volwasseneleerprogramme van toepassing wees omdat die riglyne generies vir die verskillende onderrigmodusse aangebied word.

Sleutelwoorde: hoër onderwys, leerontwerp, volwasseneleer, volwasse leerders, oordragmodusse (afleringsmodusse), leeromgewing, gemengde leer, leerontwerpraamwerk, leermateriaal, onderrig en leer, BML-program.

CHAPTER 1:

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Higher education is confronted with various forces of change that have a profound impact on “business as usual”, as the saying goes. Not only are there more demands placed on higher education in terms of quality and accountability, but factors like the changing higher education population and technology are also putting pressure on the traditional ways in which teaching and learning are conducted. One of the outcomes of technology as a force for change is the various possibilities in terms of delivery. The resultant modes of delivery have an impact on teaching and learning. This study investigates the most appropriate learning design for a programme offered specifically to one of the emerging student populations, namely adult learners.

The aim of this first chapter is to orientate the reader to the study. It provides a background to the research problem, followed by the research questions that are addressed in the different chapters in pursuit of realising the aim of the study. This is followed by a brief overview of the research design and methodology employed in the study. In order to familiarise the reader with the subsequent chapters, a lay-out of the different chapters is also presented.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

The impact of three drivers for change is especially important in this study, namely that of the knowledge economy, the influence of technology and the changing student population (RSA DoE 2001:8, SCUP 2004:1-2, SCUP 2006a:9, SCUP 2006b:10). These drivers influence education in profound ways.

The National Plan for Higher Education (NPHE) (RSA DoE 2001:8) points out that the knowledge economy has led to a need to continuously update one’s skills in order to stay competitive. This has directly contributed to the increased student numbers in higher education, and especially

the return of adult learners to higher education in pursuit of lifelong learning (Howell, Williams & Lindsay 2003:4). The knowledge economy also influences teaching and learning. There is a demand to produce knowledge at a faster rate, but the type of knowledge and skills needed has changed. Students are looking for control in the learning situation and learning that is more focused on higher-order skills and cognition (World Bank 2002:29).

Technology has influenced every aspect of higher education as it was known; it is not only influencing the administrative processes but has also had a profound impact on teaching and learning. This impact is visible in the increase of different modes of course delivery and the increase in student enrolments through distance online learning (Biggs 2003:216-225).

Adults represent a significant portion of the new student enrolments today, bringing distinctive challenges to the educational environment. Various theories have been proposed to discover the distinguishing factors between learning in childhood (pre-adult) and learning in adulthood (Merriam 1993:8-10). Adults want more control in the learning situation (learner-centred approach) with an emphasis on the way in which they approach learning together with the unique characteristics that they are bringing to the learning environment (Hativa 2000:87-88, Tight 2003:61-62).

The various drivers have a direct effect on the quality of the teaching and learning, mainly as a result of the increasing workload of lecturing staff and a general lack of educational knowledge of the new developments. Not only do staff members have to deal with the demands of the knowledge economy in terms of *what* they teach, but technology has also affected *how* they teach. Technology has also led to the development of various delivery modes that bring further challenges. Online learning, for example, has introduced its own unique challenges, especially in the design of learning in this fast-changing environment (SCUP 2004:2, SCUP 2006a:9, SCUP 2006b:10). Furthermore, the increase in student numbers and a more diverse student population, including the entry and re-entry of adult learners, are influencing all aspects of teaching and learning (Biggs 2003:1). In the context of the study, the lecturers are not only confronted with teaching traditional undergraduate classes and adult learners, but the adult

learning programme is presented in three different modes of delivery that further complicate the design of effective teaching and learning.

The White Paper on Higher Education (RSA DoE 1997:20) acknowledges the challenges that the forces of change bring to the table, especially in the South African environment, and proposes that the changes be addressed by expanding teaching and learning that “takes place in different contexts, at a multiplicity of sites, at the learner’s own pace, using many media and a variety of learning and teaching approaches”. It also seems as if the distinction between face-to-face and distance education is decreasing (SAUVCA 2003:5). This is also evident when one considers the similarities among the various perspectives focusing on effective teaching and learning developed for different modes (see Chapter 3).

Research on the designing of effective learning for adult learners that includes different modes of delivery is, however, limited and inadequate. Searches on the NRF’s website and the Nexus Database System (information regarding South African dissertations) and PROQUEST (an international data basis for dissertations) did not produce many relevant dissertations or results that address research in this line. Conclusions from some of the studies consulted mention the lack of research in the field of adult and online education, the effectiveness thereof, as well as the satisfaction of students with the instruction (Olgren 1992, Qureshi 2004, Wilson 1994). Tight (2003:65) highlights the fact that the “how to” genre of research focusing on teaching and learning was previously not regarded as empirical research, and was rather published in books; and that it is only now beginning to appear in journals.

1.3 RESEARCH PROBLEM

In light of the above, the research problem can be summarised as follows:

- The drivers in higher education (the knowledge economy, the changing student population and especially new technologies) have influenced teaching and learning in higher education. They have not only influenced *what* lecturers teach but also *how* they teach (the design of learning). A contemporary perspective is therefore necessary due to

the potential impact that these drivers can have on the design of learning in different modes of delivery.

- There is a lack of research on effective learning design that can be utilised in various modes of delivery.
- Due to the vast increase in the number of adults in higher education, the characteristics of adult learners must be taken into account.
- The drivers of change in higher education are affecting the quality of the current teaching and learning endeavours. All these necessitate a closer look at the effectiveness of the design of learning in the various modes of delivery in a specifically adult learning programme, and ways in which possible shortcomings may be addressed.

The above-mentioned aspects give rise to the formulation of the research questions.

1.4 RESEARCH QUESTIONS

In order to address the problems stated in section 1.3, the following overarching research question is posed:

How can the learning design of a current adult learning programme offered in different modes of delivery be enhanced, taking into account the changing higher education environment (technology in particular) as well as the needs of adult learners?

The subsidiary research questions are:

1. *What is the influence of the changing higher education environment, technology in particular, on learning and the design of learning?*
2. *What are the most prominent perspectives on effective teaching and learning that can serve as directives in the design of learning for various modes of delivery?*
3. *What are the characteristics that adult learners bring to the learning environment that need special consideration in effective learning design?*

4. *Does an existing adult learning programme (offered in different modes of delivery) (a) comply with the principles of effective learning design and (b) how can possible shortcomings be addressed/enhanced?*

1.5 RESEARCH AIM AND OBJECTIVES

The aim of the study is therefore to undertake research that will lead to the creation of a framework for effective learning design in different delivery modes in a specifically adult learning programme.

The above aim will be realised by pursuing the following objectives:

1. Undertake a comprehensive literature review in order to address research questions 1 to 3.
2. Conduct a questionnaire survey among students in an existing adult learning programme offered in different modes of delivery to determine the strengths and weaknesses of the current learning design, as measured against criteria identified in the literature.
3. Apply the findings from 1 and 2 in the compilation of a framework for effective learning design in different modes of delivery and have it evaluated by specialists in the programme before finalisation.

1.6 DEMARCATION OF THE RESEARCH

As indicated in section 1.5.3, the findings from the study were to be applied in an existing adult learning programme. The programme is registered at the South African Qualifications Authority (SAQA) on a National Qualifications Framework (NQF) exit level 6. This adult learning programme, a Bachelor's in Management Leadership (BML), is situated in a faculty at university level in the School of Management. The study therefore falls within the field of Higher Education Studies. Due to application of the study in the field of Economic and Management Sciences the study can be classified as interdisciplinary.

According to the framework developed by Tight (2003:7) of research in higher education, the study embraces both the teaching and learning and the course design categories. Tight (2003:7) suggests that there could be some overlap between the different items under the categories. Within the teaching and learning category of Tight's framework, the subthemes of "student learning", "teaching in higher education" and the "how to" genre are addressed in this study. The "how to" genre refers to "literature that sets out to provide practical guidance and support on different academic roles and tasks" (Tight 2003:65). Within the course design category the relevant subtheme in the context of the study is "technologies for learning".

The study focused on the BML programme at the University of the Free State (UFS). The participants in the study were the students and the administration, management, lecturers and a specialist involved in the programme. All students were targeted to participate as respondents in the questionnaire survey. The learning design in three modes of delivery is investigated in this study (face-to-face mode, online mode and a modular mode).

In the next section the key concepts in the study will be clarified.

1.7 CLARIFICATION OF CONCEPTS

In order to provide a more concise understanding of the nature of the study, it is important to clarify the key concepts as reflected in the title of the study.

1.7.1 Learning design

The term learning design can be applied on various levels of teaching and learning, from a programme level to a course and even lesson level. In the context of this study the application of the learning design is primarily on a programme level, although it will also be applied on a micro level. The most appropriate definition from a programme level perspective is the definition by Koper and Olivier (2004:2), who define learning design as "an application of a pedagogical model for a specific learning objective, target group and a specific context or knowledge domain". In the case of this study the focus is specifically on the application of an educational framework (focusing on learning design for effective teaching and learning), for a

specific target group (adult learners) and in a specific context (three different modes of delivery) (also see section 2.4.1).

1.7.2 Adult learner

The literature provides various definitions and different categories for defining adult learners, without reaching consensus on a definition of adult learners (Buchler, Castle, Osman & Walters 2007:128, Dean 2004:2, Merriam 1993:8). For the purposes of the study, based on definitions from a South African perspective, adult learners are defined as learners 23 years or older, whose main life task is other than being a full-time student. What is of major importance in the study are the unique characteristics of adult learners and the challenges that they pose to effective learning design (as spelled out in section 4.2, 4.3 and 4.4).

1.7.3 Mode of delivery

Mode of delivery in the context of the study specifically refers to the way in which teaching and learning is conducted in the study. This includes aspects like the contact that the students have with the lecturer and how they mostly interact with the learning material during their study period. In the programme three modes of delivery can be distinguished:

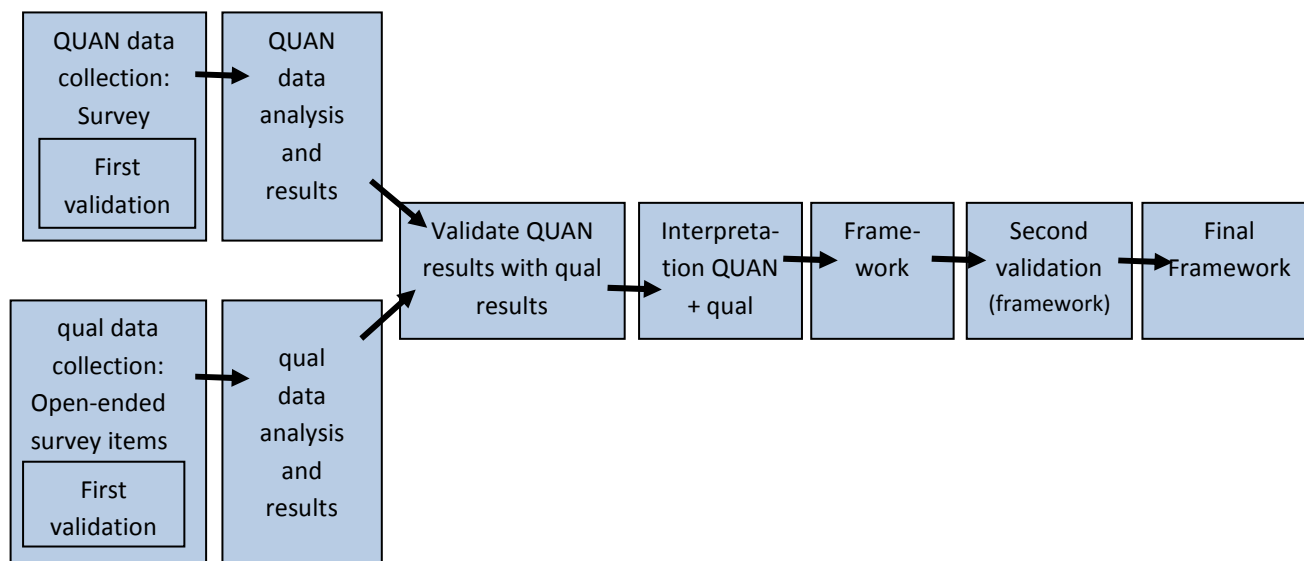
- Face-to-face mode: This is the traditional mode of delivery, where students attend weekly classes or contact sessions on campus and teaching takes place in the traditional classroom setting.
- Online mode: Teaching and learning is conducted using technology like a learning management system (LMS) where students are taught in an electronic environment through the use of chats and discussions. The contact with the lecturer, fellow students and learning material happens online.
- Modular mode: This mode is the third mode used in the BML programme. Students in this mode attend classes on campus, but in block sessions. While the face-to-face students have regular classes (every Friday), students in the modular mode attend classes only twice a semester for a week at a time.

The face-to-face and online mode of delivery can be regarded as the two opposite ends of the continuum. Due to the influence of technology, another mode of delivery can be identified:

- Blended learning: In this mode, the teaching and learning are conducted in both a face-to-face and online learning environment. Blended learning could lie anywhere between the two points depending on the design of the learning (Rovai & Jordan 2004:4). The study propose blended learning on various levels in the BML programme (see chapter 7):
 - Proposed blend on a programme level: In Chapter 7 a blend is suggested for the BML programme. The blend is suggested on a programme level, implicating that overall, all modules irrespective of the mode of the delivery in the programme will have to adopt a blended learning mode.
 - Blend on a module level: A learning design process is suggested to improve the alignment of the learning design with the needs of adult learners. The learning design process is therefore applicable on a module level, suggesting that each module presented in the programme will follow the learning design process in the design of learning for the specific module.

1.8 RESEARCH DESIGN AND METHODOLOGY

The study made use of a mixed-method design, more specifically a triangulation mixed-method design, with the validating quantitative data model variant (see section 5.3.1). This was regarded as the most appropriate design for the study because the collection of the data was done by means of a single questionnaire consisting mainly of quantitative items and a few qualitative open-ended questions to expand and validate some of the information. The qualitative data was subordinate to the quantitative data and was only used to enhance the quantitative data. The quantitative data therefore carried more weight and the distribution of the weight in this study is unequal. Lastly, the data was analysed separately and merged during the interpretation of the data. The design of the study in all its phases is shown in Figure 1.1.



Source: Compiled by the researcher according to Creswell and Plano Clark (2007:63, 73).

Figure 1.1: Mixed methods design utilised in the study

The purpose of the first validation meeting was to obtain insight in the thinking regarding the future of the programme for the different modes of delivery and to test ideas on the intended data collection. The second validation meeting took place at the end of the study and was used to obtain feedback on the feasibility of the framework after the incorporation of the quantitative and qualitative data.

1.8.1 Population and sample

Because of the relatively small population of students currently enrolled in the programme (393), nonprobability sampling was purposefully employed. This represents convenience sampling as well as the comprehensive strategy (McMillan & Schumacher 2006:320). The students are enrolled in one of three modes of delivery. All students were invited to participate as respondents in the questionnaire survey.

Two validation meetings were also held with the management, administration, facilitators and specialists involved in the programme to validate the data (see section 5.3.2.2).

1.8.2 Data collection and techniques

The study employed an Internet-based questionnaire survey based on the literature review, using the guiding principles as directives to assess the compliance of the BML programme (addressing research questions 1-3). As mentioned earlier, the questionnaire consisted mainly of quantitative questions or questions where students had to select a statement that best reflected their opinion or perspective. The few qualitative questions used an open-ended format where students could write their opinion and perspectives. The validation meetings made use of group interviews in order to obtain the opinions of the group of participants.

1.8.3 Data analysis and reporting

The quantitative data was analysed using the SAS statistical package while the qualitative data made use of the identification of themes to reveal patterns. The quantitative and qualitative data was combined at the interpretation. A preliminary framework was compiled from the interpretation of the data and this was verified through a validation meeting in order to increase the rigour or validity of the final framework (Creswell & Plano Clark 2007:63, 73).

1.8.4 Ethical considerations

In conducting the study, the researcher focused on various ethical considerations. In terms of voluntary participation students received the questionnaire survey via e-mail (and not in class) and were assured that if they did not want to complete the questionnaire this would in no way harm them or the outcome of their studies. Furthermore, the purpose of the questionnaire was clearly stated as part of the instructions. To prevent students from feeling uncomfortable with the questions in the questionnaire, the potentially sensitive questions were not compulsory and students could leave them out if they preferred. The use of an Internet-based questionnaire supported the anonymity of the students, although complete anonymity could not be assured due to practical considerations. In order to assure students of confidentiality, a statement in this regard was also included in the questionnaire. Permission was obtained to perform the study from the Director of the School of Management as well as the Faculty of Economic and Management Sciences. To prevent misinterpretation of the results, a statistician was

contracted to assist in the data analysis. The researcher is convinced that all possible measures were taken to ensure that the study complied with high ethical standards (Bergh 2004:59, McMillan & Schumacher 2006:144).

1.8.5 Role of the researcher in the investigation

The researcher is the Teaching and Learning Manager in the Faculty of Economic and Management Sciences and is also involved in the BML programme as a facilitator and academic advisor. In view of the involvement of the researcher in the programme, the use of the Internet questionnaire survey provided greater confidentiality to the students and students could remain anonymous if they preferred. The fact that the researcher was familiar with the programme and understood the context and jargon used in the study, had a positive influence on the study.

1.8.6 Quality assurance of the study

Because a mixed-method design was employed, terminology was borrowed from both approaches and emerging terminology in the field of mixed methods research is also indicated (Creswell & Plano Clark 2007:128). The **inference quality** (internal and external validity or credibility or trustworthiness) of the study was increased by collecting the quantitative and qualitative data from the same group of respondents in order to eliminate the problem of unequal sample sizes in the triangulation design (Creswell & Plano Clark 2007:147). Because an Internet-based questionnaire survey was used, data was collected unobtrusively and the whole population could be invited to obtain a better response rate (Creswell & Plano Clark 2007:147). Triangulation was further employed through methods triangulation, analyst triangulation and triangulation of measures through the use of validation meetings.

The **external validity or transferability** of the study was increased by using comprehensive sampling to obtain a better response rate that would enable generalisation to the population (McMillan & Schumacher 2006:261). Although the aim of the study was not to generalise the findings to other contexts, they can be transferred to other contexts if done correctly.

The **data quality (reliability/dependability)** of the questionnaire was increased by ensuring that the questions were based on the literature review and that there were at least two questions that measured the constructs (Delpont 2005:163). From a qualitative point of view aspects related to dependability included the use of both quantitative and qualitative questions, in order to enhance the quantitative data and to incorporate perspectives which would lead to a more holistic picture (De Vos 2005b:346).

In order to increase the **objectivity/confirmability** of the study, two different data sets were used (quantitative data and qualitative data). Furthermore, validation meetings were held to increase the objectivity of the data collection procedure and the feasibility of the proposed framework (Delpont & Fouché 2005:353).

1.9 SIGNIFICANCE OF THE STUDY

The significance of the study lies in the development of a framework for learning design that is applicable in different modes of delivery in the BML programme, an adult learning programme.

The framework was compiled using directives in teaching and learning as well as the design of learning for adults that are applicable in the changing higher education environment. The study, furthermore, incorporated the newest trends that are predicted in higher education and address contemporary higher education. The framework was evaluated by participants in the programme and their recommendations and suggestions were incorporated in the final framework.

The framework is not only based on sound theoretical principles (as discussed in the literature review) but provides a practical framework that could be used by the management of the programme as well as the lecturers in the programme. The study could be applicable to other adult learning programmes due to the generic nature of the directives (applicable for different modes of delivery).

1.10 CHAPTER LAY-OUT

In order to address the overarching researching question, the different chapters address specific research questions that lead to the accumulation of a response to the overarching research question. The study can be divided in two sections. The first section represents the literature study and consists of:

- Chapter 2, which addresses research question 1 by focusing on the various forces impacting on the changing higher education environment with a particular focus on technology and how this influence learning and the design of learning.
- Chapter 3, which addresses research question 2 by focusing on perspectives of effective teaching and learning in different modes of delivery that could serve as directives in the design of learning in different modes of delivery.
- Chapter 4, which addresses research question 3 that focuses on the distinctive contribution of adult learning to the learning environment that needs to be considered in the design of learning for this specific target population.

The literature study provides the background for the second section of the study, the empirical investigation. The empirical investigation consists of the following chapters:

- Chapter 5, which provides an overview of the research design and methodology used in the study.
- Chapter 6, which included the separate data analysis of the quantitative and qualitative data as well as the merging of the data at the interpretation phase of the study that led to the identification of the shortcomings of the programme.

Together, Chapters 5 and 6 address research question 4 that focuses on the compliance of the programme with principles of learning design for adults and the identification of shortcomings in the programme.

- Chapter 7, which used the findings of Chapter 6 to develop a framework for learning design for the BML programme applicable to different modes of delivery. Chapter 7

addresses the overarching research question by proposing a framework for learning design in different modes of delivery based on the identification of shortcomings of the programme in order to enhance the learning design of the programme.

- Chapter 8 contains the conclusion by providing an overview of the study, the significance and limitations of the study, as well as further studies and research that is needed.

1.11 SUMMARY

Chapter 1 has provided an overview of the study that guided the development of the study. In the following chapters the aspects addressed in this chapter will further be illuminated. The study commences with the literature study that informed the empirical investigation. Chapter 2 will provide the background to the rest of the literature study by providing the background of the current higher education environment.

CHAPTER 2:

THE IMPACT OF TECHNOLOGY IN THE CHANGING HIGHER EDUCATION CONTEXT ON LEARNING AND THE DESIGN OF LEARNING

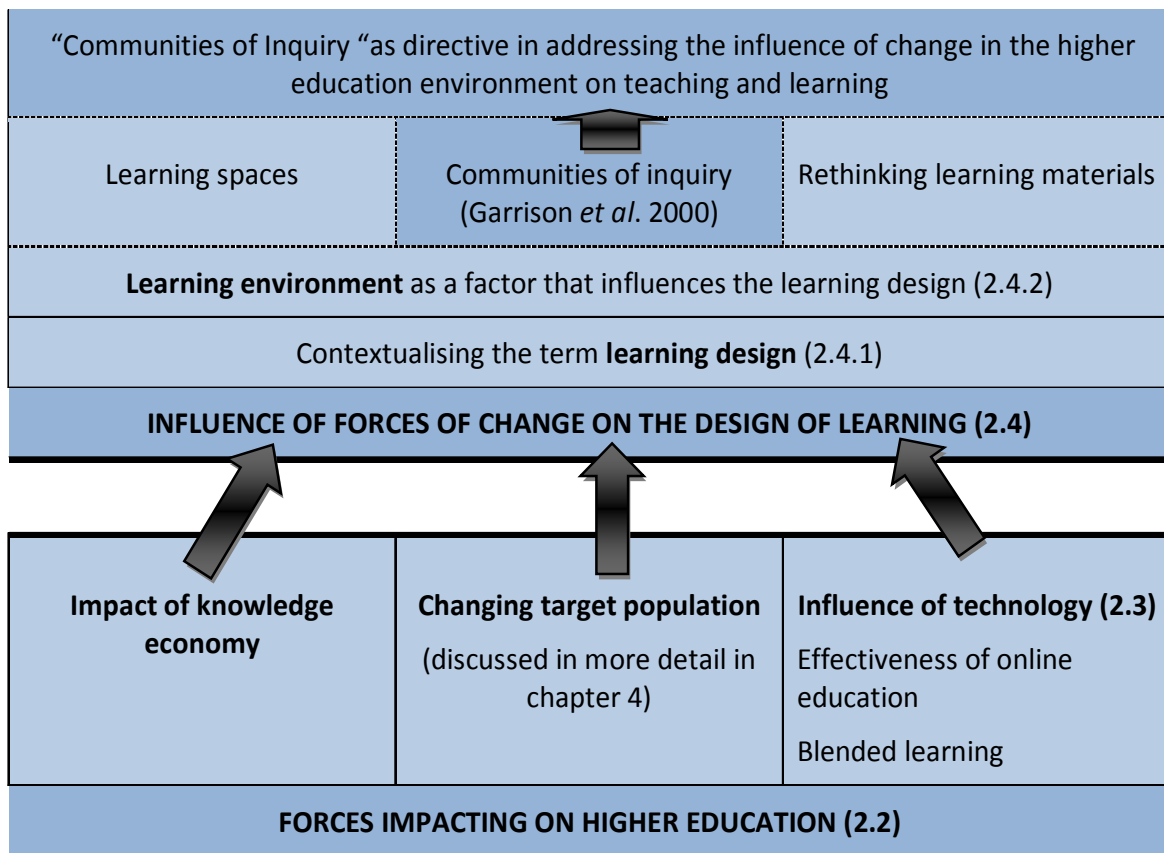
Thirty years from now big university campuses will be relics. Universities won't survive. It's as large a change as when we first got the printed book (Drucker in Lenzner & Johnson 1997:7).

2.1 INTRODUCTION

The above quote by Peter Drucker is an indication of the extent of the change that the higher education sector has been experiencing over the last two decades. Kalantzis and Cope (2008:¶6) observe that the changes are “greater than those of any time since the beginnings of mass education in the nineteenth century ... it challenges the fundamentals of education as we know it”. Drucker (in Lenzner & Johnson 1997:7) refers specifically to residential education when he mentions the rising costs of education without an accompanying rise in the improvement of content or quality of education and the fact that technology enables the delivery of traditional education at a fraction of the cost. Kalantzis and Cope (2008:¶*1) refer to the influence of “new media, globalisation, local diversity and learners with new kinds of sensibilities”. Other authors (Biggs 2003:2, Ramsden 1992:2, Toohey 1999:6, World Bank 2002:1) identify related influences, such as a decrease in funding, greater participation rate, accountability, a diverse student body, a change in the characteristics of students, knowledge as a driver for lifelong learning – all impacting on the higher education environment. The question, therefore, seems to be not whether higher education will change, but rather how higher education will become responsive to the new environment. This is inevitable because, as the World Bank Report (2002:1) indicates: “The role of education in general, and of tertiary education in particular, is now more influential than ever in the construction of knowledge economies and democratic societies”.

In the context of this study the purpose of this chapter is to contextualise the study by means of addressing the first research question: *What is the influence of the changing higher education environment, technology in particular, on learning and the design of learning?*

The discussion will commence with a brief overview of three important forces impacting on higher education, namely the knowledge economy, the changing student population and technology. The focus of this chapter, however, falls on the impact of technology that influences teaching and learning. From this point of view, findings regarding the effectiveness of online learning are considered, followed by an overview of blended learning and its possible advantages. The second part of the chapter focuses on the influence of technology on the design of learning. The concept learning design, as well as important factors influencing the design of learning, is discussed. This is reflected in the chapter outline in Figure 2.1.



Source: Compiled by the researcher.

Figure 2.1: Outline of chapter 2

2.2 IMPORTANT FORCES IMPACTING ON HIGHER EDUCATION

As mentioned above, three of the major driving forces impacting on higher education are briefly reviewed in this section. The knowledge economy is one of the forces of which higher education continuously has to take into account.

2.2.1 The impact of the knowledge economy

A report of The World Bank, *Constructing Knowledge Societies: The Challenges for Tertiary Education* (2002:7), states that knowledge has become a crucial aspect in economic development. The report signifies the influence of globalisation on the knowledge economy, mainly due to the centrality of knowledge in creating a competitive advantage for a country. Knowledge has the potential for assisting countries to “leapfrog” into certain areas of growth and provides a solution to core social problems, but it has the potential to leave exponentially larger knowledge gaps amongst nations if this is not embraced (World Bank 2002:8).

In South Africa, the impact of globalisation and the accompanying knowledge economy are evident on a social, cultural and economic level. The impact of the knowledge economy is acknowledged in the National Plan for Higher Education (NPHE) (RSA DoE 2001:8):

The impact of these changes on the way in which societies are organized is likely to be as far-reaching and fundamental as the changes wrought by the industrial revolution of the 18th century. At the centre of these changes is the notion that in the 21st century, knowledge and the processing of information will be the key driving forces for wealth creation and thus social and economic development.

In today’s consumer market students are aware of the stiff pace of change and the need to update their skills sets regularly in order to stay competitive (Merriam & Brockett 2007:295). Cetron (in Howell *et al.* 2003:11) mentions that if one considers that on average people will change careers every 10 years, then the impact of lifelong learning on the education sector becomes apparent. According to Howell *et al.* (2003:4), the possible entering and re-entering of higher education can be linked to the rapid increase in information and knowledge that

encourages the idea of lifelong learning together with the changing job market and a need to stay employable. The focus of the knowledge economy on the continuous updating of skills therefore provides an opportunity for higher education “if higher education is responsive enough” (Yick, Patrick & Costin 2005:12).

The impact of the knowledge economy is felt in various ways in higher education. Not only is there a demand for producing knowledge at a faster rate, but the type of knowledge and skills needed has changed. This necessitates student learning that is more focused on higher-order skills and cognition rather than lower-order memorising, while the learning needs of students enrolling in higher education will be more diverse than previously experienced (World Bank 2002:29).

Skills like critical thinking, research and evaluative skills become critical for survival. Johnson, Levine and Smith (2008:6) in the *Horizon Report* indicate that in the next few years formal instruction of skills in information literacy, visual literacy and technological literacy will become important. This need for skills development is important in the South African context and is reflected in the National Plan for Higher Education (NPHE) (RSA DoE 2001:5), which states that learners must develop “the skills and competencies to function in a modern society, in particular, computer literacy, information management, communication and analytical skills”. If one considers that knowledge doubles every four years, the emphasis on the acquisition of skills rather than content becomes very important (Howell *et al.* 2003:7). The focus is therefore not on content as such, but on the development of higher-order skills.

The matter of appropriate skills development is further complicated by the finding that although many students use technology on a daily basis, they are not necessarily information literate. In this regard Johnson, Levine and Smith (2007:4) mention that students often use technology and create content but struggle to create meaningful content; and in addition, due to the fast rate of change in the development of technology, lecturers have to teach skills that students will need without knowing what these skills would be.

Higher education institutions are pressurised by government and the economy to deliver highly skilled workers who are expected to play a bigger role in national development to alleviate the shortages in high-level skills (Scott, Yeld & Hendry 2007:vii, Toohey 1999:5). In the South African situation the focus is not only on the development of skilled workers but also on redress – to address the challenges created by the inequalities of the past and to assist in the transformation to a democratic society. In the rebuilding of the country a focus is therefore needed on developing human resources through lifelong learning and on the increase of high-level skills (White Paper in RSA DoE 2001:8). The skills needed in a knowledge economy, in addition to the technical skills, are described as an “array of analytical skills and a solid grounding in writing, communication and presentation skills” (Task Force Report on Higher Education and Society in RSA DoE 2001:26). Gibbons (in RSA DoE 2001:26) more specifically identifies the critical skills for the 21st century as “computer literacy, knowledge reconfiguration skills, information management, problem-solving in the context of application, team building, networking, negotiation/mediation competencies and social sensitivity”.

The challenge of producing students with the wealth of skills needed in the new millennium becomes even more daunting when the changing target population in higher education is considered.

2.2.2 The changing target population in higher education

Traditionally, adults, women and minority groups were regarded as non-traditional students. However in the changing higher education environment, these non-traditional students have become the majority of the learners (Oblinger 2004:3). Howell *et al.* (2003:4) report that in the USA, for the period 1970 to 2000, the number of 18-24 year-olds that entered higher education increased by 41%, while adult learners increased by 170% over the same period. In 1997, a report from UNESCO (1997:3), *Global Transformation and Education of Adults*, indicated that there are more adults in education worldwide than children in traditional schools. This report spells out the urgency of addressing the needs of adult learners (UNESCO 1997:2):

Changes are no longer occurring between generational cycles but two or three times within a generation. This means that the education of youth, which is essential to all societies, cannot, merely by educating the next generation, deal with the rapidity and immensity of the transformation. The education of adults has thus become a separate function, necessary for dealing with the changes represented by the great transformation.

In order to redress the inequalities of the past in South Africa, the NPHE (RSA DoE 2001) proposes a comprehensive plan that would address inequality on various levels. Of particular importance in this report is the idea of “broadening the social base of students”. It specifically indicates that education should not only be focused on the traditional younger student, but that non-traditional students must be accommodated to assist in redressing the past (RSA DoE 2001:8). In this regard the NPHE is of the opinion that higher education institutions are lax in accommodating non-traditional students who, according to this document, include “workers, mature learners, in particular women and the disabled” (RSA DoE 2001:24). The NPHE further suggests that higher education institutions should employ Recognition of Prior Learning (RPL) to support adult learners in their learning endeavours. The rationale here is that addressing this target market will benefit the country, not only in delivering the much needed high-level skills, but also in supporting the establishment of a culture of lifelong learning (RSA DoE 2001:24).

Howell *et al.* (2003:3) emphasise that the adult learner that enters higher education today is different from the traditional adult learner. Not only do they want information that is relevant to the problems they experience in their daily lives, but they are “autonomous, self-directed and goal-orientated”. They prefer courses that can be adapted to their lifestyles and that they can fit in with the range of responsibilities in their lives. Adult learners in the South African context are, furthermore, looking for programmes that acknowledge their previous learning; RPL is therefore important to them (Howell *et al.* 2003:3).

There is no doubt that the characteristics and specific needs of adult learners need to be incorporated in the design of learning opportunities for a diverse group of learners. This

important dimension of effective learning design in the changing higher education environment is discussed in more detail in Chapter 4.

Today's students are regarded as consumers, as indicated earlier. They have high expectations of their educational experiences and increasingly expect technology to be integrated in the learning process – from the administrative side to well-organised learning resources and almost immediate support of their learning needs. They expect learning experiences that mirror what technology offers to them in their daily lives and what they expect from any other service they pay for. Due to their changing lifestyles, students – whether traditional or non-traditional – expect learning not be confined to a classroom any longer. Mobile, portable and wireless technologies are becoming more and more important to working students (Boettcher 2007:¶31-35). The influence of technology stretches even further, however, and has infiltrated every domain of the higher education environment. This influence is discussed in the next section.

2.2.3 The impact of technology in higher education

Katz (2008:6) observes that “[w]hile it took 1000 years to raise the tower of higher education, it has taken only 60 years to launch the digital computing and communications revolution.” Computers have changed to become affordable and increasingly connected, mobile, and user-friendly, with an increasing data storage capacity and immediate access to information (Katz 2008:12). Furthermore, the emergence of Web 2.0 has changed the view of the Internet as a static information source to an interactive and collaborative source where everyone participates. The characteristics of Web 2.0 include amongst others the use of micro-content, creating openness between sources, social networking, social writing and the sharing of information through social tagging (folksonomy) (Alexander 2006:33-34). These key shifts have caused technology to become an essential item for participants in the knowledge economy. The World Bank Report (2002:13) points out that technology overcome the physical distance in communication and provide a competitive advantage for its users. On the other hand, the use of increasingly sophisticated technology creates an increasing knowledge gap between

countries utilising these resources and those who do not, with detrimental effects to the economies and social development – as mentioned earlier. In the higher education context technology plays an important role in administrative functions, while on the teaching side it has the potential to increase access and the quality of teaching as well as the distribution of and access to information.

Authors like Biggs (2003:225) and Toohey (1999:20) indicate that technology provides alternatives to conventional teaching methods and has brought exciting new learning opportunities. Laurillard (in Ramsden 1992:159) recognised the potential of technology and especially computers as long ago as 1987 and listed “engagement with the subject matter, individualized and self-paced learning, access to large quantities of information, formative assessment tasks with immediate feedback” as some of the new possibilities.

The advantages of utilising technology can therefore be viewed from an administrative as well as from a teaching perspective. From the administrative side, huge databases make it easier to manage information and communicate information to students (Biggs 2003:216). Nel, Dreyer and Carstens (2001:239) report that higher education institutions in South Africa use technology to become more cost-effective and to increase enrolments and broaden access to remote learners (as mentioned earlier).

From a teaching perspective, technology can be applied in support of the management of information by providing access to course guides and resources, engaging students in the learning process through communication tools and the provision of information, supporting lecturers in assessment tasks and assisting in supporting off-campus students – such as adult learners with other responsibilities in higher education (Biggs 2003:216-225). Technology can enhance the development of generic skills that are needed by graduates who will enter the knowledge economy, for example collaboration in an online environment and working with diverse people (Kofoed 2004:9). Technology is, furthermore, seen to have the potential to improve the effectiveness of teaching and learning due to the focus on the student and possibility of student activity (student-centredness) (Nel *et al.* 2001:239). Bunker and Vardi

(2001:111) observe that some of the limitations of traditional face-to-face contact could also be addressed in the online environment. These include the access that students had to information related to the courses, the quality of the interaction between the students and the development of student independence.

Technology is not only influencing higher education but is driving change on every level – from the individual and local levels to the international level. One example of the worldwide impact of technology is globalisation. Globalisation connects individuals and information and the cumulative effect of this is changing every aspect of the world as we knew it. Amongst others, globalisation has led to the emergence and rapid dissemination of the knowledge economy. As knowledge escalates, there is a continuous need to update one's skills. This has contributed to the change in the target population entering and re-entering higher education. Adults, as part of the new student population, bring with them different learning needs that have to be attended to in order for an institution to become a provider of choice.

Up to now the discussion has focused on the changes on a macro and institutional level. In the section that follows the influence and impact of the advances in technology on specifically one of the core functions of higher education, viz. teaching and learning, will be discussed in more detail.

2.3 THE IMPACT OF TECHNOLOGY ON TEACHING AND LEARNING

It has become clear that the effect of technology is visible in almost every force influencing higher education. Technology has often been regarded as the solution to many of the problems associated with teaching and learning, as indicated by the Commission on Technology and Adult Learning (2001:4) in the United States of America:

E-learning has the potential to revolutionize the basic tenets of learning by making it individual, rather than institution-based, eliminating clock-hour measures in favor of performance and outcomes measures and emphasising customised learning solutions over generic one size fits all instruction.

More than a decade ago, Drucker (in Lenzner & Johnson 1997:8) suggested that embracing technology would not only provide opportunities to increase the enrolment of students, but in some instances could lead to a more cost-effective model in distance education. One of the most important questions regarding the utilisation of innovations such as technology in the classroom is the effectiveness of the innovation compared to the more traditional approaches to teaching and learning. In the next section a number of studies addressing this issue are reviewed.

2.3.1 Is online education as effective as traditional face-to-face education?

Over the last decade numerous studies have investigated the effectiveness of online learning and focused on the question: Are there any differences between the effectiveness of learning in a traditional face-to-face context and in an online environment? The studies focused on factors such as the development of higher-order thinking, quality of engagement, student experiences and perceptions, student performance and the sense of belonging. Most of the studies consulted (Beyth-Marom, Chajut, Roccas & Sagiv, 2003, Dutton, Dutton & Perry, 2002, Gagne & Shepherd, 2001, Heckman & Annabi 2005, Mahoney 2006, Meyer 2003, Stodel, Thompson, MacDonald 2006, Wuensch, Shahnaz, Ozan, Kishore & Tabrizi, 2008) found no difference between the two delivery modes. However, there were a few other findings. Table 2.1 provides a summary of nine of the studies undertaken in this regard.

According to the table the studies in the sample suggest that although technology seems to be just as effective as traditional classroom learning, it may nevertheless not be a miracle solution, but rather what Twigg (2003:28) refers to as the “no significant difference phenomenon”. Other authors, however, caution against the above notion. More than 15 years ago Ramsden (1992:161) warned that “media cannot alter the way teachers understand teaching”. In the same era Laurillard (1993:181) noted that it is not about the medium, but about the fact that the learners’ needs must take precedence over the selection of the mode of delivery. More recently Biggs (2003:225) cautioned that technology is only good to the extent that it is achieving the goals of learning.

Table 2.1: Studies comparing the effectiveness of face-to-face and online education

Study	Aspects researched	Finding
Beyth-Marom, Chajut, Roccas and Sagiv (2003)	Researched factors related to student preferences for a face-to-face or online environment	Results indicated that online students had higher academic performance than face-to-face students, and valued independence more.
Dutton, Dutton and Perry (2002)	Differences between online and face-to-face students and their performance	Differences existed among the groups in terms of their demographics. Online students performed better than face-to-face group.
Gagne and Shepherd (2001)	Student performance	No difference in performance.
Heckman and Annabi (2005)	Higher-order thinking and engagement	Online students have the same and even higher levels of cognitive activity and more interaction than in face-to-face classes.
Mahoney (2006)	Sense of belonging	Sense of belonging similar in both contexts.
Mattunen and Laurinen (2001)	Development of argumentation skills	Online environment also facilitates the development of argumentation skills.
Meyer (2003)	Comparing face-to-face and online regarding higher-order thinking and time spent on learning	Higher order thinking was not restricted to face-to-face settings but also occurred in online discussions. Online students spent more time on their work through the use of asynchronous communication and welcomed the extra time for reflection.
Stodel, Thompson and MacDonald (2006)	Student perceptions on what they missed in online education	Online students missed the nonverbal cues and social engagement of the face-to-face environment.
Wuensch, Shahnaz, Ozan, Kishore and Tabrizi (2008)	Pedagogical characteristics of online and face-to-face classes	The study identified 11 pedagogical characteristics and the results showed that each mode of delivery had its own strengths and weaknesses.

Source: Compiled by the researcher.

Technology certainly has many advantages, as Howell *et al.* (2003) point out. Not only does technology have the potential to improve the quality of teaching and learning, but it offers a way for alleviating problems such as staff shortages and pressure on physical resources

(classrooms). Furthermore, it offers students better access to the learning environment, especially for independent study (Howell *et al.* 2003:13).

The “no significant difference” phenomenon has led to the conclusion that online learning could be useful in a situation where students are not on campus, while the introduction of online learning not only provides better opportunities to service students at a distance, is causing the boundaries between traditional face-to-face learning and learning online to become blurred (Graetz 2006:72, Meyer 2008:57, Welker & Berardino 2005:33).

This brief discussion suggests that, based on empirical evidence, online education can be just as effective as traditional education, although certain factors always need to be taken into account. In the following section, the combination of traditional face-to-face education and online (and/or various other form(s) of technology-enhanced education), referred to as blended learning, is discussed.

2.3.2 Blended learning

Blended learning is regarded as “the single greatest unrecognized trend in higher education today” (Young in Graham 2006:3). From a corporate perspective, blended learning is seen as one of the top trends in the “knowledge delivery” business (Shaw & Ignneri 2006:2). Garrison and Kanuka (2004:95-97) describe blended learning as the opportunity for higher education to transform itself, to make a “quantum shift”. Online learning is thus not only seen as something separate from the traditional offerings in terms of teaching, but is also affecting the traditional classroom. Predictions are made that in the near future the blended format will constitute 80 to 90% of all courses (Graham 2006: 3). In order to focus on the impact of blended learning in the more traditional teaching and learning context an overview of blended learning will be given, focusing on a conceptualisation of the term and the potential it offers in traditional teaching and learning settings.

2.3.2.1 Defining blended learning environments

Blended learning does not mean that online learning will replace the traditional learning mode, but that a combination of the two will increasingly be utilised. The definitions proposed by Graham (2006:5) and by Welker and Berardino (2005:33) underscore this statement. Graham defines blended learning as the combination of face-to-face instruction with computer-mediated instruction while Welker and Berardino (2005:33) define blended learning “as any combination of electronic learning tools that supplement but do not replace face-to-face learning”.

Driscoll (2002:1) suggests a much wider definition and application of the term blended learning. She identifies four applications of the term blended learning: (1) the more traditional definition of the combination of different modes of delivery (face-to-face and online), while indicating that it can also refer to (2) the combination of different “pedagogical approaches” (constructivism for example), or (3) the combination of different instructional technologies (modalities) (CD ROM, video), or (4) the idea of combining instructional technologies with real-life tasks. Singh (2003:52) takes Driscoll’s broad definition even further when he points out that a blended environment applies to the following:

- Self-paced with live collaborative learning;
- Structured with unstructured learning (also referred to as formal and informal learning);
- Custom content (content created by the lecturer, e.g. study material) with off-the-shelf content (textbooks);
- Supplement learning with practice (through real-life simulations) and performance support tools that measure the implementation of tasks related to work.

From this observation of Singh it is clear that a blended environment supports the transition from what is most often a passive face-to-face class to more active learning. In this regard Oliver, Herrington and Reeves (in Oliver 2005:2) argue that blended learning enjoys strong support from teachers looking for student-centred delivery modes where students can be actively involved in the learning process. Although Graham (2006:5) is of the opinion that the

broader definitions do not really contribute to our understanding because learning usually incorporates a variety of elements, they do have value when one considers the trends in teaching and learning. The value of the definitions proposed by Driscoll and Singh lies in providing a more holistic view of contemporary teaching and learning. Clarey (2007:119) notes that she considers blended learning as a “holistic approach to creating learning environments”. Punie (2007:187) also argues for a more holistic view of learning when he writes:

Thinking about the future of learning in the knowledge-based society needs to be holistic, as it is expected that learning will become a lifelong activity that cuts across different learning generations and life spheres such as private and public life and work.

Some authors show that blended learning can be placed on a continuum, with face-to-face delivery on the one end and a fully online environment on the other. The blended environment could lie anywhere between the two points (Rovai & Jordan 2004:4). Allen and Seaman (2003:6) indicate that in the case of a blended learning course, 30 to 79% of the course content is delivered online. Table 2.2 reflects the whole continuum.

Table 2.2: Continuum of course delivery modes

Proportion of content delivered online	Type of course	Typical description
0%	Traditional	Course with no online technology used – content is delivered in writing or orally.
1-29%	Web-facilitated	Course which uses web-based technology to facilitate what is essentially a face-to-face course. Might use a learning management system (like Blackboard) to post the syllabus and assignments.
30-79%	Blended	Course is a blend of online and face-to-face; substantial proportion of the content is delivered online, typically uses online discussions, with some face-to-face meetings.
80+%	Online	A course where the vast bulk of the content is delivered online. Typically have no face-to-face meetings.

Source: Allen and Seaman (2003:6).

The blended learning environment is not restricted to a course level, but can be applied on a variety of organisational levels. Graham (2006:10-13) identifies four levels – institutional, programme, course and activity level (Table 2.3).

Table 2.3: Levels of blending

Level of blend	Example
Institutional level	Institution decides on model for blending; students must attend a certain percentage of courses face-to-face while the rest can be done online, or compulsory face-to-face attendance at beginning and end of programme with online contact in between.
Programme level	In the qualification that the students are enrolled for, they can select the mode of delivery that they prefer, or a combination of the different modes is compulsory for all students.
Course level	Students are having face-to-face contact in block sessions while the rest of the course is facilitated online.
Activity level	Bringing an expert from a distance through technology to a face-to-face contact session.

Source: Compiled from Graham (2006:10-13).

It is thus clear that possibilities for the level of blending are manifold. This flexibility contributes to the array of advantages attributed to the blended learning mode.

2.3.2.2 Advantages of blended learning

In the context of a traditional face-to-face course, Bunker and Vardi (2001:113) identify three main reasons why lecturers can enhance face-to-face sessions with an online presence. Firstly, it provides access to information; secondly, it increases the amount of interaction; and thirdly, it enhances student autonomy.

In terms of access to information, essential information regarding specific modules, like course guides, assessment information, contact details, lecture notes and slides, frequently asked questions and “breaking news” could be posted for all students to access when it is convenient for them, without a need for a lecturer to repeat information or lose class time through administrative issues. Students could use the online environment to communicate more freely

with lecturers. From a learning perspective, students have the perception that they have more autonomy over their learning. Updated information can easily be communicated to students. Lecturers reported greater efficiency in the preparation, management and delivery of their teaching (Bunker & Vardi 2001:113).

Related to this increase in communication efficiency and information sharing is the potential of online environments to involve everyone in the learning process and to provide activities that focus on higher-order skills. However, as Bunker and Vardi (2001:114) point out, a skilled lecturer is always needed to facilitate in an online environment.

Furthermore, Bunker and Vardi (2001:115) specify that online learning is an effective tool for transforming the teaching process from a teacher-centred to a student-centred approach where the student will have more autonomy. Fry, Pearce and Bright (2007:80) emphasise that when information is provided online, students become more responsible for their own learning. They add that blended environments encourage deep learning, active and interactive behaviour, as well as independent and self-directed learning.

Several authors point out that in addition to the advantages of using a blended environment in the traditional setting, blended learning has a transformative nature. It offers students flexibility of time and place of study and thus the type of convenience that especially adult learners find attractive (Graham 2006:9, Shaw & Ingeri 2006:3). In this way Singh (2003:52) asserts that the higher education institution can reach more students at the organisational level; furthermore, blended learning is more cost-effective and time-efficient (Singh 2003:52). He regards it as a relatively low-risk strategy for higher education institutions to introduce technology in their existing programmes.

Garrison and Kanuka (2004:98) indicate that from a teaching and learning perspective a blended environment “can provide the independence and increased control essential to develop critical thinking”. Blended learning can facilitate the process of changing the pedagogical model from the current predominantly transmission model to a more interactive model where active learning, collaboration and learner-centred strategies are used (Graham

2006:7). Other advantages are the reusability of existing learning material and the accommodation of potentially more learning styles, increasing the satisfaction of learners with the learning experience (Shaw & Ignneri 2006:3). Rovai and Jordon (2004:3-4) emphasise that blended learning environments can lead to a more “robust educational experience”. The robustness of the learning experience stems from the replication of activities usually built into blended courses. From a cognitivist perspective, repeating the same theories or ideas in various modalities and different situations leads to improved retrieval and schema formation. Furthermore, from an adult education perspective, it supports the transfer of the learning to the workplace and leads to more authentic learning experiences because the classroom learning is better integrated with what happens in the workplace (Graham 2006:8, Shaw & Ignneri 2006:5). Blended learning is best suited for facilitating communities of learning (Garrison & Kanuka 2004:97, Rahman in Inayatullah & Gidley 2000:5). Cross (2004:¶16) indicates that interaction is the “glue” that holds blended learning together. Interaction encompasses what takes place among students, between learner and teacher, learner-content and learner-infrastructure.

Based on their research regarding transformative learning in a technological context, Merriam, Caffarella and Baumgartner (2007:157) also argue for a blended approach, but caution against two aspects where mixed results are reported when technology is introduced in the learning environment. Both aspects relate to collaboration in an online environment. Their first point is that although students understand the significance of collaborating online, they want to be assessed individually; and, secondly, facilitators need to focus on creating a learning environment where students feel socially connected. In the study reported by Merriam *et al.* (2007:157), students indicated that the online environment “does not lend itself as well to social connections as a face-to-face” environment. This sentiment is echoed by Inayatullah and Gidley (2000:5) when they state that relationships can be formed online but the nurturing of these relationships happens in a face-to-face setting. They add that not all kinds of learning can take place online. The exceptions are authentic learning, situated cognition and real-life experiencing.

Technology has not only led to improving the traditional distance learning model, but has helped to develop new combinations of traditional and contemporary delivery modes, in this way introducing the world to blended learning. Technology has affected the way that we consider learning and the design of learning in all modes of delivery. In the section that follows, the influences of the forces of change, in particular technology, on the design of learning are explored.

2.4 INFLUENCE OF FORCES OF CHANGE ON DESIGN OF LEARNING

Various authors (Balanko 2002:1, Boettcher 2007:¶31-35, Howell *et al.* 2003:7-8, Yan in Grandzol & Grandzol 2006:5) argue that the advent of online education, the new skills and knowledge needed in the knowledge economy and the increasing numbers of adults in higher education have forced educators to reflect on current teaching practices and to adopt, amongst others, a more socially constructivist paradigm. In this paradigm collaboration, the construction of knowledge, higher-order thinking skills and application in the real-world have become essential. This has had an impact on traditional teaching and how our students learn. In this section, the focus will be specifically on the influence of technology on learning design and related aspects in the new learning context.

2.4.1 Contextualising the term learning design

While technology has changed the administration of learning, Martens, Bastiaens and Kirschner (2007:81) suggest that we need to consider a new way of looking at learning. They use the term “new learning” to refer to the impact of technology and constructivism on learning. Because new learning is a combination of a new pedagogical model, new technology and a new environment (online learning) the development of this new learning is no easy assignment (Martens *et al.* 2007:83). In the same way that the term new learning is associated with the online environment, learning design is associated with the context of the online environment. As is usually the case with new developments, scholars in the field are defining and creating new terminology to try and explain new ways of conducting their work. Just as we need new

ways of looking at learning, we need to look at new ways to consider the design of learning as well.

In literature, the concept of learning design has diverse meanings. Inglis and Bradley (2005:45) provide two possible definitions. While learning design could refer to the “lay-out, typography and the use of illustrations” it can also refer to the alignment of the learning process, when they say that learning design is:

the establishment of learning outcomes and associated performance criteria, setting assessment measures for each outcome, selecting and defining necessary resources and specifying the nature of the learning activities associated with each outcome.

In a similar vein Falconer and Littlejohn (2007:43) indicate that learning design is the “outcome of the design process” in their adoption of the definition provided by the Joint Information Systems Committee (JISC) (2006:1) in the United Kingdom. JISC defines design for learning as “designing, planning and orchestrating learning activities as part of a learning session or programme”.

Closely related to the process definitions is the definition offered by Oliver (2005:3) of learning design that focuses on the transformative nature of learning that is envisaged as:

A deliberate set of learning activities and processes to provide the cognitive engagement a learner is deemed to require in a learning experience to bring about the required conceptual changes associated with the planned learning outcomes.

A more comprehensive definition is provided by Koper and Olivier (2004:2), who define learning design as “an application of a pedagogical model for a specific learning objective, target group and a specific context or knowledge domain”. According to them, the learning design provides information regarding the teaching and learning process. The learning design can include the format of the learning materials and support, which they refer to as physical resources. Koper

and Olivier, furthermore, indicate that learning design in this new context needs to be “reusable” on different occasions, for different individuals and in different situations.

The various definitions focus on different levels of teaching and learning. While the definition offered by Koper and Olivier (2004) focuses on the programme level, the definitions provided by Inglis and Bradley (2005) and Oliver (2005) focus more on a course (module) and even lesson level. The definition by JISC (2006:1) suggests a focus on various levels. Falconer and Littlejohn (2007:43) points out that learning design can refer to “any size and complexity, from a course down to an individual activity”.

The definition by Koper and Olivier (2004:2) probably provides the best description of what is meant by learning design in this study. The learning design in this study focuses primarily on the programme level. The envisaged learning design aims to utilise the principles of effective learning and teaching (Chapter 3) together with the principles of adult learning (Chapter 4) in an attempt to design learning for various modes of delivery but could also be applicable to a module level. The definition therefore has to fulfil the needs of various subject disciplines and different teachers; the learning design needs to be reusable, because modules are repeated throughout the year for different groups of students. These prerequisites are reflected in the argument presented by Falconer and Littlejohn (2007:44) when they specify that “a learning design communicates more than just the sequence of activities; it expresses the pedagogical rationale for the relationship between activities, resources, and the path between them”. Although the learning design will primarily focus on a programme level, the proposed principles will most probably reflect an incorporation of the definitions that focus on a more micro level (JISC 2006:1, Oliver 2005:3).

One might then ask: How does learning design differ from instructional design?

A few arguments in this regard explain the movement away from instructional design in favour of other views on the design of learning. Traditionally, instructional design was grounded in behaviourism, with a later shift to cognitivism (Laurillard 2002:64, Siemens & Tittenberger 2009:36). Siemens and Tittenberger (2009:36) point out that this behaviourist foundation led to

defining learning outcomes, planning learning activities and assessment that did not take the changing environment into account. According to these authors, instructional design is more concerned with “designing the learning/experience and not as concerned with the environment or context”, as suggested by learning theories such as constructivism and connectivism (Siemens & Tittenberger 2009:36).

Related to this argument, Laurillard (2002:65) criticises the use of the term instructional design in terms of the empirical base that is used. She argues that cognitive psychology is used as the base and that although “cognitive psychology has an empirical foundation, [it is] ... one that is built for their own purposes”. Furthermore, the “analysis of the teaching-learning process is not followed by any synthesis”. She concludes by saying that although two of the key figures in instructional design (Gagné and Merrill) tried to address these shortcomings, “their enterprise is word games; it is not science” and that instructional design does not build on that body of knowledge, “it merely supposes it” (Laurillard 2002:65-66).

The argument put forth by Sims (2006:1) is that instructional design traditionally focused on content together with the idea of an instructor, proposing a predetermined path that would lead to the acquiring of knowledge. The learner who enters higher education today expects to learn differently, however, they do not want to learn content only, but want to be engaged in collaborative and authentic learning contexts. With a teacher-control focus, instructional design cannot address the needs of a learner-control environment (Sims 2006:2). Barr and Tagg (in Buckley 2002:30) concur when they suggest a movement away from an instructional paradigm that focuses on content to a learning paradigm that focuses more on the creation of “powerful learning opportunities”.

Learning design thus represents a movement away from the traditional view of instructional design with a new focus on learning and on content that promises delivering of what learners need in a new knowledge economy. To be relevant in the new context, the new learning environment has become extremely important in the creation and design of learning.

In the section that follows, the new learning environment is presented as a factor having a profound influence on the design of learning.

2.4.2 Learning environment as a factor that influences the design of learning

Greeno (in Bransford, Brown & Cocking 1999:124-125) compares learning in the 21st century to “learning the landscape” where one needs to learn how to “live in an environment”. As such one needs to:

learn your way around, learning what resources are available, and learning how to use those resources in conducting your activities productively and enjoyable.
... This requires a network of connections that link one’s present location to the larger space.

This comment by Greeno suggests a change in *what* and *how* we learn as well as the *space* in which learning takes place. Armatas, Holt and Rice (2003:141) refer to an Australian report on higher education that further highlights the implications for designing learning environments that are cognisant of the changing higher education context:

It [forces for change] requires rethinking the design of learning experiences and courses, teacher-student contact, and the role of the academic. It necessitates re-examining the way courses are delivered, the implications of institutional policies and practices and recognising that systems of support for learning are as important as the delivery of subjects and courses.

The redesign of learning experiences does not only refer to the physical environment, viz. the classroom, but incorporates a broader definition of the term that refers to all the aspects related to successful learning, including the “teacher, students, tools, resources, campus and learning materials [that] scaffold to support the construction of knowledge” (Hannafin, Land & Oliver 1999, Sandberg 1994:13-22). Hannafin *et al.* (1999) indicate that this encompass *any space where learning can take place* – physical or virtual.

A number of aspects related to the characteristics of a learning environment that will probably influence the learning design are explored in the section that follows, namely learning spaces; the idea of communities of practice/inquiry as a scaffold to support the construction of knowledge; and learning materials.

2.4.2.1 Learning spaces

Contemporary thinking on learning acknowledges that learning happens everywhere, at any time, and is influenced by the social environment, as opposed to the view that learning is an individual activity (Oblinger 2005:1). This has led to an extended viewpoint that encompasses learning outside the classroom. Brown (in Johnson & Lomas 2005:18) defines this broader “classroom” or learning spaces as “the full range of places in which learning occurs, from real to virtual, from classroom to chat room”.

Punie (2007:191) explains that learning spaces create a different view on what learning could look like in the future. Learning spaces are student-centred and present learning as a social process. The student will become a co-producer of learning content while the teacher’s role will change (not disappear) to guidance and support. Learning spaces will have many forms, both real and virtual (Brown & Lippincott 2003:14, Punie 2007:191). Furthermore, teaching in these spaces changes daily (not only lectures but various kinds of active learning activities) and is supported by an environment that simulates real-life working environments and not the environment of a “playschool” (Van Note Chism & Bickford 2002:94). The message that is brought across to students with the new emphasis on learning spaces is therefore that learning is acknowledged as a collaborative, interactive and individualised process.

Long and Ehrmann (2005:55) identify various types of learning spaces (referring to *physical learning spaces*): “Spaces for deliberating (thinking and conceiving) spaces, designing spaces, presenting spaces, collaborating spaces, debating or negotiation spaces, documenting spaces, implementing spaces, practicing spaces, sensing spaces and operating spaces”.

From a more philosophical viewpoint, Savin-Baden (2008:35-95) identifies writing spaces, dialogic spaces, reflective spaces, digital spaces and troublesome spaces (“places where stuckness’ or ‘disjunction’ occurs”) (Savin-Baden 2008:95).

With regards to virtual learning spaces, Siemens (2003:¶23) identifies

a space for Gurus and Beginners to connect (master/apprentice), a space for self-expression (blog/journal), a space for debate and dialogue (discussions, open meetings), a space to search archived knowledge (portal, website), a space to learn in a structured manner (course, tutorial).

Siemens (2003:¶23) stresses that learners themselves will select the most appropriate space for learning to take place. Therefore the role of the teacher is to make sure that the spaces, either physical or virtual, are created and that guidance is provided in each of the learning spaces.

Punie (2007:191-195) specifies that learning spaces, regardless whether physical or virtual, will be collaborative and social, but can be available for personal use by an individual. They will be flexible, and students can be creative and show their individual differences there. These spaces must be enjoyable to work in and must foster an environment where people can connect and be motivated to learn. These learning spaces will become a platform where students will be able to exchange knowledge and skills, where they are able to reflect, not only on knowledge, but on their personal experiences as well.

The stimulating idea of learning spaces without a doubt serves to broaden our horizons in terms of where learning takes place and what educators need to do to create a learning environment that encourages deep learning. Another important factor in the enhancement of deep learning is the provision of support to the learner in the learning process. In the online environment, the idea of a community of practice can serve as an important scaffold in this regard.

2.4.2.2 Communities of inquiry as a scaffold for successful learning

Merriam and Brockett (2007:149) emphasise the importance of the learning environment in facilitating successful learning. They argue that in the face-to-face learning environment the physical, psychological and social environment supports the learning process. Since the typical features present in the face-to-face learning environment are not present in the online environment, they need to be created in order to successfully engage students in constructivist collaborative learning. In this regard Garrison, Anderson and Archer (2000:88) concur with the idea of Giesbrecht (2007:¶1) and Siemens (2003:¶23) of a learning community or a community of inquiry that fosters student engagement in the online setting. According to Grandzol and Grandzol (2006:7) this type of engagement can be created by student-to-student interaction and by student-to-teacher interaction.

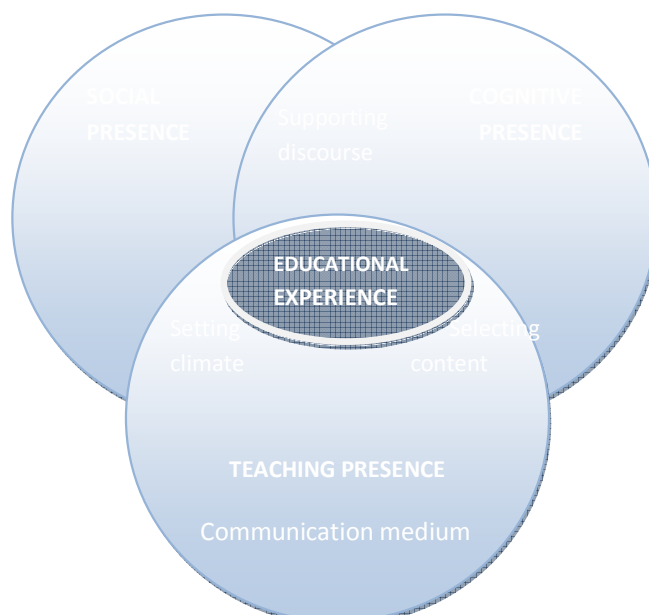
Garrison and Anderson (2003:23) furthermore, specify that a community of inquiry consists of teachers and learners who are interacting with each other for specific purposes e.g. facilitating, constructing, validating understanding, and the development of capabilities to assist in the learning process. According to them, “such a community encourages cognitive independence and social interdependence simultaneously”. Therefore, an effective community of inquiry consists of three components that are interacting with each other, namely cognitive presence, social presence and teaching presence (Garrison *et al.* 2000:88; Garrison in Grandzol & Grandzol 2006:7; Stodel *et al.* 2006:3):

- *Cognitive presence* refers to activities where reflection and discourse are encouraged in order to construct meaning through sustained communication. Cognitive presence is regarded as the most basic element of success and the support of critical thinking (Garrison *et al.* 2000:89)
- *Social presence* is the “personal and emotional connection that students feel towards other, the subject matter, the teacher and towards other students” (Grandzol & Grandzol 2006:7). Students experience joy from social presence and supports the development of critical thinking processes in the community. Garrison *et al.* (2000:89)

regard the function of social presence as supporting cognitive presence. For deep learning to take place Garrison and Kanuka (2004:97) emphasise that the cognitive and social presence must be created and sustained.

- Teacher presence refers to the role of the teacher in creating, managing and supporting the community of inquiry. The teacher can influence the teacher presence by the design, organisation and facilitation of the discourse and through direct instruction (Garrison & Kanuka 2004:98, Stodel *et al.* 2006:3).

Garrison (in Grandzol & Grandzol 2006:7) indicates that teachers must balance the three aspects related to a community of inquiry in order to create an effective learning environment. The interaction of the three aspects is illustrated in Figure 2.2. From the figure it is clear that the interactions of the various aspects will support the discourse, the learning climate and the selection of the content. Although specifically developed for the online environment, the idea of a community of inquiry leaves some food for thought in how teachers create a learning community in the traditional face-to-face environment (Garrison & Kanuka 2004:97).



Source: Garrison, Anderson, Archer & Rourke (1999: 51)

Figure 2.2: Interaction of the aspects in a community of inquiry

Garrison *et al.* (2000:90) point out that there has been a “shift from spoken language to written language as the central mode of communication in the educational process”. The extensive use of text-based communication holds several advantages, among others time for reflection and development of higher-order thinking.

As indicated, the interaction between the teacher presence and cognitive presence influences the content that will be selected for learning. There, further, needs to be a match between the learning space and the presentation of the content. Traditionally, the learning materials contained all the content necessary for the course. Now, the changing learning environment influences the way we should think about learning materials.

2.4.2.3 Rethinking learning materials

Siemens and Tittenberger (2009:1-2) indicate that up to ten years ago, information was pre-packaged, from textbooks to CD’s, but this has changed to a “mashup” of information where learners “piece together various content and conversation elements to create an integrated network of information”. While the result is still a coherent piece of information interpreted by the individual, the sources of the information have changed from a single source to multiple sources that are reworked to provide a logical data set. From a learning material point of view this leads to a rethinking of the way in which we present material to our learners. In this regard Siemens and Tittenberger (2009:2) suggest that content should not be pre-packaged, but packaged according to the needs and interests of the learners. The implication of this is that learners will need a variety of skills for creating coherent pieces of information.

Mason (2001:¶17-21, 25, 32) describes the evolution of learning materials on a continuum where he identifies three models in the development of course materials, namely a content and support model, a wrap-around model and, the more contemporary alternative, an integrated model. The characteristics of each of these models are summarised in Table 2.4.

Table 2.4: Mason’s continuum of development in learning materials

Content and support model	Wrap-around model	Integrated model
Use unchanged content materials.	Tailor-made materials wrapped around existing resources.	Course consists of collaborative activities, learning resources and joint projects.
Content and tutorial support separated.		Focus of course is through the use of technology, through searching the web, collaboration and active learning activities.
Course materials usually in print or as course package in online environment.	Usually follows a resource-based approach – more responsibility and control for students.	Course content is fluid and dynamic and is determined by group and individual activity.
Support in the form of tutors.	Teacher/tutor role enlarged because it is not 100% predetermined – have to create activities and discussions for new course.	No distinction between support and content.
Focus is on mastering content, discussions and collaboration in background.	50/50 model: 50% of time is spent on working through materials, while other 50% is focused on collaboration.	Model is dependent on creation of a learning community. Breakdown between what the teacher taught and collective instruction.
Larger student numbers, make up for high development costs (economies of scale).	Needs more facilitators, only cost-effective with small courses.	

Source: Compiled from Mason (2001:¶17-21, 25, 32).

From Mason’s perspective it seems that the content and support model and the wrap-around model have a teacher-control focus where the teacher determines the activities and material that the students will consult. The teacher packs the learning for the students, i.e. packaged learning. This kind of learning material would focus on content and explain the theories, with tasks that focus on lower-level cognitive activities. Biggs (2003:77) warns that too much structure can encourage a surface learning approach; students must be actively involved in the learning process by creating a structure integrated with their prior knowledge. For deep

learning to take place, students must see the interrelatedness of knowledge through building on their existing knowledge structures (Biggs 2003:75).

The focus in the integrated model supports the ideas of Ramsden and Laurillard and is not on specific learning materials with activities presented in a guide. Instead, the learning community will select the most appropriate learning sources and construct the learning as the members collaborate and actively participate in the learning process. Milne (2007:18) underscores that the emphasis in learning technology is shifting from high-quality content to informal manipulation of content/knowledge. Boettcher (2007:¶22-26), in a similar vein, predicts that there will be a breakdown in courses and content, with content presented in smaller chunks. This will make provision for the reusability of content and release lecturing staff from the continual redevelopment of course materials. In this regard Milne (2007:18) points out that the process of critically analysing information and then combining pieces of information that are appropriate for a particular context will result in “the deepest engagement”.

From this perspective it is clear that there is a shift in the teacher’s role from determining what the students will learn through the creation of carefully constructed learning activities in a specific sequence to a more learner-centred collaborative environment where learners will decide on their learning goals and collecting the information they deem relevant to the context and topic (Simons, van der Linden & Duffy 2000:11). This will affect the way teachers design learning as well as the way in which we think about learning materials.

2.5 CONCLUSION

This chapter aimed to address the research question: *What has been the influence of the changing higher education environment, in particular technology, on learning and the design of learning?* In following this directive, the chapter commenced with an overview of three important forces that impacted on higher education in the context of this study, namely the knowledge economy, the changing target population and the major influence of technology. These factors have influenced and will continue to play a role in learning and the design of learning. A combination of the factors, especially the influence of technology in teaching and

learning, has led to new ways of delivering education; it has altered the traditional distance learning model and introduced blended learning as an additional mode of delivery. This has led to new insights in the way we should consider the design of learning. Three important aspects related to the new learning environment were discussed – learning spaces, communities of inquiry as a scaffold and a rethinking of the use of learning materials.

Important considerations for learning design from this chapter are summarised in Table 2.5:

Table 2.5: Summary of the important considerations for learning design

1.	The changing higher education context requires a new way of looking at the design of learning, beyond instructional design.
2.	Learning design must make provision for the learning environment or context.
3.	The idea of learning spaces suggests the creation of a variety of learning spaces in different learning environments (if applicable) to support different learning needs and learning styles.
4.	The creation of communities of inquiry could serve as a guideline to facilitate learning in the online learning environment.
5.	The new learning paradigm requires a rethinking of traditional learning materials.
6.	Learning design should integrate the learning needs, the learning environment and learning materials (resources).

Source: Compiled by the researcher.

In chapter 2 the forces in the changing higher education environment were discussed. In Chapter 4 the focus will be on the adult learner, who constitutes an important section of one of the forces. However, before the adult learner are discussed, the focus turn to Chapter 3 that focuses on the various perspectives on effective teaching and learning in the different modes of delivery (face-to-face, online and blended learning).

CHAPTER 3:

PERSPECTIVES ON EFFECTIVE TEACHING AND LEARNING IN DIFFERENT MODES OF DELIVERY

In Chapter 2, the three most important forces of change that influence the higher education environment and that are applicable to this study were discussed, namely the knowledge economy, the changing student population and the influence of technology. The changing higher education environment provides the background of the development in teaching and learning and the subsequent changes in the design of effective learning.

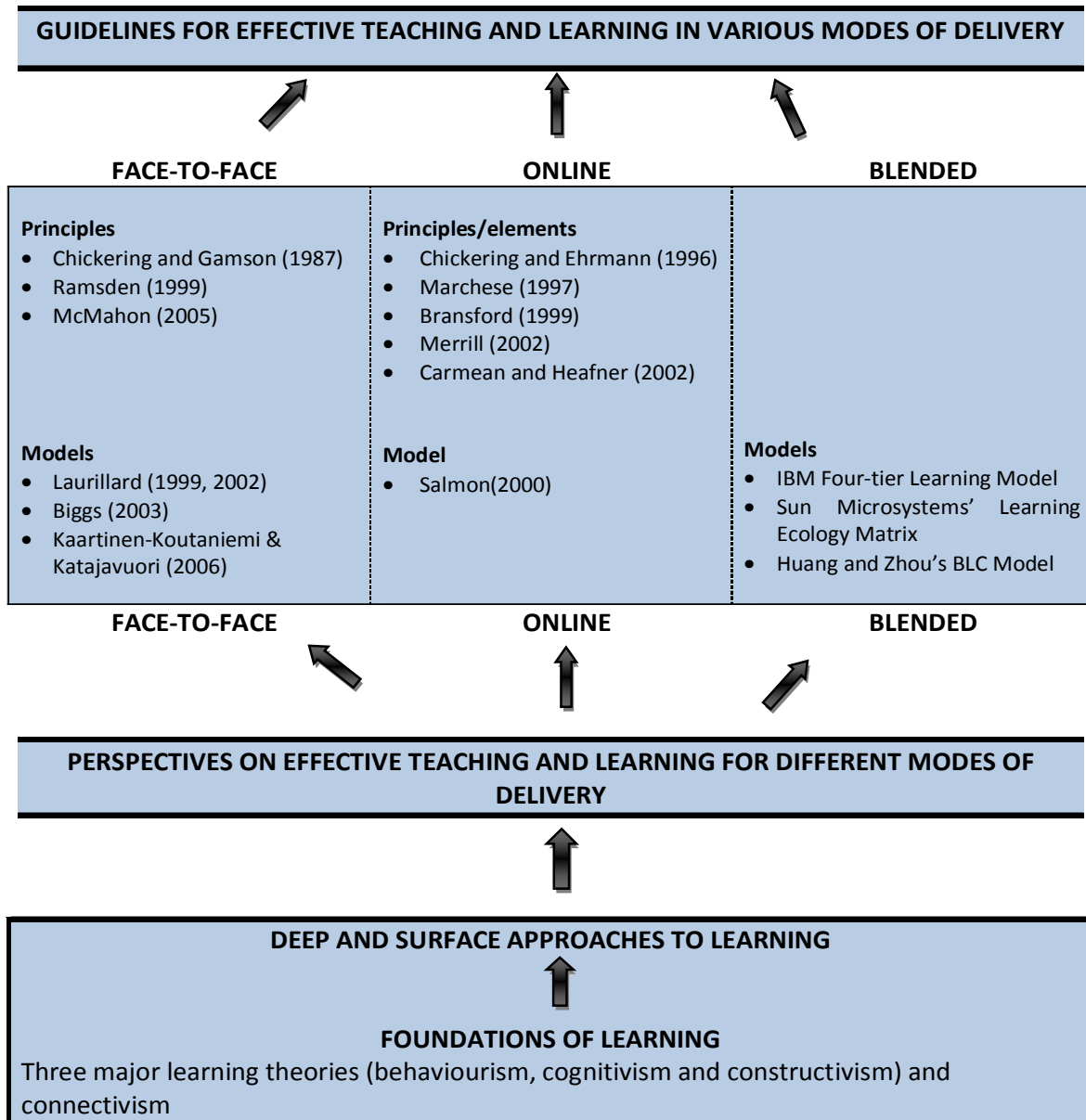
3.1 INTRODUCTION

The overarching goal of this study is to develop a framework for learning design that can be used in different modes of delivery. Chapter 3 aims to address this goal by responding to the first subsidiary question: (see section 1.4):

What are the most prominent perspectives on effective teaching and learning that can serve as directives in the design of learning for various modes of delivery?

The point of departure is a consideration of the three major learning theories (behaviourism, cognitivism and constructivism), together with connectivism, which is regarded as a learning theory for a technologically networked world. This is followed by a discussion of the work done on deep and surface learning as part of student learning research undertaken over the last two decades. This section is of particular importance, as deep learning is regarded as the preferred outcome of any learning encounter in this study. The largest part of the rest of the chapter focuses on perspectives on effective teaching and learning in face-to-face, online and blended learning environments. These perspectives have mostly been presented in the format of principles or models (see Figure 3.1 for an outline of the chapter).

Reference in the discussion will be made to the views of leaders in the field of teaching and learning around the globe such as John Biggs, Diana Laurillard, Theodore Marchese, David Merrill, Michael Prosser, Keith Trigwell, Paul Ramsden, and others. Most of the perspectives represent or incorporate processes directly related to learning design. All the perspectives gained in the chapter will thus make it possible to identify important (generic) guidelines for the design of learning in different modes of delivery.



Source: Compiled by the researcher.

Figure 3.1: Outline of Chapter 3

3.2 THE FOUNDATIONS OF LEARNING THROUGH THE LENS OF IMPORTANT LEARNING THEORIES

In order to understand current views on learning, the three major learning theories, namely behaviourism, cognitivism and constructivism, are discussed in this section followed by an overview on connectivism as an emerging learning theory that challenges the other learning theories, in the changing higher education environment in particular. Learning theories describe learning at a particular period of time in a specific social environment (Siemens 2004:1). Vaill (in Siemens 2004:1) emphasises that learning must evolve constantly to adapt to the changing environment. Looking at the development of learning theories, it is clear that the thinking patterns on learning have also evolved as a result of the changes in the environment. In order to understand current perspectives on student learning, it is therefore important to consider the main schools of thought that have influenced theories on learning. This conceptual framework enables scholars in the field to interpret and evaluate learning and teaching events, and provides some direction in solving problems regarding teaching and learning (Merriam *et al.* 2007:277). Each learning theory has made a contribution to the way that we view learning at present. Behaviourism is discussed first. It represents an old but very influential view on learning.

3.2.1 Behaviourism

Behaviourism can be regarded as one of the first learning theories. According to this viewpoint learning is the result of change in the observable behaviour of an individual, caused by a reaction to a stimulus in the environment. Learning is therefore regarded as an external and mechanistic process, based on the following three assumptions (Ally 2004:6, Merriam *et al.* 2007:278):

1. The focus is on observable behaviour rather than internal thought processes.
2. The environment shapes behaviour.
3. The principles of contiguity and reinforcement are important in explaining learning processes.

In the behaviouristic framework learning is seen as a passive process that is measured through a change in behaviour. Although behaviourism cannot explain all types of learning – mainly due to their rejection of the role of mental processes – some of the principles of behaviourism are still applicable today. Examples of the value of behaviourism are observed in the setting of measurable goals (learning outcomes) that assist students in determining the expectations set, but also in measures to determine if the goals have been attained (assessment) and in providing feedback to students to allow them to change or correct learning actions. Furthermore, the sequencing of learning is important from a behaviourist viewpoint. Aspects related to skills development, accountability demands on higher education and evidence-based practices are all rooted in behaviourism (Ally 2004:8, Funderstanding 2001:¶1, 8, Learning Theories 2008:¶4, McInerney 2005:588, Mergel 1998:20, Merriam *et al.* 2007:280-281, Toohey 1999:49).

Cognitivism, the next to be discussed, brought a completely new view to learning.

3.2.2 Cognitivism

Where behaviourism views the individual as a programmed animal with a focus on observable behaviour, cognitivism regards learning as an internal process focusing on the way information is processed (Ally 2004:8). Cognitivism is based on the following two assumptions, according to Merriam *et al.* (2007:284-285):

1. Learning is an active information processing process.
2. Prior knowledge is important in the learning process.

According to Ally (2004:7, 8, 14), cognitivism focuses on two important aspects of learning, namely memory and individual differences. Theorists in this paradigm are interested in how information is interpreted and transformed in the cognitive structures and focus on aspects like memory, motivation, thinking and metacognition, as well as individual differences between students (Ally 2004:7,8,14). Research related to information processing consists of Ausubel's view on meaningful and rote learning and Bloom's taxonomy, that focuses on higher-order learning, while Marton and Säljö's studies in the 1970's and Kolb's work on learning styles

address the second aspect, namely individual differences (Ally 2004:8-15, Learning Theories 2008:¶4-5, McInerney 2005:587, Merriam *et al.* 2007:286, Toohey 1999:56).

According to cognitivism the quality of the learning will depend on the amount of information processed (and stored in the long-term memory) and strategies that support high-level processing. In order to achieve this on a practical level, cognitivism advocates, among others, the use of advance organisers to focus students' attention, the chunking of information to prevent information overload, utilising strategies to promote deep learning, and the matching of the content to be learnt with existing knowledge as a foundation for new knowledge. Individual differences, according to the cognitivists, not only include designing activities that accommodate individual learning styles but also different strategies to motivate students to learn, encouraging students to develop metacognition and applying their learning to real-life contexts to assist with the transfer of knowledge (Ally 2004:10-12, 15-17).

Constructivism, as discussed below, shows influences from both behaviourism and cognitivism.

3.2.3 Constructivism

Behaviourism and cognitivism followed logically on each other as objectivist approaches to learning, where learning is viewed as an external process in which learners only have to internalise knowledge through lectures by the teacher (Siemens 2004:2, Valcke 1999:18). Constructivism borrows from both behavioural and cognitive psychology and accepts multiple viewpoints.

The basic assumption of constructivism is that learning occurs through the construction of meaning by interpreting information using students' personal reality. Learning is viewed as an active process where learners create their own knowledge and also decide what to learn. In constructivism the prominence is on *what students do* in constructing knowledge through the activities used in the learning situation. Therefore, in this paradigm the learner is central in the learning process (Ally 2004:18, Biggs 2003:13). Learning is, furthermore, regarded as a subjective process because it is based on the experiences and prior knowledge of the learner as well as the context in which the learning takes place – also referred to as situated learning (Ally

2004:7, 18, Learning Theories 2008:¶4-5, Siemens 2004:2). Laurillard (2002:67) points out that all views on constructivism share the following characteristics:

1. Learning is regarded as an active process of constructing knowledge.
2. Instruction must support the construction of knowledge.

Further expansions in the field of constructivism include individual constructivism, social constructivism, cognitive constructivism and postmodern constructivism (Biggs 2003:12, McInerney 2005:592). Beyond the initial description, constructivists differ about aspects of what is regarded as reality, the importance of using personal experiences in the learning process and whether meaning is created personally or in a social context (Merriam *et al.* 2007:291). While individual or personal constructivism views the construction of knowledge as a personal endeavour incorporating the learner's own experience, social constructivists see knowledge creation as the product of social interaction where knowledge is exchanged with other learners to create a higher level of understanding (Mergel 1998:8, 10, Valcke 1999:19). In the personal constructivist approach the role of the teacher would be to create experiences that conflict with the learner's current viewpoint, while in the social constructivism situation, social interaction and group processes will be encouraged (Dean 2004:6).

Constructivist principles are applied in the teaching and learning situation by creating active learning environments where learners can construct their own knowledge instead of being passive and just receiving knowledge from a teacher. Furthermore, constructivism places a huge emphasis on aspects such as interaction through collaborative and cooperative learning; providing opportunities to reflect on information; and focusing on real life scenarios (Ally 2004:18-20). The pedagogical focus is therefore on self-directed, hands-on activities, with an emphasis on discovery (Conole, Dyke, Oliver & Seale 2004:19).

Due to the influence of technology and the knowledge economy, the three main learning theories are often regarded as outdated in the new environment; consequently, a new way of looking at learning was proposed. This is where connectivism comes to the fore.

3.2.4 Connectivism as a possible answer for contemporary society

George Siemens (2004:3) comments on the relevance of the three major learning theories in a technologically networked world. Although Siemens acknowledges that theorists adapt theories when new contexts are added to the social environment, he argues that when confronted with major changes, smaller adaptations are not sufficient and that innovative thinking is needed. According to Siemens (2003:¶7-8, 15, 2004:3), the older theories only look at learning in formal settings and do not explain learning that happens everywhere, also known as informal learning. Informal learning occurs when the individual “participate[s] in informal learning between communities of practices, personal networks and work-related tasks” (Giesbrecht 2007:¶1). Siemens (2003:¶7-8, 15) argues that in contemporary society we need knowledge structures that are adaptive, self-sufficient and more permanent than the traditional format that we found in formal courses. In a similar vein, Giesbrecht (2007:¶1) indicates that the characteristics of the new learning environment are learning ecologies, communities and networks. These learning ecologies assist in knowledge creation, the sharing of knowledge, maintaining connections with others and encourage lifelong learning. According to Giesbrecht and Siemens, learning ecologies provide a solution for the need of knowledge structures beyond formal learning. Siemens defines a learning ecology as “an open system, dynamic and interdependent, diverse, partially self-organising, adaptive and fragile” ... “that allows for interaction, sharing, dialoguing and thinking together” (Siemens 2003:¶23, 26).

Siemens (2004:1) suggests connectivism as a learning theory for the digital age. According to him, knowledge doubles every year and a half and this negatively affects learning if learning is situated in an individual. Although the individual is the starting point, the “new” knowledge is fed into a network (e.g. the Internet) that provides learning opportunities to the individual. Siemens refers to this as “knowledge development” in order to keep the acquired knowledge relevant to the learner. He emphasises that in today’s networked society it is more important to know what knowledge to use than knowing. The learner also needs to be adaptable to change decisions when the underlying conditions change. In the knowledge economy the learner therefore needs to form useful information patterns (Siemens 2004:3-5).

Connectivism is therefore based on the premise that everything is connected to everything and that the learner must recognise patterns to make meaning of a vast amount of knowledge by means of connections between people and technology (Giesbrecht 2007:1, Siemens 2004:3-5). The eight principles of connectivism proposed by Siemens (2004:4) can be divided in four categories, according to Verhagen (2006:¶13). The fourth category consists of the last principle only, namely that learning may reside in non-human appliances. The other seven principles are divided in three categories, namely educational aims, premises for the curriculum and learning processes that must be facilitated, as summarised below:

- **Educational aims**
 - Capacity to know is more critical than what is currently known (focus on skills).
 - Ability to see connections between fields, ideas and concepts is a core skill (skills).
- **Premises for the curriculum**
 - Learning and knowledge rests in diversity of opinions.
 - Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.
 - Nurturing and maintaining connections is needed to facilitate continual learning.
- **Learning processes that must be facilitated**
 - Learning is a process of connecting specialised nodes of information sources.
 - Decision-making is a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality.
- **Learning may reside in non-human appliances**

There are several points of criticism against connectivism. Verhagen (2004) does not acknowledge connectivism as a valid learning theory, but regards it as a pedagogical viewpoint on a curriculum level. Verhagen (2006:¶15) argues that the division of the principles in the first three categories confirms connectivism as a pedagogical viewpoint and not a new theory. He also states that a theoretical theory is more concerned with *how* people learn than with what people should learn (Verhagen in Ireland 2007:¶14). Secondly, Verhagen (2006:¶15) and Kerr (2006:¶16-7) point out that connectivism does not add something new that justifies a new

theory, but that its principles are also present in other learning theories. Kerr (2006:¶8) further criticises connectivism for not considering the other major learning theories (behaviourism, cognitivism and constructivism) as relevant. Verhagen (2006:¶10) also comments on the notion that learning can happen in non-human appliances. He points out that the learning (programming) of non-human appliances “has nothing to do with human learning, except that they can take over some cognitive tasks from people when generating knowledge”.

From the above discussion, it is clear that although there are similarities among the various paradigms, each of them has contributed to our understanding of how students learn. Based on this notion, Pratt (2002:5) advocates against the use of only one paradigm by arguing that not one single learning theory dominates in what constitutes good teaching and learning. Similarly, Ally (2004:7) argues that the three major learning theories can be used as a “taxonomy for learning”. According to him behaviourist principles can be used to teach the basics (facts), cognitivist principles to teach the “how” (processes and principles) and constructivist strategies to teach the higher-order thinking or the “why”. Such a taxonomy for learning can therefore be useful in showing the relationship between the different paradigms and indicating the importance of considering all paradigms in reflecting on what constitutes effective learning.

The viewpoint of connectivism as a potential new learning theory can be seen as a response to the forces of change related to the influence of technology and the knowledge economy. Connectivism emphasises the idea that learning can take place everywhere. The value of connectivism therefore lies in the notion that in the learning process the learner must create connections that could be in “many actual and virtual locations”. The learning is not only reflected in the knowledge that is created but also in the maintenance of these connections (Verhagen 2006:¶4). Verhagen (2006:¶4) regards this as the “learning skill that is essential for lifelong learning”. From a personal point of view, I do not agree with the notion of Siemens (in Ireland 2007:¶1) that the older learning theories should be replaced, but I do agree that we need to consider learning in multiple ways. As Siemens (2003:¶7) notes, learning is multi-faceted and the context is important in determining the most successful methodology.

The different learning theories provide a valuable foundation for understanding the learning process. In the next section, the influence of the learning theories on contemporary views of student learning will be explored.

3.3 DEEP AND SURFACE LEARNING

Biggs (2003:11) indicates that for the last 20 years the main focus of research in educational psychology has been on student learning. Ramsden (in Nicholls 2002:30) regards student learning as a process taking place between the student and the content, referred to as approaches to learning. Approaches to learning can be defined as “how individuals experience and organize the subject matter or learning task; it is about ‘what’ and ‘how’ they learn, rather than how much they remember”. Marton and Säljö (in Biggs 2003:12) identify two learning approaches that students can adapt to learning, namely deep and surface learning. This was further enhanced by research on teaching that supports a deep learning approach. The approaches to learning will first be discussed followed by teaching that supports deep learning approaches.

3.3.1 Deep and surface approaches to learning

Researchers from various parts in the world (Marton & Säljö from Sweden, Entwistle in Britain and Biggs in Australia) have independently studied the way students learn and found consistent results with regards to the so-called deep and surface approaches to learning – as identified by Marton and Säljö (Biggs 2003:12, Toohey 1999:9). Initially the studies of Marton and Säljö (1976) not only focused on *what* students learn (the meaning aspect in terms of deep and surface approaches) but also on a structural aspect, viz. *how* students organise the learning task, either keeping the structure and focusing on the whole or focusing on parts (known as holistic and atomistic learning respectively). However, in practice the two aspects (meaning and structure) are integrated (Ramsden 1992:42-44). These approaches are not stable characteristics related to students, because students can employ any of the two approaches; usually the choice will be based on the student’s perception of the learning task, previous experience, the pressure of the learning situation and even individual characteristics. It is

therefore possible for the same student to use different approaches (Ramsden 1992:44, 49, Toohey 1999:10).

A surface approach is regarded as the student's intention to get the task done with the least trouble in meeting the prerequisites to pass a module. Only the bare minimum is done in order to pass the course. Students using this approach are usually unable to see the bigger picture or to apply the information to other contexts (Biggs 2003:14-15). Some of the characteristics of a surface approach would be rote learning without any integration with prior knowledge, low levels of cognitive processing, pressure just to complete the task at hand, learning unrelated facts (atomistic learning), no reflection and an inability to identify principles from examples (Nicholls 2002:32).

A deep approach to learning is seen on the opposite end of the continuum where the student engages with the task and focuses on the underlying meaning. In this approach, students usually have a desire to connect knowledge to existing knowledge by evaluating ideas and trying to identify central ideas and then connecting them with prior learning experiences. The focus is therefore on the details as well as the bigger picture. Where learning using the surface approach is seen as a boring activity that needs to be finished, students using a deep approach are usually positive and enthusiastic about the learning (Biggs 2003:15-17). Students employing a deep approach will also seek meaning, are concerned with the application of the information in real life and will show high levels of cognitive processing (Nicholls 2002:31). The main differences between the surface and deep approach are summarised in Table 3.1.

The influence of deep learning on student learning is illustrated by Ramsden (1992:53-58) when he provides examples of studies that have consistently concluded that a deep learning approach is associated with higher-order levels of cognition or outcomes. In these studies, students using a deep approach to learning also did better academically and spent more time on learning tasks. Similarly, McMahon (2005:35) indicates that students who adopt a deep approach are better able to apply information in complex situations in the real world. According to him, these students arrange their knowledge around principles that enable them to use this knowledge in complex situations. Interestingly enough, research by Biggs (in Toohey 1999:12-

13) revealed that students in their final years of study did not use deep approaches to learning; instead, they were more than likely to change to a surface approach.

Table 3.1: Differences between deep and surface approaches to learning

Surface approach		Deep approach
Focus on signs (e.g. individual words)	Intention of student	Focus on understanding
Focus on unrelated parts of the tasks Focus on detail External obligation (just want to complete the task)	Task	Maintains the structure of the task Focuses on bigger picture but keeps detail in mind Internal emphasis
Associate facts and concepts without reflecting on them (memorising)	Association	Relate facts and concepts to prior knowledge and everyday experience
Do not distinguish between evidence and argument	How information is approached	Relate and distinguish between evidence and argument
Distorted	Structure	Coherent whole

Source: Compiled from Entwistle and Marton in Nicholls (2002:31-32).

In order to promote deep learning it will be important to focus on teaching that enhances deep learning.

3.3.2 Teaching that enhances deep learning

Hativa (2000:11) defines effective teaching as “teaching that brings about effective and successful student learning that is deep and meaningful” while Biggs (2003) accentuates guiding students toward adopting higher levels of thinking. Teaching should therefore encourage a deep approach to learning that focuses on higher-order thinking. Hativa (2000:1) argues that students who are taught well learn better than students that are not. Teaching is therefore not regarded as the end but a tool in creating successful learning (Luckett 2005:11). Shuell (in Biggs & Tang 2007) identifies the “fundamental task” of the teacher as to “engage students in learning activities that are likely to result in the achievement of learning outcomes.”

The question that arises is how students can be engaged in teaching to promote the adoption of deep approaches to learning.

Prosser and Trigwell (1999:153) studied the way teachers approach a teaching situation. They concluded that the decision on the approach that teachers will adopt is dependent on their perceptions of their teaching situations, which consist of five factors, namely autonomy (of the teacher), class size, students' ability to think and reason, departmental support for teaching, and teaching workload (Kaartinen-Koutaniemi & Katajavuori 2006:200, Prosser & Trigwell 1999:151-152). Resulting from their research, Prosser and Trigwell (1999:153-154) identified five approaches that a teacher can adopt:

1. A teacher-focused strategy with the intention of transmitting information to students without active student engagement.
2. A teacher-focused strategy with the intention that students acquire the concepts of the discipline without student engagement.
3. A teacher/student interaction strategy with the intention that students acquire the concepts of the discipline through engaging in the teaching-learning process.
4. A student-focused strategy aimed at students developing their conceptions.
5. A student-focused strategy aimed at students changing their conceptions.

These five approaches can be put on a continuum, where approach one and five represent the two opposite ends of the continuum and the other three are situated in between. The one end of the continuum represents a teacher-focused approach that focuses more on the delivery of content; the other end represents a student-focused approach that takes a developmental perspective (Hativa 2000:44). Prosser and Trigwell (1999:154) indicate the similarities of the approaches of teaching to the approaches to learning that students adopt, i.e. deep and surface learning. Where teacher-focused strategies result in surface learning, student-focused strategies will result in deep learning. The teacher-focused approach relates to the more traditional approach where the focus of teaching is on the transmission of knowledge. A transmission model focuses on the content and students play a passive role. Prior experiences and knowledge is not seen as important or useful to the teaching situation. Student-focused

approaches, on the contrary, focus on the construction of knowledge through using higher-order thinking skills, where students are active and collaborating with the content (Kaartinen-Koutaniemi & Katajavuori 2006:199-200).

Kaartinen-Koutaniemi and Katajavuori (2006:200) observe that teachers can support students in adopting a deep approach to learning, not by trying to change the student, *but by changing the learning environment*. In this regard they note that from the teacher's side a positive attitude, interest in the subject and a sincere interest in the student can be helpful in cultivating a student-centred approach that will lead to deep learning.

Biggs (2003:25), as well as Kaartinen-Koutaniemi and Katajavuori (2006:199), show the relationship between surface learning and a teacher or content-centred approach (transmission model) on the one hand, and deep learning and a student-centred approach on the other. Students taught by teachers using a teacher-centred approach will be inclined to adopt a surface approach, while lecturers with a student-centred approach will foster deep learning. In fact, where students are actively involved in building and reforming knowledge as they deal with new information, they will reflect on their own thinking (metacognition) and develop thinking and reasoning skills regarding knowledge (personal epistemology). It must, however, be kept in mind that it takes time to develop these qualities and that it demands the active involvement and reflection of students in their own learning processes (Kaartinen-Koutaniemi & Katajavuori 2006:200-201).

While behaviourism and cognitivism have provided some important insights in learning that are still valuable, constructivism with all its permutations presents a contemporary perspective relevant in the changing environment. It advocates a change in the way in which we regard learning. The concept of deep learning and a student-centred approach to learning coincide with the constructivist principles related to the construction of knowledge through an active and collaborative process with a focus on application. Connectivism provides even more food for thought in acknowledging how technology is influencing the way in which we teach and learn. Connectivism also takes learning outside the classroom – indicating that learning

happens everywhere and lays the foundation of lifelong learning with a focus on developing the right skills in a networked world.

An overview follows of the different perspectives on effective teaching and learning that were developed for various modes of delivery.

3.4 PERSPECTIVES ON EFFECTIVE TEACHING AND LEARNING IN VARIOUS MODES OF DELIVERY

The preceding discussion provided an overview of the foundations of student learning. In this section, the discussion focuses on various perspectives on effective teaching and learning that were developed for a specific mode of delivery, namely

- Principles/guidelines developed for face-to-face settings
- Principles/guidelines developed for an online setting
- Principles/guidelines developed for a blended setting

The first discussion section will focus on principles and guidelines developed specifically for face-to-face environments.

3.4.1 Perspectives on effective teaching and learning for face-to-face learning environments

There are two sets of perspectives on effective teaching and learning in a face-to-face environment. The first group of authors listed below (Chickering & Gamson, Ramsden, and McMahon) identified the principles for effective teaching and learning, while the second group (Laurillard, Biggs, and Kaartinen-Koutaniemi & Katajavuori) focused more on the process of designing effective learning.

Principles for effective teaching and learning:

- Chickering and Gamson's seven principles of good practice in undergraduate education (1987)
- Ramsden's six key principles of effective teaching in higher education (1999)
- McMahon's seven maxims for practice (2005)

Processes in the design for effective teaching and learning:

- Laurillard's conversational framework (1999, 2002)
- Biggs's 3P model of teaching and learning (2003)
- Kaartinen-Koutaniemi and Katajavuori's main elements in teaching and learning model (2006)

In the discussion, the similarities between the principles identified by Chickering and Gamson, Ramsden and McMahon will be highlighted. The seven principles of good practice by Chickering and Gamson laid a firm foundation stretching over more than two decades. They constitute a good point of departure.

3.4.1.1 Seven principles of good practice by Chickering and Gamson

One of the most influential and directional perspectives regarding effective teaching and learning is the eminent seven principles for good practice in undergraduate education identified by Art Chickering and Zelda Gamson in 1987. Their initial conceptualisation was based on the principles used by CAEL (Council on Adult Experiential Learning) and were then brainstormed with researchers in the field, incorporating 50 years of research on this topic (Padavano & Gould 2004:3, Chickering & Gamson 1987:1). Throughout the years, various studies confirmed the seven principles as a benchmark. Further research indicated that these principles are applicable to teaching in general and not only to undergraduate education (Bangert 2004:221, Robertson, Grant & Jackson 2005:74). The principles support deep learning and student-centred approaches that reflect a constructivist paradigm (Bangert 2004:220-221). In this discussion, the seven principles will be used as an important directive or guideline due to the deep and student-centred approaches they support and the fact that they are applicable to face-to-face as well as online modes of delivery.

(a) Principle 1: Promoting contact between student and faculty

Chickering and Gamson (1987:4) point to the importance of contact with students within and beyond the boundaries of the classroom in order to keep students motivated and committed to

learning. When teachers are interested in their students, they assist in developing noncognitive skills (like values and self-reflection) through emotional support, which results in more student involvement in learning. Bangert (2004:222) describes the teacher characteristics that assist in the building of relationships with students as “friendliness, interest in student learning, enthusiasm, good communication skills, and accessibility to students”. Where these characteristics are experienced, a learning climate of trust is created where students will feel more comfortable to approach teachers with their questions.

(b) Principle 2: Developing reciprocity and cooperation between students

Through social interaction and collaboration on learning tasks, students form a community of learning that increases their involvement in the learning process and help to encourage a deep approach to learning. Some methods that can support the development of reciprocity and cooperation are study groups, collaborative learning, group problem solving and discussion of learning tasks (Chickering & Ehrmann 1996:5, Chickering & Gamson 1987:4).

(c) Principle 3: Encouraging active learning

Chickering and Gamson (1987:4) propose that learning happens when students “talk about what they are learning, write about it, relate it to past experiences, and apply it to their daily lives. They must make what they learn part of themselves.” Students must immerse themselves in the learning process. Research concludes that active learning develops critical thinking skills (Chickering & Gamson 1987:2, McMahon 2005:41).

(d) Principle 4: Providing prompt feedback

“Knowing what you know and don’t know focuses learning” (Chickering & Gamson 1987:4). This statement refers to reflecting on one’s own learning process in order to diagnose one’s developmental areas. Feedback from the teacher is not only useful after the learning process, but it is also very useful in assessing a student’s current knowledge. Feedback assists students in monitoring their progress while they are busy with the learning process. Feedback does not

have to happen only at the end of the learning process, but has much more impact if it is used in a formative way (Chickering & Ehrmann 1996:5).

(e) Principle 5: Spending time on task

As Chickering and Gamson (1987:4) put it: Time + energy = learning. This indicates the importance of spending time on learning activities that will result in better learning. Research shows that when students perceive the workload as high, they resort to surface learning approaches (McMahon 2005:36). If students are interested in a course they will usually spend more time on the task and are intrinsically motivated and curious. Technology assist students in improving the time spent on a task because of the access to information and convenience in terms of the student's own schedule (Chickering & Ehrmann 1996:6). Planning time can be used as an advance organiser in learning material in assisting students to develop their own time management skills and in becoming more self-directed.

(f) Principle 6: Creating high expectations

According to Chickering & Gamson (1987:5), having high expectations of students develops their metacognitive skills. This forces them to measure themselves and reflect on their own learning. One way to inform students of such expectations is through the communication of learning outcomes. The level of learning is represented in the learning outcomes through, for example, Bloom's taxonomy of learning. Learning outcomes that focus on higher-order levels will support the development of deep learning (Forehand 2005:¶11, McMahon 2005:38, Turner 2002:37).

(g) Principle 7: Respect diverse talents and ways of learning

This principle emphasises the differences among students in their learning styles, taking into account factors like ethnicity, gender etc. The learning environment has to be designed to accommodate various approaches and styles to learning while diversity amongst students needs to be appreciated. Bangert (2004:226) also refers to other differences like the prior

knowledge of students and their cognitive processing level, personality and beliefs about learning.

Contribution to the study:

These seven principles, formulated in 1987, still form the foundation of contemporary views on effective teaching and learning. They are still recognised in more contemporary views regarding teaching and learning that transcend the face-to-face environment for which they were originally developed.

The timelessness of these seven principles becomes clear when other sets of principles related to the face-to-face environment are considered.

3.4.1.2 Ramsden's six key principles of effective teaching in higher education

For Ramsden (1992:86) effective teaching takes place in an environment where deep learning outcomes are promoted and achieved through high quality student learning. This point of departure is clearly illustrated in his six principles of effective teaching (Ramsden 1999:96-102):

(a) Ensuring student interest and the provision of skilled explanation

Ramsden (1992:96-97) points out that when students are interested in what they learn, they will enjoy working hard on it. He describes the consequences of student interest as "we come to feel that we can in some way own it and use it to make sense of the world around us" (Ramsden 1992:96). In terms of the second part of this principle, Ramsden (1992:96) indicates that it is part of the job of a teacher to explain complex tasks in an uncomplicated manner to students. He points out that this can be learnt.

(b) Demonstrating a concern for and respect for students and student learning

Ramsden (1992:97) summarises this principle as follows:

Good teaching is nothing to do with making things hard. It is nothing to do with frightening students. It is everything to do with benevolence and humility; it always tries to help students feel that a subject can be mastered; it encourages them to try things out for themselves and succeed at something quickly....

Related to generosity are honesty and interest in teaching, versatility in teaching skills, and availability to students.

(c) Ensuring appropriate assessment and feedback

This principle emphasises the use of a variety of assessment techniques as well as a focus on higher-order thinking and not asking questions that refer to lower-order skills like memorisation (Ramsden 1992:99). In terms of feedback, Ramsden (1992:99) refers to authoritative studies done in this regard where the quality of the feedback that were given to students on their progress were regarded as a key feature in good teaching.

(d) Giving clear goals and an intellectual challenge

Ramsden (1992:99-100) describes the role of the teacher as a balancing act between providing freedom to the students and requiring discipline. He indicates that high expectations produce higher student performance. Clear goals and an intellectual challenge are the means of setting these high expectations.

(e) Encouraging independence, control and active engagement

Students that feel that they are in control of their learning, learn better and enjoy the experience. This principle acknowledges that students must be engaged in the content of the learning through cooperation and collaboration with other students (Ramsden 1992:101-102). Ramsden (1992:101-102) suggests that to foster this feeling of independence and control, learning tasks should make provision for individual differences and create appropriate learning tasks for the students' level of understanding.

(f) Learning from students

Learning from students refers to teachers that are open to change and to listening to students, and who do not take the teaching and learning process for granted. The implication then is the constant evaluation and development of teaching. Learning from students shows the relationship that should be stimulated by the contact between students and faculty.

Contribution to the study:

Although all the principles identified by Ramsden are addressed by Chickering and Gamson, Ramsden underlines different facets of some of the principles and expands on others:

- Ramsden acknowledges feedback, but regards *assessment* as part of the principle of feedback.
- Together with assessment, a variety of techniques and a focus on higher-order learning in assessment.
- The focus is to a greater extent on *developing independent learning*, thus student self-regulation.
- Ramsden further includes *clear goals* as an important aspect of the setting of high expectations.
- Two of the principles focus on the *role of the teacher* in the teaching process, namely the first principle of providing a *skilled explanation* and the last one on *learning from students* that implies receiving feedback from students and reflecting on the feedback to improve teaching.

The third perspective on the principles of effective teaching and learning is McMahon's seven maxims for practice that will also be presented against the background of the seven principles of good practice.

3.4.1.3 McMahon's seven maxims for practice

McMahon (2005:34) is interested in understanding what would promote deep learning. His seven maxims provide suggestions to encourage deep learning. He points out that the maxims should be used "as a guide [and] not a definitive set of rules" (McMahon 2005:42).

- (a) Present students with a workload that they can see is manageable within the time constraints of the programme

McMahon (2005:36) refers specifically to notional learning hours when referring to workload. However, he indicates, "the relationship between workload and student approaches (deep and surface learning)...is complex". McMahon identifies two factors that influence the approach to

learning, the workload and the perception of the workload. Students' perceptions of the workload create a subjective view that affects their approach to learning more than the actual workload. The perception of a heavy workload and actual heavy workloads can lead to the adoption of a surface approach to learning (McMahon 2005:36). This maxim relates to Chickering and Gamson's Principle 5: Spending time on task. McMahon also suggests paying attention to the feedback of students in evaluating the workload. This idea further corresponds with Ramsden's last principle on learning from students.

(b) Design out information overload

McMahon (2005:36-37) points out that his second maxim is related to, but different from the first. Students often feel overwhelmed with the amount of information that they have to deal with and will resort to ways to reduce the information overload, for instance adopting a surface approach to the learning process. From a student perspective, McMahon (2005:37) argues for the need of skills that will enable students to critically evaluate and select the most relevant information. Teachers can also prevent information overload, for example by providing guidance, not overwhelming students and supporting the development of skills in information management. In both maxim 1 and 2 the focus is not so much on making students aware of the time that they need to spend on the learning, but on the responsibility of the teacher in the design of the learning.

(c) Ensure that students have a clear understanding of what is required from them

To McMahon (2005:37) a "clear understanding" refers to making the "intended learning process and the intended learning results" clear to students. This is achieved through using learning outcomes and comprehensive and clear learning materials. Learning outcomes contain "domains of 'knowledge and understanding', 'key skills', cognitive skills and subject specific skills" (McMahon 2005:38). In this regard, a taxonomy such as that of Bloom is suggested in order to achieve higher-order learning outcomes and promote deep learning.

(d) Ensure that the assessment regime rewards evidence of higher-order thinking and learning

McMahon (2005:39) highlights assessment as the most important factor influencing a student's decision to adopt a deep or surface approach to learning. He regards aligning the learning outcomes with the assessment as important. According to him, the assessment should test and reward higher-order learning in order to encourage deep learning (McMahon 2005:39).

(e) Require active participation

McMahon (2005:41) argues that active participation encourages a deep learning approach, supports student performance and serves as a motivator. He further shows that collaboration with others enhances critical thinking. Active participation corresponds with the principle of Chickering and Gamson on encouraging active learning (Principle 3).

(f) Ensure that students have as much choice as possible

Choice relates to providing opportunities to students to use their own ways of learning in line with the types of learning activities and assessment tasks provided. This is also an important aspect in adult learning where choice is associated with their self-worth (McMahon 2005:41).

(g) Give "smart" feedback to students

This maxim corresponds with the principle of Chickering and Gamson regarding providing prompt feedback (Principle 4). McMahon however, focuses more on how the feedback should be given. He indicates that effective feedback must be "timely, perceived as relevant, meaningful, encouraging and offer suggestions for improvement that are within a student's grasp." According to him, feedback can come from many sources, amongst others from the students, and could support the development of the student's self-reflection skills (McMahon 2005:42).

Contribution to the study:

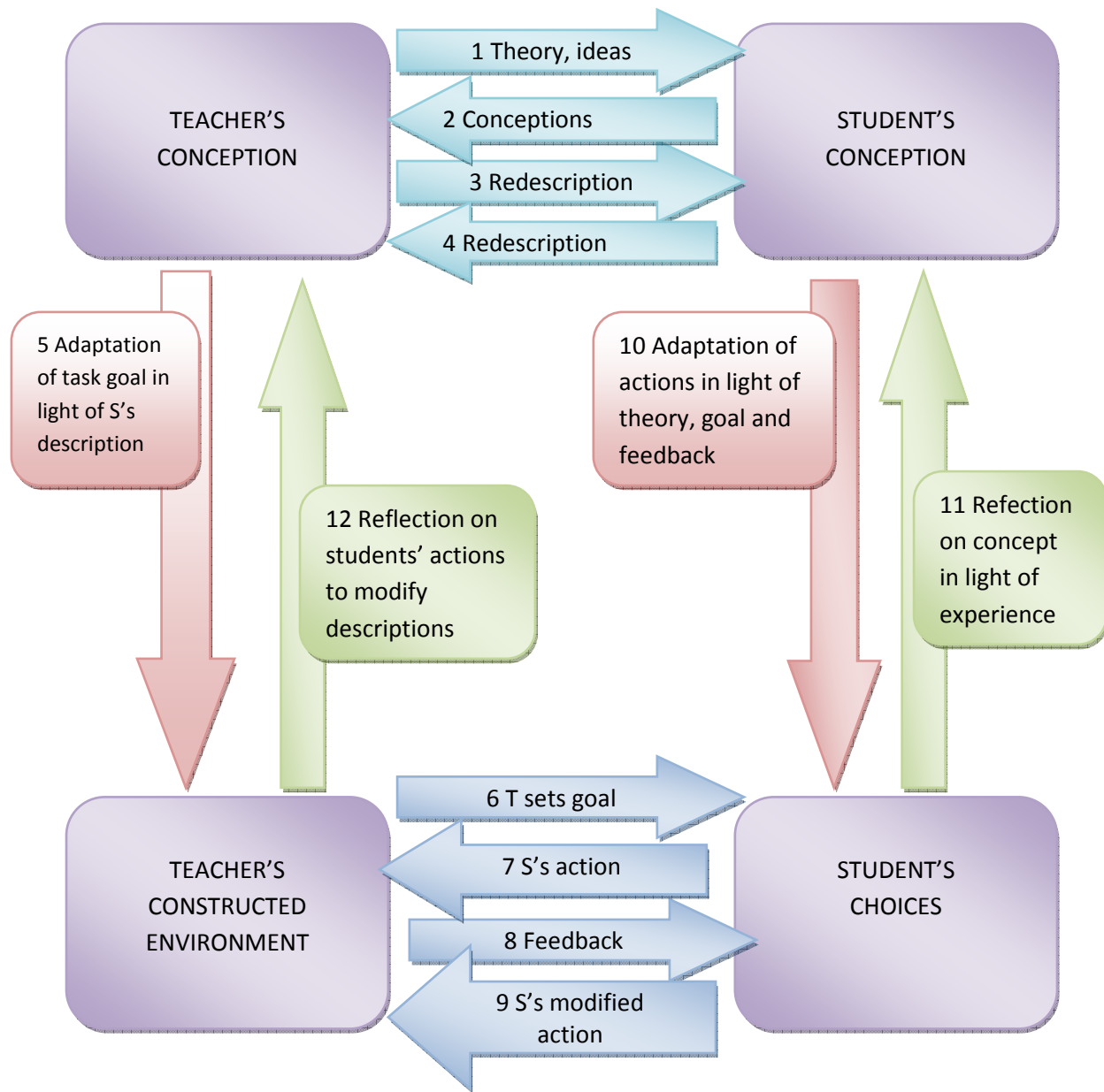
McMahon's seven maxims echo the principles identified by Chickering and Gamson but expand on some of the principles in the following way:

- The use of *learning outcomes* to provide guidance to students and set expectations.
- Expanding the principle on providing prompt *feedback* to include a wider set of characteristics (relevant, meaningful, encouraging, suggestions and timely).
- *Assessment* should focus on higher-order thinking and learning.
- The *teacher has a responsibility* in the design of the learning not overloading students and also learning from and providing students with the necessary skills (e.g. information management).

In the next section we move from effective teaching and learning presented as principles or maxims to views presented as frameworks or models.

3.4.1.4 Laurillard's Conversational Framework

Laurillard (1993:102, 2002:87) suggests that her Conversational Framework, illustrated in Figure 3.2, is applicable in "any academic learning situation" but she also specifies that it is not intended for informal learning. Her framework aims to show the interaction between the teacher and student. It furthermore describes the activities that need to be completed by the teacher and student through the use of what she refers to as educational technology (e.g. audio-visual media, multimedia resources, tutorial programmes etc.) (Laurillard 1993:99). The focus of the framework is on "the principles [that are needed] to generate a teaching strategy" and not on the choice of educational technology (Laurillard 1993:102, 2002:83). This framework also takes into account the conceptions and perceptions of the teacher and student, as well as the changes in the student's schema through reflection and interaction with the information (Figure 3.2).



Source: Laurillard (2002:87).

Figure 3.2: Laurillard's Conversational Framework

Laurillard describes the teaching and learning process as a dialogue consisting of four characteristics, namely a discursive process – “describing and redescribing conceptions” (indicated by activities 1-4 in Figure 3.2); an adaptive process – “internal activities to adapt actions at task level based on descriptive process” (activities 5 and 10 in Figure 3.2); an

interactive process – “activities at task environment to achieve learning goals” (activities 6-9 in Figure 3.2); and a reflective process – “internal activities where the student and teacher reflect on the interaction” (activities 11 and 12 in Figure 3.2). These characteristics reflect the tasks and responsibilities of both teachers and students in the learning situation (Laurillard 1993:94, 2002:86). Laurillard (2002:89) points out that the “core structure of the conversational framework must remain intact” for learning to take place. This core structure consists of the dialogue that must take place and the actions that should be performed.

It is interesting to note that Laurillard’s conversational framework addresses all Chickering and Gamson’s seven principles for good learning, except Principle 5: Spending time on task. However, if the student goes through the process as suggested by Laurillard, there is an expectation that time will be spent on the task.

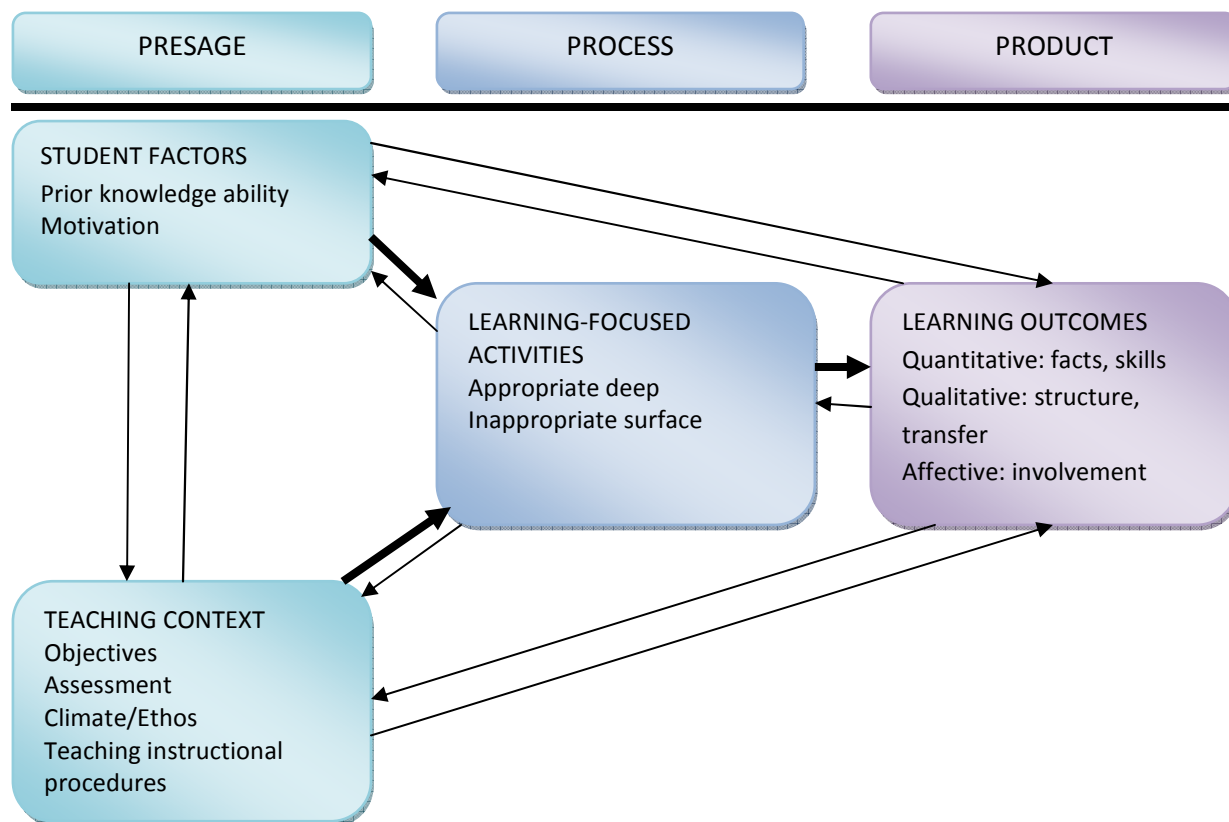
Contribution to the study:

Laurillard’s contribution in summary:

- The focus on an *iterative conversation* between the teacher and the student where feedback and reflection is encouraged (*continuous interaction and support*)
- The identification of *four types of activities* (teaching strategies) (discursive, adaptive, interactive and reflective) that should take place for effective learning.
- The identification of the *responsibilities of both the student and teacher* in the teaching and learning process.

3.4.1.5 Biggs’s 3P model of teaching and learning

The model presented by Biggs (2003:19) is built on a model developed by Dunkin and Biddle to include the approaches to learning. The model divides the teaching process in three stages: a presage stage, process stage and product stage. The 3P model is illustrated in Figure 3.3.



Source: Biggs (2003:19)

Figure 3.3: Biggs's 3P model of teaching and learning

The presage stage involves the elements of the teaching context and factors that will influence students' approach to learning. The second stage (process stage) focuses on the learning and the approach that students will adopt in the learning process (deep or surface). The interaction between the student factors and teaching context (in the presage stage) will determine the student's approach to learning. The last stage (product stage) includes the product of learning that is reflected in the learning outcomes; these can include knowledge, skills and attitudes. The learning outcomes will be affected by the interaction of the factors in the previous stages (Biggs 2003:19).

Biggs (2003:19) indicates that this model represents a system that is driven by a common goal, viz. student learning. The elements in the system are interactive and not linear. The learning outcome is therefore the result of the interaction between the three levels.

Contribution to the study:

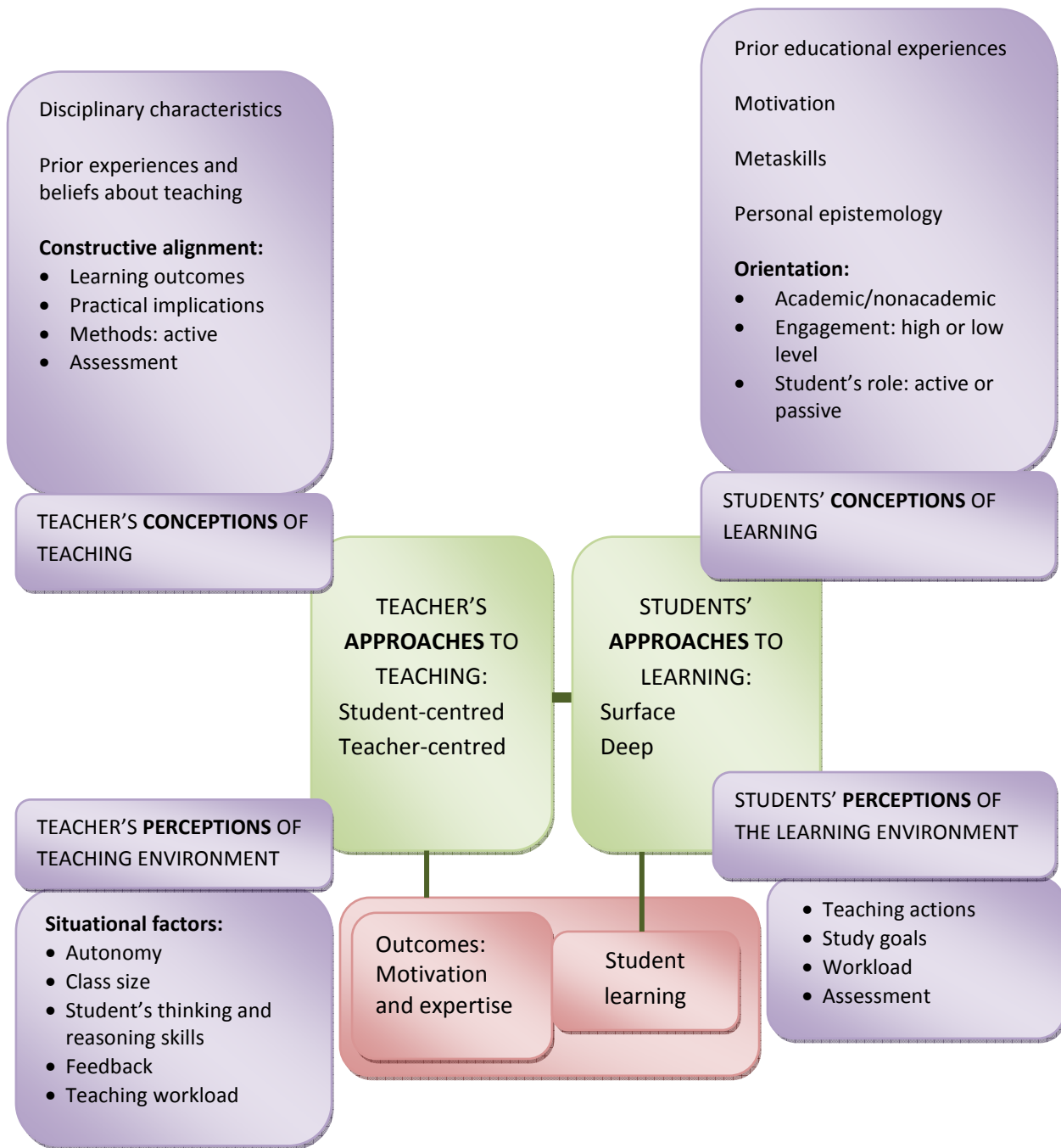
Biggs's 3P model supports Chickering and Gamson's principles on encouraging active learning (principle 3), communicating high expectations (principle 6) through the emphasis on learning outcomes, and respecting diverse talents and ways of learning (principle 7). Biggs's contribution to effective teaching and learning lies in:

- the acknowledgement of learning as an *interactive* system
- the focus on student *learning*
- the influence of the three Ps (Presage, Process and Product) and the influence of the 3P model on the outcome of learning (*alignment of learning process*).
- the focus on the *teacher context* (learning outcomes, assessment, climate and instructional procedures) as an important element in the learning process

The third model to be discussed builds on the model proposed by Biggs. Although it does not identify different stages, it identifies the elements that influence learning in more detail.

3.4.1.6 Kaartinen-Koutaniemi and Katajavuori's model of the main elements in teaching and learning

Kaartinen-Koutaniemi and Katajavuori's model (2006) is more comprehensive than the model developed by Biggs (2003). Their model builds on the model originally developed by Prosser and Trigwell in 1999 (Kaartinen-Koutaniemi & Katajavuori 2006:198). [Figure 3.4]. This model provides a detailed overview of the main elements involved in the teaching and learning process. It illustrates the role of the teacher and student in the learning environment and also indicates the complexity of factors that can influence the teaching and learning situation and the approach (deep or surface by students and teacher-centred or student-centred by teacher) that would be taken by the teacher and student. In their model, Kaartinen-Koutaniemi and Katajavuori (2006:197) point to the relationship between the approaches that teachers usually select and the approaches that students adopt. (Illustrated in Figure 3.4)



Source: Kaartinen-Koutaniemi and Katajavuori (2006:198).

Figure 3.4: Kaartinen-Koutaniemi and Katajavuori's main elements and aspects in teaching and learning

The model highlights the different conceptions and perceptions that teachers and students hold and how these will influence their approaches to learning/teaching. The perceptions of the teacher are influenced by five situational factors as indicated in Figure 3.4.

Kaartinen-Koutaniemi and Katajavuori (2006:200) show that a positive attitude and interest in their subjects are important factors in determining the approach that teachers will adopt in teaching. The conceptions and perceptions of students are also set out in the figure. Biggs (in Kaartinen-Koutaniemi & Katajavuori (2006:202) identifies the value of constructive alignment in encouraging engagement of the student with the learning.

Contribution to the study:

The elements of the teacher's and students' conceptions focus mainly on the seventh principle of Chickering and Gamson, i.e. respecting diverse talents and ways of learning, while the element regarding the perception of the students and teachers is indirectly related to principles 4, 5 and 6 (providing prompt feedback, spending time on task and communicating high expectations). The contribution of this model lies in the emphasis that is placed on:

- the identification of the elements related to the conceptions and perceptions of the teacher and student that influence the approach to learning and teaching that they will adopt (deep or surface learning/teacher-centred or student-centred); and
- the acknowledgement of *constructive alignment* in the engagement in student learning.

3.4.1.7 Overview of perspectives on effective teaching and learning for face-to-face environments

The discussion on the principles and models/frameworks for effective teaching and learning developed for face-to-face settings has made it clear that while the principles can provide guidelines regarding the elements that should be included in the learning process, the models/frameworks suggest a process to follow in teaching (also pointing to the design of learning).

Chickering and Gamson's seven principles for good practice provide a point of departure that is still relevant. However, the more recent sets of principles and maxims and the frameworks and models provide new insights in the design of effective teaching and learning encounters. The principles and maxims identified by Ramsden and McMahon respectively expand on the seven principles. They both regard assessment as an important principle. Not only should the

assessment be appropriate, but McMahon also indicates that assessment must focus on higher-order thinking and learning. Ramsden suggests that feedback should be appropriate, while McMahon further expands on Principle 4: Providing prompt feedback, to include the idea that feedback should not only be prompt but also relevant, meaningful, encouraging and providing suggestions. Furthermore, both Ramsden and McMahon suggest setting clear goals using learning outcomes. Both also explicitly state the role of the teacher in the teaching and learning process. Although the student is central in the learning process, the teacher has certain tasks or responsibilities to support effective teaching and learning. Ramsden argues that teachers should be able to provide skilled explanations and that they must learn from students to improve the learning process. McMahon, on the other hand, indicates the responsibility of the teacher in the design of learning, namely to ensure that students are not overloaded and that they possess the right skills to support deep learning. These aspects correlate with the ideas of the community of inquiry model of Garrison *et al.* (2000:90) that identify the design of the educational experience as one of the responsibilities of the teacher under their discussion of teacher presence. Ramsden also suggests that effective teaching and learning should encourage independent learning that is reflected in student self-regulation.

From a process perspective (sections 3.4.1.4 to 3.4.1.6), the Conversational Framework of Laurillard and the models of Biggs and Kaartinen-Koutaniemi and Katajavuori point to the interaction of the various elements in the teaching and learning process. The models by Biggs and Kaartinen-Koutaniemi and Katajavuori, further, suggest the importance of constructive alignment in effective teaching and learning (i.e. aligning learning outcomes, activities and assessment). Furthermore, the first two models regard the conceptions (characteristics) and perceptions of both the teacher and student as influential in the learning situation, while Biggs also regards the teacher context as important. Biggs's model reflects the shift away from teacher-centred to student-centred approaches, where the focus is on student learning. The community of inquiry model by Garrison *et al.* (2000:88) concurs that the "key participants in the educational process" are the teachers and students. An important contribution by Laurillard's Conversational Framework is the types of activities or teaching strategies (discursive, adaptive, interactive and reflective) that should be present for effective learning to

take place. Laurillard specifies the same responsibilities of the teacher and student as Ramsden and McMahon.

In the following section, the attention shifts to perspectives on effective teaching and learning that were developed for online environments. Again, the focus will be on principles and processes related to effective teaching and learning.

3.4.2 Perspectives on effective teaching and learning in online environments

In this section, different perspectives on teaching and learning in an online environment will be discussed. The perspectives will again be divided into those that focus on principles and those focusing on processes.

Principles or elements for effective teaching and learning:

- Chickering and Ehrmann's *Implementing the Seven Principles of Good Practice with Technology* (1996)
- Marchese's *New Conversations on Learning* (1997)
- Bransford, Brown and Cocking's *Theory on Effective Learning Environments* (1999)
- Merrill's *First Principles of Online Instruction* (2002)
- Carmean and Heafner's *Deeper Learning Principles* (2002)

Processes in the design of effective teaching and learning:

- Salmon's model of teaching and learning online through online networking (2000)

Carmean and Heafner (2002:28) deduced their Deeper Learning Principles from various authors' work, namely Chickering and Ehrmann's *Implementing the Seven Principles of Good Practice*, Marchese's *New Conversations on Learning*, Bransford, Brown and Cocking's *Theory on Creating Effective Learning Environments*, Merrill's *First Principles of Instruction* and Brown's work on *Growing Up Digital*. Brown's *Growing Up Digital* is not a theory or set of principles, but provides background on how technology has changed the way in which people learn. His ideas support constructivism and connectivism. His work will not be discussed here,

as it is integrated in the previous chapter on the changing higher education environment. The various sets of principles will be discussed in chronological order, followed by Salmon's model.

3.4.2.1 Chickering and Ehrmann's Implementing the Seven Principles

With the advent of information technology, the Seven Principles were evaluated and found to be suitable for online environments by Art Chickering and Stephan Ehrmann (1996:1). Bangert (2004:221) cites other studies that concur with the applicability of the principles to online education.

(a) Principle 1: Promoting contact between student and faculty

Technology plays an important role in enhancing contact and communication, not only during formal learning activities through synchronous communication (chats) and asynchronous communication; it also enhances informal contact between the students and teacher e.g. through e-mail. Not only is technology contributing to faster feedback than in distance education but it makes asking questions "more safe" for students (Chickering & Ehrmann 2006:2, 4). Especially in online education, the informal contact that is now possible can help to build a positive virtual classroom climate and allows for more informal interactions, as advocated by the notion of social and teacher presence. Kim, Liu and Bonk (2005:336) point out that it is not only the students that benefit from contact, teachers learn through the contact with students and can use their comments to improve courses.

(b) Principle 2: Developing reciprocity and cooperation between students

Technology assists with reciprocity and cooperation between students because students perceive the online environment as safer in terms of exposing yourself. Online collaboration can be enhanced through carefully constructed activities, e.g. group projects and activities and icebreakers, so that students can get to know each other (Wilkinson, Wilkinson & Nel 2001:137). This observation corresponds with the remark of Chickering and Ehrmann (1996:2): "The extent to which computer-based tools encourage spontaneous student collaboration was one of the earliest surprises about computers." Bangert (2004:225) notes that the use of

technology makes participation easier for students because students can engage in the online environment in any place and at any time convenient to them.

(c) Principle 3: Encouraging active learning

Technology's contribution to active learning falls into three categories: "tools and resources for learning by doing, time-delayed exchange and real-time conversation" (Chickering & Ehrmann 1996:3). These technologies assist in introducing activities that support apprentice-like activities, simulations and the development of artefacts in a safe environment. This brings in authentic, real-life situations that enhance students' problem-solving skills and assist with the transfer of knowledge to unfamiliar settings

(d) Principle 4: Providing prompt feedback

Technology allows for the provision of faster feedback than was sometimes possible with face-to-face. The type of feedback is also more specialised. Simulation activities provide students with precise feedback on the effect of their mistakes; the teacher can also keep track of earlier efforts that provide an indication of the growth of the student through the learning activities (Chickering & Ehrmann 1996:3).

(e) Principle 5: Spending time on task

Technology saves students time – it eliminates travel to the physical classroom and provides all the information needed for a course online. Teachers can also assess the amount of time that students spend on tasks (Chickering & Ehrmann 1996:4).

(f) Principle 6: Creating high expectations

Chickering and Ehrmann (1996:4) point out that technology communicates high expectations "explicitly and efficiently" through learning activities that test higher-order thinking skills (e.g. application and analysis). It also supports peer evaluations so that students can learn from each other's mistakes.

(g) Principle 7: Respect diverse talents and ways of learning

Because the online classroom is asynchronous, it allows for better individualisation than with a traditional face-to-face classroom (Chickering & Ehrmann 1996:6). Students can work at their own pace and complete tasks and assignments using methods or strategies that are more effective for their learning style. Students that are familiar with the work can also move on without having to wait for students unfamiliar with the work or that have learning difficulties (Chickering & Ehrmann 1996:4).

Wilkinson *et al.* (2001:136-138) report on the identification of an eighth principle. A telelearning workshop in the USA in 1997 focused specifically on the applicability of the Seven Principles to an online/distance learning environment. Participants added an eighth principle specifically directed at the effective use of technology, identifying its consistent use from an institutional to course level, together with the support that should be provided with its use.

Contribution to the study:

- The work of Chickering and Ehrmann confirms the timelessness of the Seven Principles by illustrating how technology can be employed to enhance them.
- Technology opens up more opportunities to design learning environments that are in line with the principles. Furthermore, the consideration of the effective use of technology focuses on the importance of the learning environment.

Marchese's *New Conversations on Learning* as one of the perspectives in Carmean and Heafner's *Deeper Learning Principles* provides further guidelines on effective teaching and learning.

3.4.2.2 Marchese's *New Conversations on Learning*

Through studying various disciplinary fields (anthropology, neuroscience, psychology) Marchese identifies nine principles that embrace both a teacher and student viewpoint (Marchese 1997:1, Robertson *et al.* 2005:74). The nine principles are listed below, with a brief indication in each case how the specific principle relates to previously formulated principles and models.

1. Learning independence and choice

Learning independence and choice are identified by authors that have worked in face-to-face environments. Ramsden identified independent learning as a principle for effective learning, while McMahon suggested the choice of the student as one of his seven maxims. Choice is also implicitly supported by the last principle in Chickering and Ehrmann, in what they refer to as the possibilities for respecting diverse talents and ways of learning in the online environment.

2. Intrinsic motivators and natural curiosity

It can be argued that students who are intrinsically motivated will spend more time on the task (Principle 5 of Chickering and Ehrmann), while natural curiosity is stimulated through active learning (Principle 3 of Chickering and Ehrmann), where the link with prior knowledge is made. However, this principle is an extension of the work of Chickering and Ehrmann that focuses specifically on characteristics of students that can potentially be utilised in the online environment of the teaching and learning process.

3. Rich, timely, useable feedback

Providing feedback is easier in an online environment due to the variety of tools (e-mail, virtual office hours, chats, discussions) available to the teacher. This principle is addressed by various authors from a face-to-face (Chickering and Gamson, Ramsden & McMahon) and online perspective (Chickering and Ehrmann also focus on timely feedback under Principle 4).

4. Coupling with occasions for reflection

Online communication makes extensive use of written communication that also provides multiple opportunities for reflection tasks that can lead to higher-order cognitive thinking (Garrison *et al.* 2000:90). Although this principle can be directly linked to various principles in Chickering and Ehrmann, such as Principle 1 where it is suggested that creating a supportive learning climate will support self-reflection, it is indirectly addressed in Principle 3 where it is seen as an element of active learning, and

Principle 4, where self-reflection is discussed as a form of feedback. Reflection is also supported in the Conversational Framework of Laurillard as a teaching strategy. It is an extension of the work of Chickering and Ehrmann and corresponds with the idea proposed by Laurillard.

5. Active involvement in real-world tasks

Active involvement refers to the collaboration between students, working on activities that focus on real-world tasks. Various activities can support the active collaborations in an online environment, e.g. discussions, simulations and using the Internet. This principle relates to Principle 3 on active learning but is extended by the incorporation of real-world tasks. According to Chickering and Ehrmann the principle on active learning focuses more on the active involvement of the students.

6. Emphasising higher-order abilities

Garrison *et al.* (2000:90) suggest that the online environment facilitates the development of higher-order thinking. While Chickering and Ehrmann refer to communicating high expectations (Principle 6), Marchese focuses more on the higher-order abilities. This is relevant for activities and assessment. This principle is also identified by McMahon, but his focus is more on higher-order assessment.

7. Collaboration with other people

Collaboration is regarded as one of the key aspects of creating a successful online environment (Fisher 2003:227, Garrison *et al.* 2000:89). This principle refers to Principles 1 and 2 by Chickering and Ehrmann – encouraging contact with students and faculty, and the development of a cooperative climate.

8. High-challenge, low-threat environments

While online environments can be low threat because they are not so exposing, they could conversely pose a high threat if the student is not very familiar with this kind of learning environment. This is related to the principle of Chickering and Ehrmann on setting high expectations (Principle 6). Low-threat environments are an expansion of the ideas of Chickering and Ehrmann and are related to the maxims of McMahon where information overload and a manageable workload are suggested.

9. Practice and reinforcement

An online environment provides a safe environment where new skills and knowledge can be practiced and applied without any adverse effects. This relates to Chickering and Ehrmann's Principle 3 on encouraging active learning, and providing feedback (Principle 4).

Contribution to the study:

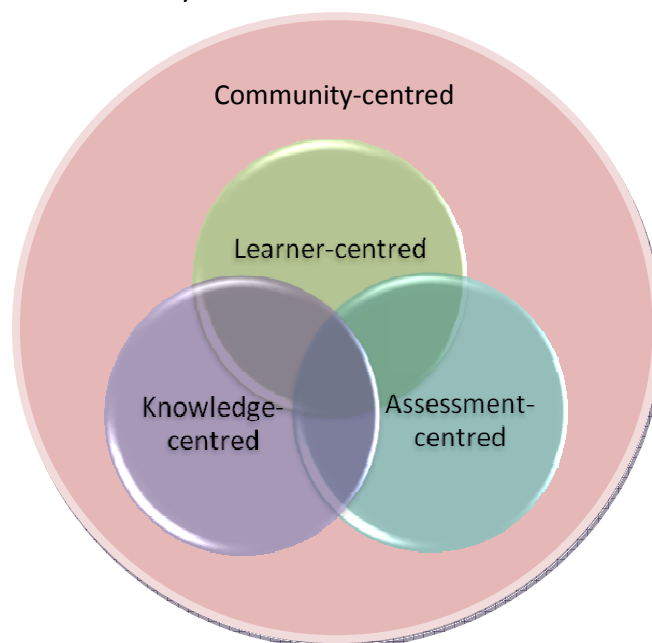
Although all the principles identified by Marchese are directly or indirectly addressed by Chickering and Ehrmann, some central ideas in Marchese's "conversation" can be highlighted. They are specifically related to creating higher-order thinking in an online environment and to the cognitive presence as developed in the community of inquiry model of Garrison *et al.* (2000).

- The focus on supporting learning independence that corresponds with the principle identified by Ramsden
- The importance of reflection in the learning process
- An expansion of active learning that should include real-world tasks
- The expansion of higher-order learning to include the whole learning process and not only one aspect (as suggested by McMahon)
- The creation of low-threat environments is an expansion of the principle of communicating high expectations.

While the previous two sets of perspectives focused more on principles, the theories about creating effective learning environments in the online mode are discussed in the next section.

3.4.2.3 Bransford, Brown and Cocking’s Theory on Effective Learning Environments

In their book, *How People Learn*, Bransford *et al.* (1999:120) propose a theory for designing effective learning environments based on the newest developments at that time regarding online learning environments. According to them, current information on learning needs to focus on four characteristics of learning environments – it must be learner-centred, knowledge-centred, assessment-centred and community-centred (Bransford *et al.* 1999:117). Figure 3.5 gives a schematic illustration of how the characteristics are interlinked. Although the theory focuses on the online environment, Anderson (2004:34-35) indicates that this theory is applicable to both face-to-face and online learning. A short overview of what is meant by each characteristic will provide some clarity.



Source: Bransford *et al.* (1999:120)

Figure 3.5: Bransford *et al.*: Theory on Effective Learning Environments

Learner-centred is defined as an awareness of the “knowledge, skills and attitudes that learners bring to the learning environment”. This includes a learning environment where the educator

accommodates diverse backgrounds, cultures and learning styles (Bransford *et al.* 1999:119). The concept of diagnostic teaching (where the current knowledge of the individual is diagnosed and used to determine misconceptions and cultural contexts) is used to create a learner-centred environment. Students are then assisted through the provision of conflicting ideas to reexamine their current thinking (Bransford *et al.* 1999:120). Bransford *et al.* (1999:22) summarise: “If teaching is conceived as constructing a bridge between the subject matter and the student; learning-centred teachers keep a constant eye on both ends of the bridge.”

In his review of the theory, Anderson (2004:37) describes *knowledge-centred* learning environments as context-bound where students will need opportunities to use their prior experiences, reflect on their own thinking (metacognition), and develop the skills to transfer knowledge to unfamiliar contexts so that they can develop new knowledge. Students must therefore be exposed to unfamiliar circumstances to assist them to apply and test their new knowledge in new situations. This is done through simulations, role play and other activities that simulate real-life scenarios. The knowledge-centred aspect is related to the cognitive presence as illustrated in the community of inquiry model of Garrison *et al.* (2000).

Together with learner-centredness and knowledge-centredness, *assessment-centred* learning environments provide assessment opportunities where the focus is on formative feedback, adjustments to current knowledge through revision and determining whether learning outcomes have been attained (Anderson 2004:37-38, Bransford *et al.* 1999:126). The goal of feedback is to assist students in the construction of their knowledge and to improve the quality of their thinking and learning (Bransford *et al.* 1999:140). Assessment should therefore not focus on the memorisation of facts (lower-order thinking) but rather on understanding to enable the teacher to correct students’ thinking (higher-order thinking). Multiple types of assessment and feedback (individual and group tasks, formal and informal feedback, self-, peer and expert assessment, and feedback) also contribute to students’ learning and the development of metacognitive abilities. In the process, they learn to value feedback from other students that have a diverse opinion (Bransford *et al.* 1999:126-127).

Anderson (2004:39), in his review of the theory, explains the *community-centred* characteristic of effective learning environments as the social component of learning – where knowledge is constructed collaboratively – and a context for the interpretation of learning. Anderson refers to this social component of learning as communities of practice. This idea of a community of inquiry also corresponds with that of a social presence as identified by Garrison *et al.* (2000). Bransford *et al.* (1999:130-131) see the community as a broad concept, ranging from the microlevel – as cohort groups of students, students’ immediate family and work environments – to the macrolevel where they consider the world of work, the country and even the world (global community). These communities influence the teaching and learning situation. Besides the social component associated with the community it also provides a context for interpreting learning.

Bransford *et al.* (1999:119, 137) indicate that the four characteristics interact with each other and must be aligned in effective learning environments. The alignment includes a consideration of the learning goals (outcomes), how it is communicated and also the assessment of the learning goals. Biggs and Tang (2007:53) add that constructively aligned teaching will be more effective because all activities support each other to create consistency in the learning process. They describe the effect of the consistency created by constructive alignment on students as follows: “Students are entrapped in this web of consistency, optimising the likelihood that they will engage the appropriate learning activities” (Biggs & Tang 2007:54).

Bransford *et al.* (1999:138) advocate a systems approach to promote alignment. According to them alignment does not only reside in the module level in a specific classroom, but also in a faculty, university, community, or the country. Therefore, the learning goals must be valuable for learners in the classroom (through assessment) but must also contribute to the knowledge needed in the community and country. Alignment in the online environment is thus an aspect that should receive as much attention as in the face-to-face teaching and learning environment.

The theory on creating effective learning environments has important implications for the design of learning in the online environment, in terms of the elements that should be addressed and the interaction of the various elements in the online environment.

It is interesting to note that Chickering and Ehrmann's Seven Principles and Marchese's New Conversations correlate closely with the theory developed by Bransford *et al.* about effective online teaching and learning environments. The idea of the community-centred characteristic is related to Principles 1 and 2 (Encourage contact between faculty and students; and Develop cooperation between students) and Marchese's focus on collaboration. It also relates to the social presence in the community of inquiry model of Garrison *et al.* (2000). The learner-centred characteristic is related to Principle 7 (Respecting diverse talents and ways of knowing) and Marchese's principles on learning independence and choice, and on using intrinsic motivation and the natural curiosity of students. In terms of the assessment-centred characteristic there are similarities with the idea of providing feedback (Principle 4 of Chickering and Ehrmann) and with Marchese's principles of providing feedback and providing opportunities for reflection. Lastly, the knowledge-centred characteristic is related to Principle 6 (Communicating high expectations) and Principle 3 (Encourage active learning) of Chickering and Ehrmann and to Marchese's principles of active involvement in real-world tasks, emphasizing higher-order abilities, giving a high challenge and practice, and reinforcement. In the community of inquiry model of Garrison *et al.* (2000) this is referred to as cognitive presence. The potential of online teaching and learning for exploiting all the principles has clearly been substantiated.

Contribution to the study:

The theory on effective learning environments of Bransford *et al.* also expands on the principles identified by Chickering and Ehrmann and offers the following contributions to effective teaching and learning specifically in online environments:

- The importance of acknowledging the characteristics that the learners bring to the online learning environment as a starting point for effective teaching and learning (learner-centred characteristic)
- Related to the previous point is using the prior knowledge of students in the online learning situation (related to the learner-centred characteristic)

- Using reflection, metacognition and real-life scenarios in the online learning situation (knowledge-centred characteristic and related to cognitive presence in the community of inquiry model of Garrison *et al.*)
- The importance of assessment, also online, that includes feedback as well as the focus on higher-order thinking (assessment-centred)
- Online assessment must focus on various types of assessment and various sources to provide feedback (assessment-centred)
- The community not only supports collaboration and interaction but also provides a context for the learning to take place (community-centred and related to the social presence in the community of inquiry model of Garrison *et al.*)
- The focus on the alignment of the various characteristics in an online learning environment that includes starting with the learners' characteristics (learner-centred), the development of knowledge (knowledge-centred) and the assessment of the knowledge (assessment-centred). This all happens in the context of the community (community-centred).

In the next section, the fourth perspective related to the principles for effective teaching and learning in online environments will be discussed.

3.4.2.4 Merrill's First Principles of Online Instruction

Merrill (2002) analysed various instructional design theories and perspectives and determined five principles of instruction focusing on a learner perspective (in Robertson *et al.* 2005:74).

According to Merrill, online learning will be enhanced when:

1. Learners are engaged in solving real-world problems
2. Existing knowledge is activated as a foundation for new knowledge (activation)
3. New knowledge is demonstrated to the learner (demonstration)
4. New knowledge is applied by the learner (application)
5. New knowledge is integrated into the learner's world (integration)

Merrill regards the problem as central in online instruction in order for the learner to see the relevance of the learning. According to Merrill, one should then start where the learners are

(activation) and then demonstrate the application through a variety of activities to allow the learners to make connections (demonstration). Thereafter, learners will try it for themselves, applying the learning through practising in different situations where the role of the teacher would be that of a coach. Lastly comes the integration, where the learners show others what they can do in a public setting; this principle focuses on reflection and synthesis to complete the learning process (Collis & Margaryan 2005:54-55). Merrill (2006:9) points out that with complex tasks an incremental approach in implementing the First Principles will lead to effective learning. He describes this incremental process as follows:

Adding consistent demonstration to information only (level 0) promotes the first increment (level 1) in learning effectiveness, efficiency and engagement. Adding consistent application with corrective feedback to information with demonstration adds a second increment (level 2) in learning effectiveness, efficiency and engagement. Using a task-centred approach adds a third increment (level 3) in learning effectiveness, efficiency and engagement (Merrill 2006:9-10).

All five the principles identified by Merrill for online instruction are related to the principle of encouraging active learning (Principle 3) in Chickering and Ehrmann while the First Principles are also reflected in the knowledge-centred characteristic in the Bransford *et al.* theory. These First Principles by Merrill are also echoed by Marchese with his principles of using the natural curiosity of the students, providing opportunities for reflection, active involvement in real-world tasks, and practice and reinforcement.

Contribution to the study:

The following elements in Merrill's First Principles of Online Instruction are of major importance:

- The constructivist idea of using existing/prior knowledge to activate the learning.
- The focus on real-world scenarios in the online learning context.
- The sequence of the various learning strategies (activation, demonstration, application and integration) for effective online learning.

- The incremental approach offered to learning complex tasks through various levels, that is regarded as being of particular importance in the online environment.

The discussion that follows combines all the various principles for effective online teaching and learning in one set of principles, known as the Deeper Learning Principles.

3.4.2.5 Carmean and Heafner's Deeper Learning Principles

The model developed by Carmean and Heafner (2002) specifically focuses on creating a “rich learning environment” that can be applied in course management systems. The principles are especially relevant due to the integration of the work of various well-known authors (Bransford *et al.*, Brown, Chickering & Ehrmann, Marchese, Merrill) in the field of online learning into five principles. Carmean and Heafner (2002:28) define deeper learning as “engaged learning that results in a meaningful understanding of material and content...that occurs when learning is social, active, contextual, engaging and student-owned.” Table 3.2 shows how the authors link their principles with those formulated by other prominent persons in the field of teaching and learning in online environments.

The authors provide a clear indication of how their Deeper Learning Principles are to be applied in course management systems, although they point out that not all five principles need to be applied at the same time. They are also of the opinion that the thoughtful application of the five principles will lead to robust learning environments (Carmean & Heafner 2002:29).

Table 3.2: Carmean and Heafner’s Deeper Learning Principles with the integration of the other sets of principles

Learning is	When	Summarised from
SOCIAL	<p>It involves cognitive apprenticeship</p> <p>It promotes reciprocity and cooperation among students</p> <p>It offers prompt feedback</p> <p>It encourages contact between students and faculty</p> <p>It emphasises rich timely feedback</p>	<p>Brown</p> <p>Chickering & Ehrmann</p> <p>Chickering & Ehrmann</p> <p>Chickering & Ehrmann</p> <p>Marchese</p>
ACTIVE	<p>It is engaged in solving real-world problems</p> <p>It is intertwined in judgment and exploration</p> <p>It is situated in action</p> <p>It uses active learning techniques</p> <p>Practice and reinforcement are emphasised</p> <p>Involvement in real-world tasks is emphasised</p>	<p>Merrill</p> <p>Brown</p> <p>Brown</p> <p>Chickering & Ehrmann</p> <p>Marchese</p> <p>Marchese</p>
CONTEXTUAL	<p>New knowledge builds on the learner’s existing knowledge</p> <p>New knowledge is integrated into the learner’s world</p> <p>Knowledge is applied by the learner</p> <p>New knowledge is demonstrated to the learner</p> <p>Students have a deep foundation of factual knowledge</p> <p>There is awareness that students come to class with preconceptions of how the world works</p> <p>Students understand facts and ideas in the context of a conceptual framework</p> <p>Learning is concrete rather than abstract</p>	<p>Merrill</p> <p>Merrill</p> <p>Merrill</p> <p>Merrill</p> <p>Bransford <i>et al.</i></p> <p>Bransford <i>et al.</i></p> <p>Bransford <i>et al.</i></p> <p>Brown</p>
ENGAGING	<p>It respects diverse talents and ways of learning</p> <p>It communicates high expectations</p> <p>It is done in high-challenge, low-threat environments</p> <p>It emphasises intrinsic motivators and natural curiosities</p>	<p>Chickering & Ehrmann</p> <p>Chickering & Ehrmann</p> <p>Marchese</p> <p>Marchese</p>
STUDENT-OWNED	<p>Students organise knowledge in ways that facilitate retrieval and application</p> <p>Students take control of their own learning: noting failures, planning ahead, apportioning time and memory to tasks</p> <p>It emphasises learning independence and choice</p> <p>It allows time of reflection</p> <p>It emphasises higher-order thinking (synthesis and reflection)</p>	<p>Bransford <i>et al.</i></p> <p>Bransford <i>et al.</i></p> <p>Chickering & Ehrmann</p> <p>Marchese</p> <p>Marchese</p> <p>Marchese</p>

Source: Carmean and Heafner (2002:29)

Contribution to the study:

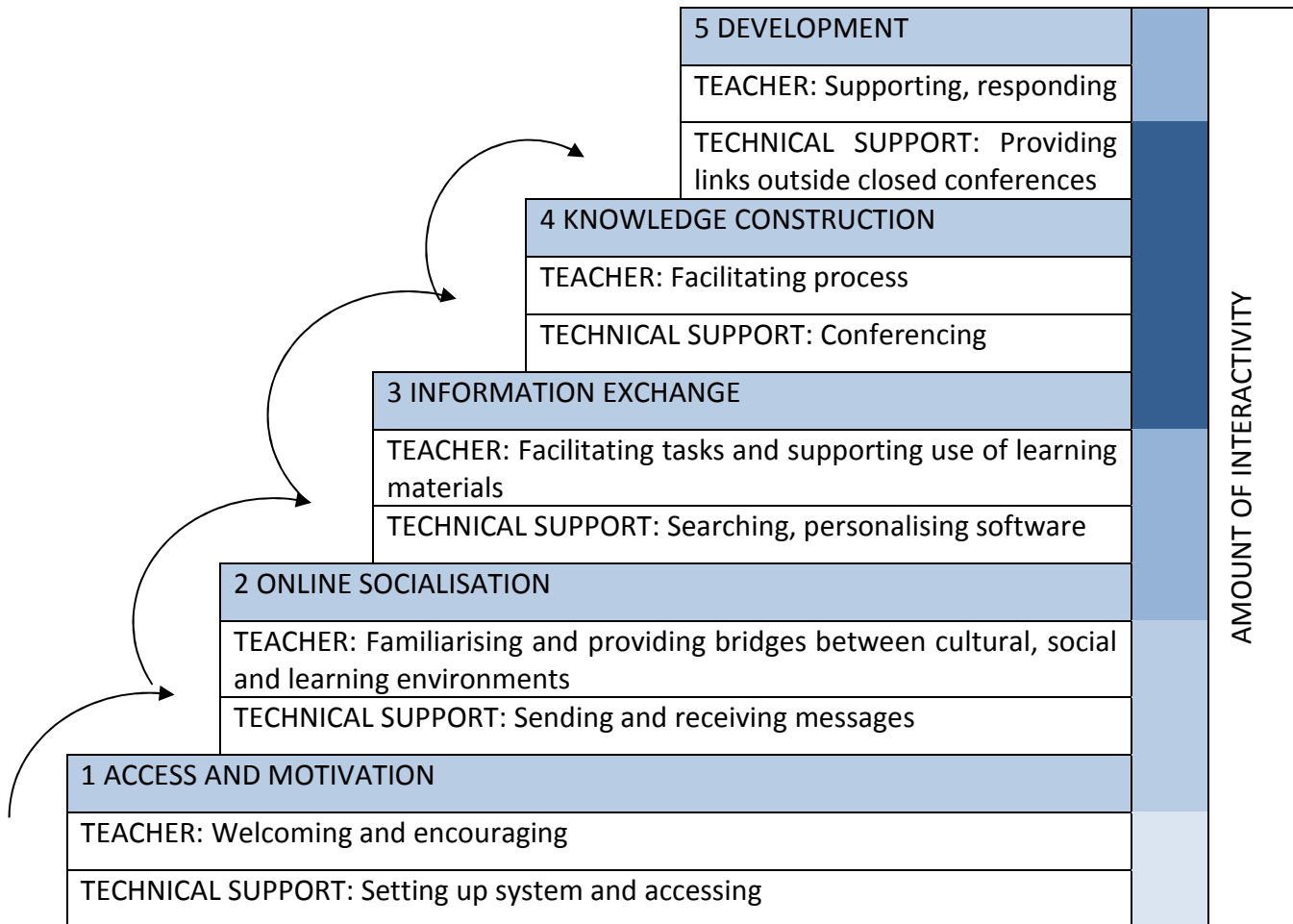
Carmean and Heafner provide a useful integration of the principles and theory that are discussed in this section. The contribution of the Deeper Learning Principles to the study can be summarised as follows:

- It provides a compact summary of various principles for effective learning and teaching in online environments.
- It integrates the work of various prominent persons in the field of online environments.
- Three of the principles are echoed in both the face-to-face and online settings that were reviewed so far; the idea that learning should be social, active and engaging is in line with constructivist principles.
- The remaining two principles (learning should be contextual and student-owned) have received relatively little attention in the face-to-face environments.
- The learning also needs to relate to a specific context. This is achieved by focusing on the knowledge and characteristics that the student brings to the learning environment and using that in the learning process.
- The learning cannot be isolated from the immediate environment and learning is embedded in the environment with the focus on real-world scenarios and the application of the learning.
- The principle that learning should be student-owned creates an awareness that the control of the learning process lies with the student. This was also addressed by the authors in the section on effective teaching and learning in face-to-face settings, through the principle regarding independence and offering students a choice.

In the final section in this part of the chapter, a model for effective teaching and learning in an online environment is introduced. The focus is therefore moving from principles to the process that is related to the design of learning.

3.4.2.6 Salmon's Model of Teaching and Learning Online through Online Networking

The model developed by Gilly Salmon (2000) flowed from her own research in the period 1996 to 1999. The research was conducted at the Open University in the UK and focused specifically on online learning with students at a distance. The model is illustrated in Figure 3.6.



Source: Salmon (2000:26)

Figure 3.6: Salmon's Model of Teaching and Learning Online through Online Networking

The model illustrates the interaction between the students and their teachers in an online environment. The conference aspect referred to is similar to synchronous communication, but Salmon (2002:10) indicates that it is applicable to the total online learning process. As the learners progress through the different stages, their needs will change. This model therefore provides guidance to the teacher about the teaching strategies that can be employed to meet

the students' needs at a specific stage (Salmon 2002:11). According to the author, all students should reach stage 5 if they are given "technical support, good human interaction from the teacher and activities that promote action and interaction" (Salmon 2002:12). She also suggests how teachers can motivate, scaffold activities and pace learners in an online course. The model, furthermore, shows the technical skills that the student must master at each stage and the skills that are needed by the teacher.

The shading on the right of Figure 3.6 represents an indication of the intensity of the interaction at the specific stage (Salmon 2002:10). The activities that are given (referred to as e-activities) should also gradually increase to higher cognitive levels so that the learners at stage 5 are able to evaluate their own learning and be more independent (Muirhead 2002:180, Salmon 2002:29-35). According to the author, the outcomes of implementing this model will lead to "active online learning, good contributions, interaction between participants and increased student satisfaction" (Salmon 2002:12).

Contribution to the study:

- Salmon's online model of teaching and learning represents teaching and learning as an interactive process between the student and the teacher.
- The model provides guidance to the teacher on how to support students in an online learning environment so that they may attain deep learning.
- This is one of the few perspectives that provides an indication of the technical skills that are expected from students for functioning effectively in an online environment.
- The model is very useful in identifying the steps to follow in creating an environment that is conducive for learning.
- The idea of communities of inquiry through teacher, social and cognitive presence is also illustrated in Salmon's model (see section 2.4.2.2).
- The model also indicates that the needs of students will change through the learning process and this model provides useful suggestions that can be incorporated in the design of effective teaching and learning.

3.4.2.7 Overview of perspectives on effective teaching and learning for online environments

When one considers all the perspectives for effective teaching and learning in an online environment, the summary provided by Carmean and Heafner of the contributions of the most prominent researchers working on teaching and learning in this regard has proved to be useful (see section 3.4.2.5). The summary shows the applicability of older principles (Seven Principles developed by Chickering and Gamson and adapted by Chickering and Ehrmann) (see section 3.4.2.1) and includes more contemporary sets of principles. The principles developed for effective teaching and learning in an online environment acknowledge those identified in face-to-face settings but reflect a stronger focus on the development of higher-order thinking skills through a variety of activities, the use of the students' prior knowledge, and the application of knowledge in real-world situations. However, two of the principles as summarised by Carmean and Heafner (see section 3.4.2.5), are not identified by the majority of researchers working in face-to-face environments. In the online environment the context in which the learning takes place is important. According to this contextual approach, the learner's existing knowledge is acknowledged and used as foundation on which the new knowledge can be built. The "community" in which the learner has been brought up also provides a context for the learning. No learning is therefore context-free. Secondly, the authors point out that learning is student-owned. Technology has brought with it more control to learners in terms of when, where and how they want to learn – and it is reflected in this principle. These two principles are related to each other and both emphasise the needs of the learners in the learning environment.

In terms of the design of learning, Salmon's process model provides important guidelines that should be taken in account, especially in an online environment. In the face-to-face environment, all students can use the traditional tools, namely pen and paper; teachers working in an online environment cannot assume that students are familiar with the tools used there. Therefore, teachers must ensure that students have the technical skills to operate in an online environment or that training in this regard is provided. Salmon furthermore points out that the needs of the students change through the learning process and that these have to be addressed in the various stages of her model. The model finally also supports the idea of

continuous interaction, not only between the teacher and students, and among the students, but also between the students and the interface (technology). These interactions are important in an online environment due to the lack of physical contact and are to a certain extent the substitute for the physical environment.

The perspectives discussed have revealed a stronger emphasis on the needs of the learners in the learning process and that the learning process is driven by the student; and secondly, the importance of interaction in the online environment – not only interaction between the student and teacher or among students, but also between the student and the online learning environment to support effective teaching and learning.

In section 2.3.2 it was explained why blended learning is regarded as the natural progression from a pure online model of teaching and currently as the most important trend in teaching and learning. In the section that follows, three models will be discussed that focus on the design of learning in a blended environment.

3.4.3 Perspectives on effective teaching and learning in blended environments

The first two models to be discussed are from the corporate sector, while the last model in this section originated in China and focuses on teaching and learning in higher education. These models are included because of their focus on adult learning and the correspondence with the context of this study, which focuses on business education. The models are discussed in the following order:

- The IBM Four-tier Learning Model
- Sun Microsystems' Learning Ecology Matrix
- Huang and Zhou's Blended Learning Curriculum (BLC) Model

3.4.3.1 The IBM Four-Tier Learning Model

The IBM Four-Tier Learning Model is a highly praised model in the corporate sector and focuses on management development in IBM. It was not meant to be a generic model, but was specifically developed for the needs of the company. Lewis and Orton (2006:61) describe it as “a model of leadership development that incorporates four distinct instructional approaches (tiers) to provide an array of technology-enhanced learning to support the standard classroom intervention”.

This model (depicted in Figure 3.7) illustrates the importance of selecting the right environment for the specific outcomes. Tiers 1 to 3 focus on online learning environments, but with different kinds of learning involved. Tier 1 represents a website with a range of resources on important topics that managers need to study on their own. Tier 2 focuses on interactive online learning that consists of simulations and problem-based scenarios, while tier 3 focuses on online collaboration with other learners to “build real-life learning networks to enhance the intellectual capital of the company”. The fourth tier focuses on the development of soft (people) skills. A face-to-face environment is regarded as the best environment for the development of soft skills (Lewis & Orton 2006:61-62).

At IBM, learners enrol in a management development course (known as Basic Blue for Managers) consisting of various phases that combine different learning experiences and environments. During phase 1, students start with self-paced learning over a period of 26 weeks. Although the students do form a cohort group, they work on their own through various compulsory and elective modules. They complete online tests, study online simulations of real-life business environments and have access to a tutor and manager who support them with activities undertaken in the workplace. During phase 2 learners attend a five-day face-to-face session where the work done in phase 1 is enhanced with experiential higher-order learning. The goal of the face-to-face session is to help the learners to achieve self-knowledge and understand groupwork and teamwork. During phase 3, learners are again confronted with 24 weeks of online learning similar to that in phase 1 (Lewis & Orton 2006:63-65).

COLOCATION	TIER 4: LEARNING LABS (EXPERIENCED-BASED LEARNING)	FACE-TO-FACE
	GOAL: Higher-order skills and proficiencies Learning labs, classroom, mentoring, role playing, coaching, case studies, expert presentations, motivational speeches	
COLLABORATION	TIER 3: COLLABORATIVE LEARNING	COLLABORATIVE
	GOAL: Group learning from peers/experts Live virtual classrooms, e-labs, collaborative sessions, real-time awareness, live conferences, teaming	
INTERACTION	TIER 2: INTERACTIVE LEARNING -SIMULATION	MULTIMEDIA
	GOAL: Understanding and practice Computer-based training and web-based training modules, self-directed learning objects, interactive games, coaching & simulations	
INFORMATION	TIER 1: PERFORMANCE SUPPORT & BEST PRACTICE REFERENCE MATERIALS	INTERNET
	GOAL: Awareness and information Web lecturers, web books, web conferences, web pages, video's	

Source: Compiled from Henderson (2003:222) and Lewis & Orton (2006:62)

Figure 3.7: IBM Four-Tier Learning Model

Contribution to the study:

Although this model was specifically developed for the needs of IBM, several elements supporting effective learning can be deduced from the model:

- The idea of matching the intended learning outcomes with the appropriate environment (face-to-face or online).
- The incorporation of a variety of activities and resources to achieve the outcome at a certain tier.
- The creation of real-life learning networks to enhance the intellectual capital of the company (This idea resonates with Siemens's theory on the connectivism of learning ecologies – see section 3.2.4).
- The support system that is put in place for the learners. Not only do they have a trainer/lecturer but there is also an online tutor available to the students, and the

workplace supervisor is involved in the learning process. This refers to the teacher presence as identified in the Community of Inquiry model by Garrison *et al.* (2000).

The next discussion reviews a matrix developed for the corporate environment. In the review of the matrix, the applicability to the higher education environment will be specifically indicated.

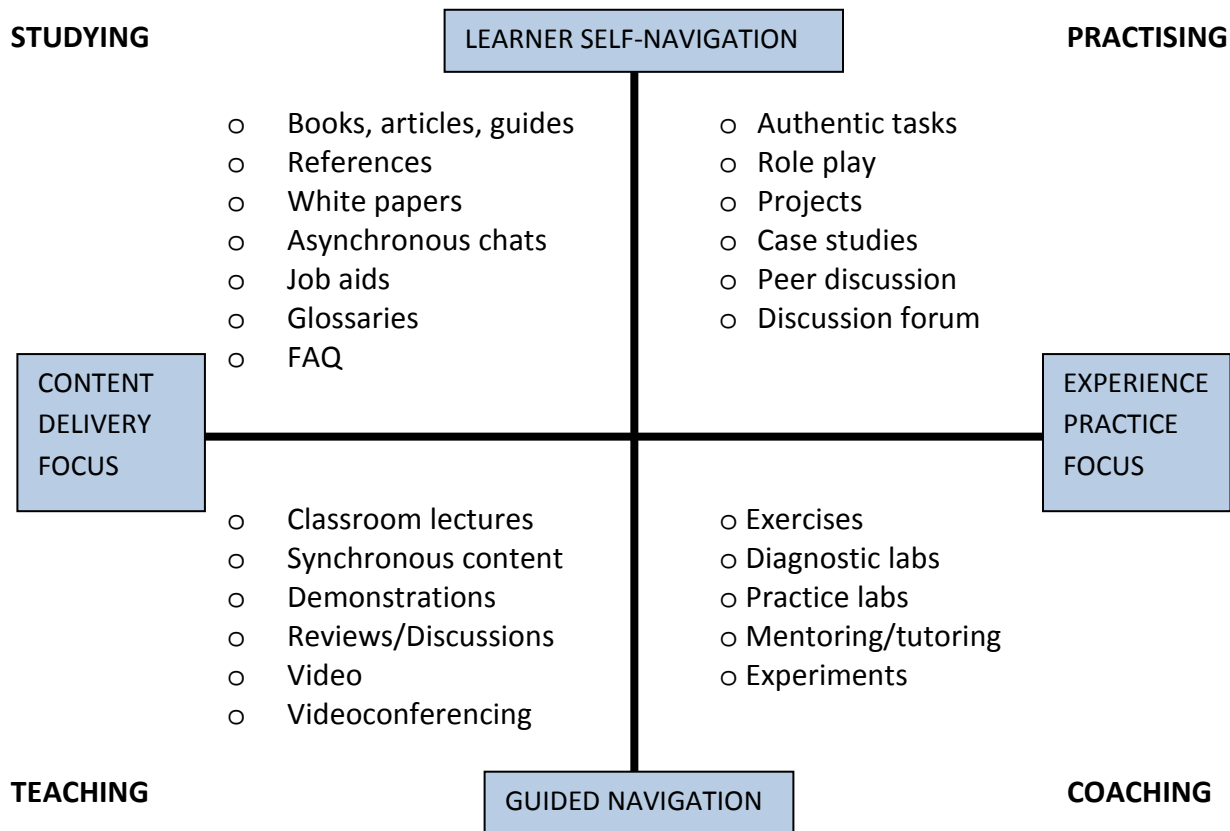
3.4.3.2 Sun Microsystems' Learning Ecology Matrix

The Learning Ecology Matrix was developed for Sun Microsystems in 2000. Just as the previous model, this matrix was developed for the needs of a specific organisation, but Wenger and Ferguson (2006:78) point out that it is also applicable to higher education. The matrix provides a holistic picture for designing a learning ecology (Figure 3.8). For the purposes of the learning ecology matrix the definition of a learning ecology by Brown was adapted, namely “an ecology is basically an open, complex, adaptive system comprising elements that are dynamic and interdependent”. According to Wenger and Ferguson (2006:76), it is the ability of a learning ecology “to bring coherence and simplicity to an ever-changing diversity of new possibilities for technology application that is so valuable”. The objective of the matrix was to find a model that bound together all the elements operating in various modes (face-to-face and online). The point of departure therefore was identifying:

what brings the full richness to a classroom experience, understand what the emerging technologies could add to the equation, and describe how we could bring everything together in a way that supported what we knew of adult learning theory (Wenger & Ferguson 2006:77).

Wenger and Ferguson (2006:78) point out that the matrix provides a “stable view” of all the components and also “accommodates a constantly changing set of components”. The following ideas formed the background against which the learning ecology was developed: providing a quality learning experience; control of the learning experience shared by the teacher and student; addressing formal and informal learning; social interaction for effective learning and, from a corporate training perspective, a cost-effective learning experience (Wenger & Ferguson 2006:79-80).

The two main components of the Learning Ecology Matrix provide the foundation of the matrix and are represented by the x-axis and y-axis in Figure 3.8. The x-axis represents the *delivery of the instruction* – on the left of the x-axis the focus is on the delivery of content through e.g. lectures or guided discussions, while the opposite end of the x-axis (on the right) focuses on experiences and practice through case studies, collaborative activities etc. The y-axis represents the *control of the navigation*. On the one end (bottom) the control is guided by a teacher or expert, while at the other end (top) the y-axis represents self-directed navigation.



Source: Wenger & Ferguson (2006:83)

Figure 3.8: Sun Microsystems Learning Ecology Matrix

The intersecting axes create areas representing four learning modalities that have the potential of being part of the learning ecology, i.e. studying, practicing, teaching and coaching. The modalities can be applied in either a face-to-face or an online environment. Each modality contains specific learning, instructional and knowledge elements that can be utilised to produce different learning events. According to Wenger and Ferguson (2006:83), the learning ecology

framework provides a “menu of learning options that could be developed and delivered to support a learning requirement”. They state that the learning ecology is not a model but a framework for experimenting within the design of learning. The different learning elements can be combined and used to form different learning events in achieving a learning outcome. The learning events (or activities) can incorporate elements from all four learning modalities (Wenger & Ferguson 2006:83-84). According to the designers, the application of the model (learning design) is “a relatively straightforward activity of deciding [on] overall strategies and then aggregating elements” (Wenger & Ferguson 2006:83).

Contribution to the study:

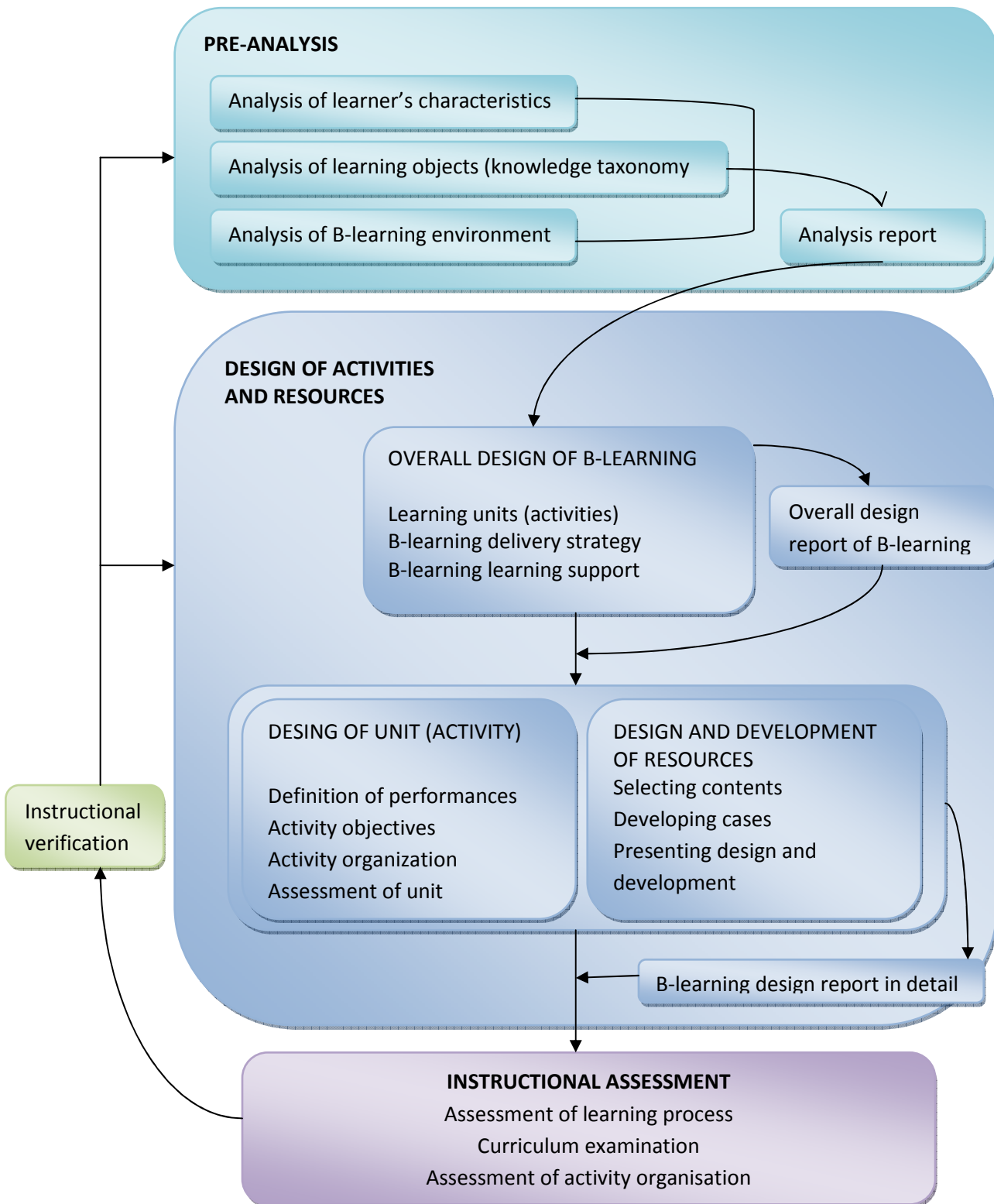
The contribution of the Learning Ecology Matrix lies in the following:

- The acknowledgement of connectivism (see section 3.2.4) through the idea of creating and maintaining learning ecologies and the importance of informal learning as a way to learn in an organisation.
- The matrix integrates continuously changing components of technological environments in a stable, adaptable format.
- The matrix acknowledges the needs of adults in a blended learning environment and the shared control of the teacher and student in the learning environment.
- The various elements of learning provide useful suggestions in designing learning to address a specific modality or combining different modalities to create effective learning activities.

In the next section a model that was specifically developed for a higher education environment is discussed.

3.4.3.3 Blended Learning Curriculum (BLC) model

The BLC model by Huang and Zhou (2006) is based on a constructivist paradigm with aspects of self-regulated learning built into it. Huang and Zhou (2006:301) identify three main stages in the model, namely the pre-analysis stage, the activity and resource design stage, and the instructional assessment stage. Figure 3.9 illustrates the aspects included in each stage.



B-learning = blended learning

Source: Huang and Zhou (2006:303)

Figure 3.9: Huang and Zhou's BLC model

In the pre-analysis stage it is determined whether blended learning is suitable for the specific situation. The analysis of the learners' characteristics will focus on their prior knowledge, learning styles and learning strategies, while the analysis of the learning objects will focus on a content analysis of the curriculum according to the integration of Bloom's taxonomy with the type of knowledge – factual, conceptual, procedural or metacognitive knowledge. Finally, an "environmental features analysis" takes place that focuses on the choice of learning activities and organising methods (Huang & Zhou 2006:302).

During the activity and resource design stage, three sub-stages can be identified. The results of this stage will determine the teaching methods to be employed plus the criteria for assessment. Huang and Zhou (2006:302-303) explain that during this stage an analysis is made of the types of activities and resources that best fit the different environments.

The last stage is the assessment stage. The design of the assessment depends on the learning outcomes, the assessment criteria and the environment of the blended design. The learning process, curriculum knowledge and organisation of the learning activities are normally assessed (Huang & Zhou 2006:303-304).

Contribution to the study:

This model provides information regarding the various elements that should be considered in the design of learning for a blended environment.

- One first has to determine if a blended environment is the most suitable environment (context analysis) for the teaching and learning to take place. To determine the suitability of the environment the teacher (designer of the learning) should examine the students' characteristics and analyse of the level of the learning (factual, conceptual, procedural and metacognitive knowledge).
- By incorporating these levels of learning, this model acknowledges active and collaborative learning as well as reflection.
- The model furthermore acknowledges the interaction of the various stages with each other that point to constructive alignment. This alignment is also seen in the second stage where the design of the blended learning environment is aligned with the activities and the resources that are going to be used in the learning process.

- Huang and Zhou's model is the first to identify the design and development of the resources in detail as part of the learning design. It also indicates that the resources should be aligned with the design of the activities.
- The design of the resources and activities differs from the traditional instructional design in that the focus in their model is on selecting the most appropriate activities and resources for each environment (either face-to-face or online).
- The model provides a comprehensive overview of the most important steps that should be kept in mind in the design of learning in a blended model.

3.4.3.4 Overview of perspectives on effective teaching and learning in blended environments

The three models for effective teaching and learning in blended learning environments contribute to the design of learning in the following ways:

- The models acknowledge the ideas of constructivism but also connectivism, together with ideas of learning ecologies, informal learning and learning networks (see section 3.2).
- The models and matrix emphasise the importance of selecting the right mode of delivery to achieve the learning outcomes. The BLC model consequently suggests analysing the context before the actual designing of the learning takes place.
- Closely related to the idea of a context analysis is the importance of constructive alignment, but not only in the traditional sense of aligning the learning outcomes with the activities and assessment. These models take it further to include the choice of the learning environment and the selection of the resources for the learning activities.
- The BLC model focuses on the design and development of resources as an important step in the design of blended learning.
- The IBM model's focus is on supporting the learner in the learning environment with diverse support systems (tutors, lecturers and immediate workplace supervisors and peers). (Related to the teacher and social presence in the community of inquiry model by Garrison *et al.* 2000.)

- The combination of different learning elements in the SUN Microsystems model that allows for the design of different activities related to the learning outcomes accommodates various learning styles. (Related to the cognitive presence in the community of inquiry model by Garrison *et al.* 2000.)

In the last section, an overview of the most important guidelines related to effective teaching and learning that are applicable in various modes of delivery will be discussed.

3.5 DIRECTIVES FOR EFFECTIVE TEACHING AND LEARNING IN DIFFERENT MODES OF DELIVERY

Biggs (2003:32) claims that the secret to good teaching lies in maximising the chance that students will use a deep approach. All the perspectives on effective teaching and learning discussed in this chapter have pointed to the importance of creating a student-centred environment with a focus on deep learning principles, where knowledge is constructed through collaboration and active engagement. This implies implementing principles that are based in a constructivist paradigm.

In Table 3.3 the principles of effective teaching and learning related to the perspectives on face-to-face, online and blended learning environments discussed in this chapter are summarised. The summary is using the idea of a community of inquiry by Garrison *et al.* (2000) (see section 2.4.2.2). From the review of the literature, it has become apparent that the community of inquiry model of Garrison *et al.* embraces most, if not all, of the principles exposed in the various perspectives on the three different modes of delivery. As such it could be utilised to classify the various principles in three main groups. In the table, a cross was put in the appropriate row if reference to the relevant principle was made in the discussion of the specific theory, principles, model etc.

Table 3.3: Summary of principles for effective teaching and learning in various modes of delivery

MODE OF DELIVERY	FACE-TO-FACE						ONLINE						BLENDED		
PRINCIPLES AND GUIDELINES	Chickering & Gamson	Ramsden	McMahon	Laurillard	Biggs	Kaartinen-Koutaniemi & Katajauuri	Chickering & Ehrmann	Marchese	Bransford <i>et al.</i>	Merrill	Carmean & Heafner	Salmon	IBM	SUN	Huang & Zhou
Principles related to teacher presence															
Encourage lecturer contact with students	X	X	X	X			X		X		X	X	X	X	X
Promote learning ecologies												X	X	X	
Change in roles and responsibilities of the teacher		X	X	X	X	X	X	X		X		X	X	X	
Incorporate student characteristics in the learning process	X	X			X	X	X	X	X		X	X	X	X	X
Incorporate adult learning principles			X											X	
Analyse the most suitable learning environment								X		X	X	X	X		
Principles related to social presence															
Encourage cooperation and collaboration between students	X	X		X	X		X	X	X		X	X	X	X	X
Principles related to cognitive presence															
Implement active learning strategies	X	X	X	X	X		X	X	X	X	X	X	X	X	X
Use higher-order thinking & encourage high expectations	X	X	X		X	X	X	X		X	X		X	X	X
Emphasise time on task	X					X	X								
Use students' prior/existing knowledge in the learning process		X			X	X		X	X	X	X				
Provide opportunities for reflection in the learning process			X	X	X			X	X	X	X	X	X	X	X
Use real-life scenarios in the learning process								X	X	X	X				
Align the elements in the learning environment					X	X			X						X
Focus on the sequence of activities				X	X					X		X			X
Set clear goals or learning outcomes		X	X		X										
Incorporate appropriate assessment		X	X		X				X						X
Incorporate appropriate and smart feedback	X	X	X	X		X	X	X	X			X		X	
Include a variety of resources														X	X
Include a variety of activities		X	X									X	X	X	
Give independence and control to students in the learning		X	X			X		X			X	X	X		

Source: Summary compiled by the researcher

Table 3.3 highlights a few important aspects, namely the influence of the foundational learning theories; a shift in the importance of the principles under the influence of new developments; and new ideas that have come along with the introduction of a blended learning environment.

The foundational learning theories have clearly influenced the development of principles of good teaching and learning. In the discussion on the face-to-face environment, the principles that focused on *behaviourism* were highlighted, e.g. setting goals, using learning outcomes to measure the outcomes and to a certain extent the use of assessment to measure the outcome of the learning. *Cognitivist* principles focus on the time that a student will spend on the task, the idea of accommodating individual differences among students, active learning, preventing information overload, the focus on higher-order learning, and using prior knowledge to activate the learning. *Constructivism* builds on the ideas of behaviourism and cognitivism and this is evident in the continuous focus on active learning, higher-order learning and using real-world scenarios in the learning process. The influence of *connectivism* in the newer learning environment has also become clear through the use of learning ecologies and the analysis of the suitability of the environment to achieve the envisaged learning.

Table 3.3 shows a shift in the importance of some principles in the various perspectives. In the face-to-face environment, some of the principles focused specifically on the earlier foundations of behaviourism and cognitivism, e.g. setting goals, time on task and the importance of the teacher's context. In the later perspectives, in particular those related to the online and the blended environment, these principles are not addressed. One of the principles highlighted in the online environment is the use of real-life scenarios to assist in the transfer of learning, an acknowledgement of the context in which learning takes place. The focus in online and blended environments is thus more on the creation and maintenance of learning ecologies and selecting the most appropriate learning environment and resources for learning.

The blended environment has brought with it new ideas on how to design learning. Directives in this regard point to the design and development of the traditional learning outcomes, learning activities and assessment, and include the analysis of the most appropriate learning environment together with the design and development of appropriate resources for the

environment. The principle of constructive alignment is therefore expanded to a much broader concept. It further emphasises the creation and maintenance of a learning ecology.

The guiding principles for effective teaching and learning as identified in this chapter for the different modes of delivery are summarised in Table 3.4, using the community of inquiry model by Garrison *et al.* (2000) to organise the principles.

Table 3.4: Guiding principles for designing effective teaching and learning

Principles related to a teacher presence
1. Encourage contact between students and lecturers.
2. Acknowledge the characteristics that students bring to the learning situation and their different ways of learning.
3. Acknowledge the changing role of the teacher in the learning process.
Principles related to a social presence
4. Encourage cooperation and collaboration among students.
Principles related to a cognitive presence
5. Implement active learning strategies in the learning process.
6. Use activities that facilitate higher-order learning and set high expectations.
7. Provide opportunities for reflection in the learning process.
8. Ensure appropriate assessment and feedback to students.
9. Provide independence and control to the students in the learning process.
10. Analyse and align the learning elements (including the learning environment and resources).

Source: Compiled by the researcher

Some of the principles were expanded to include a wider concept, e.g. while the focus initially fell on feedback, later sets of principles included assessment as part of feedback. Setting high expectations as identified by Chickering and Gamson (1987), for example, was expanded to include the focus on higher-order learning. The initial focus of alignment that Biggs (2003) identified as constructive alignment is furthermore broadened to include the selection and design of the learning environment and resources.

The summary in Table 3.4 shows that the most prominent principles applicable to various modes of delivery can realistically be classified according to the ideas of Garrison *et al.* (2000) of a community of inquiry in the creation and maintenance of a teacher, social and cognitive presence for learning to take place (as standards of effectiveness in programmes). This will encourage deep learning and is in line with the ideas of social constructivism and connectivism. The summary also represents the response to research question two: *What are the most prominent perspectives on effective teaching and learning that can serve as directives in the design of learning for various modes of delivery?*

In this study, the identified principles have served as directives in the design of learning for various modes of delivery. They also guided the construction of the questionnaire used in the empirical investigation, as it was deemed necessary to determine whether the programme complies with such standards of effectiveness or not.

3.6 CONCLUSION

In this chapter, prominent perspectives on effective teaching and learning practices in various modes of delivery, namely a face-to-face, an online and a blended environment, have been considered. In each section, guiding principles have been identified after a discussion of the relevant perspectives. The discussions have illustrated the applicability of the community of inquiry model by Garrison *et al.* (2000) that ultimately formed the basis of the set of principles formulated for effective teaching and learning in different modes of delivery. This set of guiding principles formed the point of departure for measuring the compliance of an existing programme with accepted principles in this regard.

Adults as learners and their distinctive contribution to the learning environment are explored in more depth in the next chapter.

CHAPTER 4:

ADULTS AS LEARNERS: WHAT IS THEIR DISTINCTIVE CONTRIBUTION TO THE LEARNING ENVIRONMENT?

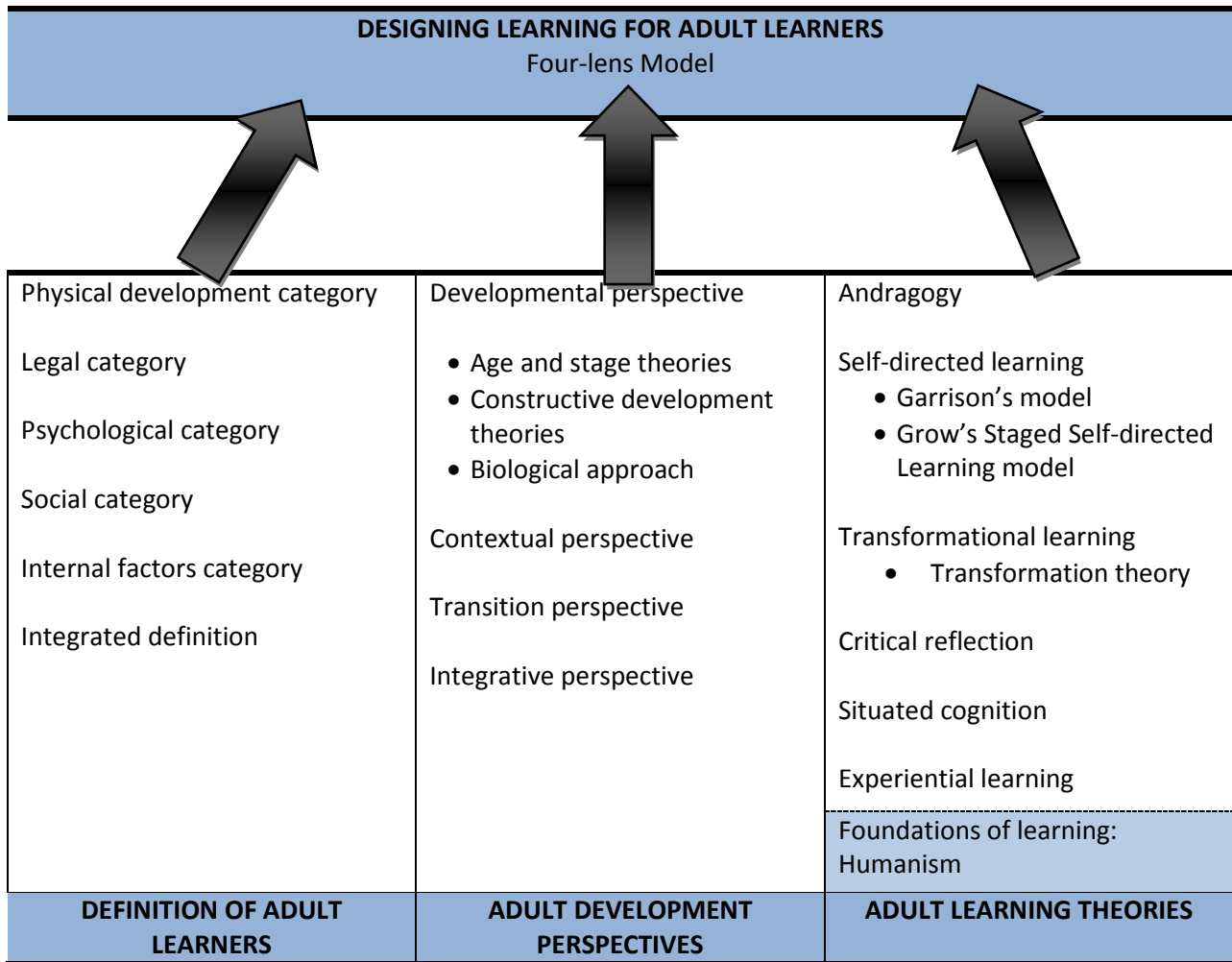
4.1 INTRODUCTION

Chapters 2 and 3 sketched the changing views regarding teaching and learning in the changing higher education context and the influence of this on the design of learning. Chapter 4 shifts the focus to the needs of one specific group of students that is rapidly expanding in higher education, namely adult learners. In focusing on the needs of this group of learners, the second subsidiary research question will be addressed (see section 1.4):

What are the characteristics that adult learners bring to the learning environment that need special consideration in effective learning design?

In Chapter 2 the changing student population was put forth as one of the important forces impacting on higher education in general and more specifically on the design of teaching and learning. Adult learners have now become a prominent section of the student population with needs and characteristics for which provision has to be made in the design of learning.

In this chapter, a definition of adult learners will first be provided to guide our thinking on whom we are referring to when working with adults. Thereafter, different perspectives on adult development will be explored, because the development of adults influences their behaviour and learning. This will be followed by theories on adult learning that provide alternative viewpoints on learning in adulthood. All this information about the definition of adult learners, adult development and adult learning will be used to compile a set of principles of adult learners in the new learning paradigm, which in turn will serve as a directive in designing optimum learning opportunities for this specific group. An outline of the chapter is provided in Figure 4.1.



Source: Compiled by the researcher

Figure 4.1: Outline of chapter 4

In the literature review, the work of leaders in the field of adult learning was consulted to ensure that the most relevant and influential theories and ideas were incorporated in the study. The work of Sharan Merriam and Rosemary Caffarella and that of Stephen Brookfield served as important guidelines, together with the updated work of Malcolm Knowles (2005) who had formulated one of the original theories of adult learning in the 1950s. With regard to specific adult theories, the influential work of Malcolm Knowles, Jack Mezirow, Donald Schön, David Kolb, Gerald Grow and Randy Garrison was consulted, and that of Sarah Gravett added for a South African perspective.

The discussion of various definitions of adult learners in the first section will lead to the formulation of an integrated definition suited to this study (see 4.2).

4.2 DEFINING THE ADULT LEARNER

Traditionally, adult learners were viewed as “nontraditional students” and only made up a small percentage of the total student population at higher education institutions. Buchler *et al.* (2007:125) indicate that adult learners have “gone unnoticed” in South African higher education institutions over most of the previous century, but as Oblinger (2004:3) rightly points out, these nontraditional students have gradually become part of the traditional student group.

There is little agreement on a definition of adult learners in the literature (Buchler *et al.* 2007:128, Dean 2004:2, Merriam 1993:8). The debate on defining adult learners centres around the most appropriate criteria to use in defining this group. Several categories of definitions for adult learners can be distinguished in the literature.

The first category referred to by Dean (2004:2) and by Merriam and Brockett (2007:4-5) is the physical development or *biological category*. According to this view, sexual and physical maturity marks the beginning of adulthood. Chronological age is used in the *legal category* to classify adults. In the United States of America, for example, various chronological age ranges are used for different rights – vote at age 18, consume alcohol at age 21, leave compulsory schooling at 16. In the United Kingdom adult students are seen as over 21. In South Africa the legal age is 18, although Buchler *et al.* (2007:128) indicate that the “current legislative definition in South Africa of a mature age learner is 23 years or older” (see also Buchler *et al.* 2007:128, Dean 2004:2, Gravett 2005:7, Merriam & Brockett 2007:5). Another category is the *psychological maturity category* according to which an adult is someone who takes responsibility for their own life. This definition is linked to the fourth category, namely the *social category*, where the roles of the individual in society are used to define adults. According to this view adults usually have other roles than studying full-time, for example: having to support a family; being economically self-sufficient; having community obligations; having work responsibilities; and maintaining a home. These roles are determined by the society in which the individual is living (Gravett 2005:7). Dean (2004:3) also considers *internal factors* as a separate category of criteria that would include factors such as motivation and the learners’ ability to adapt to change.

These categories do not offer a clear definition of adult learners. Buchler *et al.* (2007:128) indicate for example that in the South African context, children are often forced to take on adult roles due to the impact of AIDS on their families. On the other hand, some adults are not psychologically mature despite their chronological age. Two important points are made regarding a definition of adult learners by Merriam and Brockett (2007:4), who are of the opinion that the contemporary approach in defining adults is to consider the socio-cultural view, indicating that we need to take the society and culture as well as the specific historical time in consideration. From another point of view, Dean (2004:3) notes that adults are a diverse group and that we need to treat them with respect for their autonomy, although some may in our opinion not always exhibit all the characteristics of adulthood. Parson (in Merriam & Brockett 2007:5) concurs when he states: "Adults are not necessarily mature. But they are supposed to be mature, and it is on this necessary supposition that their adulthood justifiably rests." A further complicating factor in defining adults is the different needs within adult learners as a group. Illeris (2003:18-20) identifies three generations of adult learners. The older generation regards work as a means to make an existence and is not interested in further education; they will only participate if it is needed in their work. The middle generation, with a predominantly "wage earner mentality", regards education as a means of obtaining the knowledge needed, although they do acknowledge the personal value of education. The younger generation, however, regards education as taking responsibility for their careers and views lifelong learning as a way of life.

For the purposes of this study, adult learners are defined as learners 23 years or older (using the South African legislative definition applicable to the educational context), whose main life task is other than being a full-time student.

From the definitions of adult learners, it is clear that adults form part of a diverse group with different needs. In order to understand the diverse needs of this group better, it is important to consider the development of adults as an important contributor that can influence the design of effective teaching and learning for this group.

4.3 ADULT DEVELOPMENT PERSPECTIVES

The various adult development perspectives are important for an understanding of how adults learn, because the behaviour of adults is influenced to a large extent by their development (Knowles, Holton & Swanson 2005:220-221). The different development perspectives therefore provide useful information for guiding adults in the learning process. Merriam *et al.* (2007:298) define this development as “systematic changes within an individual... that results from a dynamic interaction of heredity or environmental influences”.

While some authors only distinguish between age and stage theories, Merriam and Brockett (2007:144), Merriam *et al.* (2007:299) and Schlossberg, Waters and Goodman (1995:4) make more comprehensive distinctions. These distinctions are indicated in Table 4.1. In the table, classifications of the authors are grouped together to show the similarities among the different perspectives. Four major perspectives, indicated by the rows in the table, can be identified.

Table 4.1: Comparison of various perspectives on adult development theories

Merriam and Brockett 2007	Merriam <i>et al.</i> 2007	Schlossberg <i>et al.</i> 1995
Sequential patterns of change	Psychological Biological	Developmental
Life events	Socio-cultural	Contextual
Transitions		Transition Life-span
	Integrated	

Source: Compiled by the researcher from the relevant resources

In Table 4.1 the categories in the first row, namely the sequential patterns of change, and the psychological, biological, and developmental perspectives all refer to development as a series of stages or ages that an adult will be confronted with as part of their natural developmental path (Merriam & Brockett 2007:144, Merriam *et al.* 2007:299, Schlossberg *et al.* 1995:8).

The second major category (indicated in the second row of Table 4.1) views adult development as embedded in a historical context where, among others, cultural events and society influence the development of the individual. Merriam and Brockett (2007:144) refer to this category as

life events, while Merriam *et al.* (2007:299) use the term socio-cultural approach and Schlossberg *et al.* (1995:4) label it a contextual perspective.

The third category of adult development (as indicated in Table 4.1) considers transitions as the markers in adult development. This perspective suggests periods of change (disorientation) and stability (reorientation) in adult development (Merriam & Brockett 2007:145, Schlossberg *et al.* 1995:18-19). The life span perspective identified by Schlossberg *et al.* (1995:16) focus on issues regarding continuity and change but this perspective focus more on the individual differences in development.

Merriam *et al.* (2007:144) are the only authors who present an integrated perspective with a view on adult development as a combination of different perspectives and theories, and focus on the interaction between the individual and the environment. Because of the more comprehensive and holistic view that an integrated approach offers, all the various perspectives can be incorporated in such a view.

In the discussion of the major perspectives, only a few prominent theories will be highlighted to obtain a better understanding of each perspective. The terminology for the various perspectives will be based on that identified by Schlossberg *et al.*, namely the developmental, contextual, and transition perspective, with addition of the integrated approach, as identified by Merriam *et al.* (2007).

4.3.1 Developmental perspective

The developmental perspective regards adult development as consecutive phases or stages that mark the individual's development. This perspective is the most popular one on adult development. Commonly, it is subdivided in age/phase theories and stage theories, while some authors (Ross-Gordon 2003:46, Taylor Marienau & Fiddler 2000:341) also distinguish constructive-development theories.

4.3.1.1 Age or stage theories

Age or stage theories focus on the transitional periods (tasks) that are linked to certain ages in the development of an adult. The most popular theory in this perspective is Levinson’s life task development model, despite criticism that it provides an overly structured view of adult life (Merriam *et al.* 2007:307). According to Levinson’s theory, a person’s chronological age is used to characterise periods of stability and transitions. In periods of stability one creates and maintains one’s life, while it is questioned in periods of transition (Merriam *et al.* 2007:307-308). Levinson identifies three main eras, i.e. early, middle and late adulthood. Although a specific age range is associated with each stage, there is disagreement in the literature regarding these age ranges (Knowles *et al.* 2005:223-334, Schlossberg *et al.* 1995:9). The stages follow a specific sequence and each stage is characterised by its own developmental tasks (Schlossberg *et al.* 1995:9). Table 4.2 contains a summary of the various stages, with the age range and development tasks.

Table 4.2: Levinson’s Life task development model

Era	Developmental stage	Age	Developmental task
Early adulthood	Early adult transition	17-22	Explore possibilities and make tentative commitments
	Entering the adult world	22-29	Create first major life structure
	Age 30 transition	29-33	Reassess life structure
	Settling down	33-40	Creating a second life structure
Middle adulthood	Midlife transition	40-45	Ask: “What have I done with my life?”
	Entering middle adulthood	45-50	Creating a new life structure
	Age 50 transition	50-55	Minor adjustments to middle life structure
	Culmination of middle adulthood	55-60	Build second middle life structure
Late adulthood	Late life transition	60-65	Prepare for retirement and old age
	Late adulthood	65+	Create late life structure and deal with declines of old age

Source: Knowles *et al.* (2005:224)

4.3.1.2 Stage theories

The central concept in stage theories is the resolution of crises in a person's life (Schlossberg *et al.* 1995:9, 11). The most influential theory in this regard is Erikson's theory on psychosocial development or identity development. According to Erikson a person will move through eight stages during their lifespan that will present a crisis, issue or dilemma with two opposite outcomes, one positive and the other negative. The individual has to work through the crisis of each stage and decide on one of the opposites (Merriam *et al.* 2007:306). Erikson regards the resolution of the crisis at each stage as influential on how the individual will handle the stages that follow. If an individual can work successfully through a stage it can provide a certain strength at that specific stage, while unresolved crises will result in a negative psychosocial outcome. At each stage the resolution of the crisis will be critical in the development of the individual but the individual will be able to revisit and redefine previous issues at later stages (Craig 1996:59-60, Knowles *et al.* 2005:224, Merriam *et al.* 2007:306). Erikson identifies three stages that specifically relate to adulthood. They are set out in Table 4.3.

Table 4.3: Erikson's theory of psychosocial development related to adulthood

Age	Stage	Crisis/issue/dilemma	Psychosocial outcome
19-25 years	Young adulthood	Can I give myself fully to another?	Intimacy versus Isolation (strength: Love)
25-65 years	Middle adulthood	What can I offer succeeding generations?	Generativity versus Stagnation (strength: Care)
65 years +	Late adulthood	Have I found contentment and satisfaction through my life's work and play?	Ego-integrity versus Despair (strength: Wisdom)

Source: Compiled from Craig (1996:59) and Knowles *et al.* (2005:225).

Related to this perspective, Merriam and Brockett (2007:143) also include theories that focus on one specific aspect of adult development, like moral development (Kohlberg), intellectual development (Perry), and ego development (Loevinger). Schlossberg *et al.* (1995:8) refer to these theories as domain-specific theories.

4.3.1.3 Constructive developmental theories

Constructive-developmental theories focus on the progressive development of individuals through the construction of meaning as they move through the various life stages (Ross-Gordon 2003:46). Taylor *et al.* (2000:341) note that as we develop, the rules for making meaning change. This process of progressive development (trying to find out what the new set of rules is) leads to more complex ways of understanding the world and increases the individual's awareness of their own abilities (Ross-Gordon 2003:46). Taylor *et al.* (2000:341) describe Perry's theory and the subsequent improvements and elaboration on Perry's model on intellectual development as an example of constructive-developmental theories. Perry's theory clearly indicates the progressive development of an individual in terms of their intellectual development. Perry points out that as adolescents move to adulthood, their thinking develops from regarding the world as dualistic (as either right or wrong) to accepting various perspectives (multiplicity-relativism), but still without insight in the opposing viewpoints, to the final category of commitment where the individual accepts the responsibility that goes with the choices they make (Taylor *et al.* 2005:344-345).

4.3.1.4 Biological approach

The biological approach considers the change in the biological and physical make-up of an individual through the interaction with the environment. This approach considers aspects like life expectancy, health and the deterioration of the senses and nervous system that influence an adults' vision, hearing and reaction time as they get older. These changes are individual, but biological deterioration can be minimised with the assistance of technology, with little effect on learning (Merriam *et al.* 2007:299-305, 323).

The contribution of the developmental perspective to learning lies in acknowledging the impact of development on the life tasks of the adult that provides clues to their motivation (Knowles *et al.* 2005:225). Knowles (in Merriam *et al.* 2007:308) regards developmental tasks as an indication of a "readiness to learn" that would cumulate to a "teachable moment" where adults will be motivated to learn due to the challenge that their particular developmental stage presents.

4.3.2 Contextual perspective

The contextual perspective recognises how society influences the development of an individual that is tied to factors like race, ethnicity, age, gender etc. This approach takes into account the expectations of society that an individual should conform to certain social roles in that specific community, for instance when certain life events should take place (Merriam *et al.* 2007:312-314). While the focus of the sequential developmental perspective is on the progressive stages that lead to development in the adult, the focus in the contextual perspective is more on the “individual and cultural events” in the individual’s life, i.e. marriage, birth of a child, death of a loved one (Merriam & Brockett 2007:144). Neugarten (in Merriam *et al.* 2007:313) cautions us that:

Every society is age-graded, and every society has a system of social expectations regarding age-appropriate. The individual passes through a socially regulated cycle from birth to death as inexorably as he passes through a biological cycle: a succession of socially delineated age-statuses, each with its recognized rights, duties and obligations.

Neugarten and Neugarten (in Schlossberg *et al.* 1995:7) emphasise the importance of the historical context in this perspective. They indicate how society’s rules of what is appropriate at a certain age have changed (Merriam *et al.* 2007:323): for example women have children later in life, dual family careers are commonplace where mothers combine child-rearing and a career. This diffusion of age-related roles is known as a “fluid life cycle”. However, stress, conflict and anxiety are created when the “age clock” is not synchronised with what is expected in society. Craig (1996:473) defines the age clock concept developed by Neugarten as: “a form of internal timing used as a measure of adult development; a way of knowing we are progressing too slowly or too quickly in terms of key social events that occur during adulthood”.

According to Neugarten (in Merriam *et al.* 2007:314), life events happen off-time or on-time – indicating whether major life events occur according to the expectations of societal beliefs. Events that happen off-time (when they are not commonly associated with a specific age/stage) result in a crisis that would not have been experienced as a crisis if it happened in-time.

From a contextual perspective of adult development, information on life events provides the adult educator with knowledge of the influence of certain life events on individuals and on their development and learning (Smith 2009:¶28-29). While the developmental perspective studies life events as markers, the contextual perspective interprets the life events using socially constructed beliefs (Merriam *et al.* 2007:314) to understand the individual better.

4.3.3 Transition perspective

The transition perspective views adult development as a “natural process of disorientation and reorientation” in the individual. These disorientations provide opportunities for development and growth (Merriam & Brockett 2007:145). Schlossberg *et al.* (1995:18) indicate that the transition perspectives focus on life events, expected or unexpected, that lead to change. Merriam and Brockett (2007:145) regard Mezirow’s theory of transformation learning as an example of this perspective (see section 4.4.4.1). Schlossberg *et al.* (1995:26-28) propose a transition model, where the emphasis is not on the stage or age of the individual but on the transition(s) that the adult is confronted with. Transitions are regarded as “anticipated or unexpected events or non-events that result in a change in relationships, routines, assumptions and/or roles e.g. marriage, not having a baby (non-event)” (Schlossberg *et al.* 1995:19).

Homes and Rahe (in Smith 2009:¶27) compiled a list of life events that lead to stress in an individual. The list is sorted from the most stressful to the least events. It is pointed out that illness or stress can develop based on the number of stressful events that happen to an individual. The twelve most stressful life events identified by Homes and Rahe are listed in Table 4.4, together with other events applicable to this study (events listed from number 16) that can be experienced as stressful. It is important to note that it is not just the life event that leads to stress or anxiety, but that the meaning attached to it and the reaction to the event will determine the level of stress or anxiety (Craig 1996:539).

Table 4.4: Major stressful life events

	Life event	Points out of 100 to indicate extent of crisis
1	Death of a spouse	100
2	Divorce	73
3	Marital separation from mate	65
4	Detention in jail or other institution	63
5	Death of a close family member	63
6	Major personal injury or illness	50
7	Marriage	47
8	Being fired at work	45
9	Marital reconciliation with mate	45
10	Retirement from work	45
11	Major change in health or behaviour of a family member	44
12	Pregnancy	39
14	Birth of a child or gaining a new family member	39
16	Change in financial state	38
18	Change to a different line of work	36
22	Change in responsibilities at work	29
25	Outstanding personal achievement	28
32	Moved to a new town or city	20

Source: Homes and Rahe (in Smith 2009:¶27)

The life-span perspective, which forms part of the transition perspective initiated by Schlossberg *et al.* (1995:16), focuses on “individuality and issues of continuity and change”. According to this perspective, adults overestimate the influences of their earlier development. Theorists in the transition perspective regard individuality or variability as an important aspect to consider in adult development. As Schlossberg *et al.* (1995:16) report on the work of Pearlin:

Human variety is as rich as people’s historic conditions and current circumstances, and that even within the same cohort, the impact of conditions may differ because of variations in coping responses. Pearlin [further cautions against] overemphasizing any event, period or transition [because] it risks categorizing people as if they were all the same.

Schlossberg *et al.* (1995:17) note that these theorists regard life events as transitions that shape and direct the individual’s development. They reject the notion of stage theories (especially the

idea of hierarchical stages), the sequence of the stages related to age and time, and the cumulative effect suggested by some stage theories (Schlossberg *et al.* 1995:17).

4.3.4 Integrative perspective

According to the integrative perspective, two or three of the perspectives on adult development need to be integrated to obtain a holistic view of adult development (Merriam *et al.* 2007:319, 322). They, further, describe four theories that attempt to show how various perspectives can be integrated. One of the earlier theories is that of Baltes (in Merriam *et al.* 2007:319). He regards biological and environmental forces as the basic determinants of development. Age-graded, history-graded and non-normative influences (individual factors) then influence development. The interaction between the biological and environmental forces and the three factors leads to changes in development.

From the viewpoint of an integrative approach to adult development, the observation made by Taylor *et al.* (2000:10-11) provides useful insights regarding the similarities of the various adult development theories. They point out that all adult development theories have four elements in common, i.e. interaction with the environment, differentiation and integration, a variable process and reframing of experiences. The environmental interaction indicates that development takes place in a social setting. How an individual makes meaning from an event is influenced by the environment and the specific culture that features in that environment. Differentiation and integration are similar to the concepts of transition and stability phases as defined by Levinson (in Merriam *et al.* 2007:307). Taylor *et al.* (2000:11) indicate that disintegration provides opportunities for the learner to search for alternatives that can lead to integration. The variable process refers to the fact that although all individuals develop, it will not be at the same time (related to one's chronological age) for everyone. Development is dependent on experience and opportunities so that the individual can challenge their existing frameworks. Neugarten's (in Merriam *et al.* 2007:314) concept of on-time and off-time describes this variable process. The reframing of experience is the fourth element, which refers to how adults view their lives (called life themes). These life themes are formed during childhood and adolescence and influence how we perceive and interpret experiences from the

environment. Sometimes individuals reframe these experiences that result in development (Taylor *et al.* 2000:11-12).

4.3.5 The importance of adult development perspectives

Knowles *et al.* (2005:222) point out that contemporary thinking on adult development theories takes a multidimensional approach, where the contribution of each theory is acknowledged in an attempt to understand the complexity of adult development better.

Adult development theories provide the educator with knowledge of the life circumstances of adults that lead to a need for further learning, formal or informal. In some instances certain life events or crises bring adults to the formal learning process. In other instances it is the learning process that helps the development to occur (Kolb in Taylor *et al.* 2000:337, Merriam & Brockett 2007:143, Taylor *et al.* 2000:337).

By understanding the changes that the adult is confronted with and the influence of the adult's interaction with the environment, adult educators can design learning environments that result in development, because it is through the learning process that development takes place (Merriam & Brockett 2007:143, Merriam *et al.* 2007:146, Taylor *et al.* 2000:337). Taylor *et al.* (2000:14) propose that adult learning must have development as a purpose or aim.

Knowles *et al.* (2005:222) concur that "the challenge for adult educators is to understand development well enough to recognize which dimensions are most relevant to a particular group of learners in a particular learning situation".

From the discussion of adult development perspectives, a picture has been created of the needs and motivation of adult learners that will assist in an appropriate learning design specifically targeted for this group of learners.

From an andragogical perspective, Knowles *et al.* (2005:228) indicate that adult development and adult learning cannot be separated. To further elaborate on the design of learning for adult learners, the theories of adult learning will be examined.

4.4 ADULT LEARNING THEORIES

The discussion on adult learning theories commences with an overview of how adult learning theories fit in with the three foundations of learning theories (behaviourism, cognitivism and constructivism). This is followed by an overview of the most influential adult learning theories.

4.4.1 The relationship between the main learning theories and adult learning theories

There is no consensus on exactly which learning theories are the major contributors to adult learning. For the purposes of this study the classification presented by Merriam *et al.* (2007:5), with the exception of social learning, will be used to organise the discussion. In Chapter 3, three major learning theories, namely behaviourism, cognitivism and constructivism, together with connectivism, were discussed (see section 3.2). In this section humanism is also reviewed due to its important contribution to adult learning theories.

Where behaviourists regard learning as changes in overt behaviour, cognitivism is more concerned with the cognitive changes that take place when learning occurs. Humanism also takes this cognitive dimension in consideration, but focuses on the affective dimension. Humanism rejects the behaviourist notion that behaviour is determined by the environment, but supports the belief that human beings are in control of their own lives (Merriam *et al.* 2007:281-282). Humanism is based on the following assumptions (Merriam & Brockett 2007:40):

1. Human nature is intrinsically good.
2. Humans are free and autonomous and have free choice in determining their behaviour.
3. Humans have unlimited potential for growth and development.
4. Humans have a responsibility to develop to the fullest to contribute to the good of humanity.

In terms of teaching and learning, humanism accentuates the development of the individual and a learner-centred approach following from the freedom, free choice and responsibility of the individual in the learning process (Merriam & Brockett 2007:40). The core of humanism is then that personal development and the construction of meaning takes place through

interaction with others and through reflection (Eisen 2005:19). The role of the teacher would be to facilitate the learning process and allow the learner to discover and take responsibility for their learning processes (Dean 2004:5).

Table 4.5 provides a summary of the adult learning perspectives that correspond with the main learning theories and humanism. The most prominent theories of adult learning have constructivism and humanism as a foundation, as indicated in Table 4.5 in bold.

Table 4.5: Relationship between foundations of learning theories and adult learning theories

Behaviourism	Cognitivism	Constructivism	Humanism
Accountability	Intelligence, memory and learning related to age	Experiential learning	Andragogy
Setting learning goals and criteria		Transformational learning	Self-directed learning
Skill development		Reflective practice	Transformational learning
		Communities of practice	
		Situated learning	

Source: Compiled from Merriam *et al.* (2007:296)

In the next section, the adult learning theories given in bold in Table 4.5 are discussed. Three of these adult learning theories have had a prominent influence on the study of adult learning, namely andragogy, self-directed learning and transformational learning (see sections 4.4.2, 4.4.3 and 4.4.4.1)(Jarvis, 1995: 155, Merriam *et al.* 2007:293); they are therefore included in the discussion. Andragogy and self-directed learning are primarily based on the humanistic viewpoint that focuses on the individual, where self-development is accentuated and where the learner must take personal responsibility for their own learning (Cafferella 1993:26, Merriam *et al.* 2007:293). Transformational learning is based on both humanistic and constructivist principles (Merriam *et al.* 2007:144, 296). Three other theories related to constructivism, namely experiential learning, reflective practice and situated cognition are also included in the discussion on the major adult learning theories.

4.4.2 Andragogy (Knowles)

Although Knowles did not invent the term andragogy, he was the major advocate in making the term known to the adult educator community. Initially, Knowles tried to indicate how andragogy (“the art or science of helping adults learn”) is different from pedagogy, but later indicated that the two terms could be seen as two opposite ends on a continuum and that children could also be taught using andragogical principles (Bucher *et al.* 2007:131, Knowles *et al.* 2005:59, Merriam 1993:8, Merriam & Brockett 2007:135).

Knowles initially identified four assumptions underlying andragogy, namely the self-concept of the learner, the prior experiences of the learning, readiness to learn and orientation to learning; through continuous adaptations, the original four assumptions were extended to include the learners’ need to know and motivation to learn (Knowles *et al.* 2005:68, Merriam & Brockett 2007:136).

4.4.2.1 Self-concept of the learner

An adult’s self-concept is based on their ability to take responsibility for their decisions and their lives. Adults want to be treated differently from children in the sense that they want acknowledgement that they can direct their own lives, and will withdraw in a learning situation that does not acknowledge their self-directedness. However, adult learners can be insecure and the facilitator will then have to support such learners to develop from being dependent to becoming self-directed learners (Knowles *et al.* 2005:65, Merriam & Brockett 2007:136). The implication for the learning situation is that the adult learner needs to take responsibility for the learning and that adults should be actively involved in the learning process (Lieb 1991:¶2).

4.4.2.2 Prior experience of the learner

One of the main differences between children and adults is the volume and quality of experiences that adults bring to the learning situation. Their experiences provide individual differences and comprise differences in terms of background, motivation, needs, interests and goals. Furthermore, adults have a rich resource base among them. However, these experiences can also negatively influence learning where adults have preconceived ideas that require

sensitivity when challenged in the learning environment. Lastly, the self-identify of the adult is also determined by their experiences. The facilitator therefore needs to be sensitive in working with the adult learner's experiences (Knowles *et al.* 2005:65-66).

4.4.2.3 Readiness to learn

Adults develop a readiness to learn when they need specific knowledge or a skill to cope with certain situations in their lives. Developmental tasks associated with different life stages provide a rich source of information on the readiness of adults related to specific knowledge or skills (Knowles *et al.* 2005:67). Lieb (1991:¶4) refers to this as being goal-orientated.

4.4.2.4 Orientation to learning

While the focus in teaching children is subject-orientated, adults are more life-centred, or as Knowles *et al.* (2005:67) put it, task- or problem-orientated. Adults are motivated to learn if they feel that the learning can assist them in their lives – if they can see the practical value of the knowledge. To make knowledge more real to adults, it should preferably be applied to a real-life situation e.g. through simulation and role play (Knowles *et al.* 2005:67, Lieb 1991:¶6).

4.4.2.5 Learners need to know

Adults first want to see the value of learning something before they will engage in the task. Lieb (1991:¶5) refers to this assumption by Knowles as “relevancy-orientated”. The task must be applicable to their work or other life roles. The task of the facilitator is then to make the adult learners aware of this need to know something (Knowles *et al.* 2005:64, Lieb 1991:¶5).

4.4.2.6 Motivation to learn

Although external motivators can support learning, the most important motivators are internal to the individual. Internal motivators can include job satisfaction, self-esteem and quality of life. The facilitator needs to focus on the internal motivators that build the adult learners' self-esteem in the learning environment (Fidishun 2000:¶15, Knowles *et al.* 2005:68).

Houde (2006:90) indicates that there are positive and negative criticism regarding andragogy. Those supporting andragogy emphasise the usefulness of the assumptions, while those against

focus on the inconsistencies. One of the major criticisms against andragogy is that it is not really a theory because it does not define learning (Clardy 2005:13, Merriam & Brockett 2007:135, Pratt 1993:16). Clardy (2005:13) argues that andragogy is more a “prescriptive model for teaching” than an adult learning theory. In the same vein Merriam and Brockett (2007:135) describe it as a set of assumptions. Pratt (1993:21) notes that the contribution of andragogy is “more in scale than in content”. However, the contribution of andragogy does not only lie in its usefulness or in the fact that it drew attention at a time when behaviourism was still advocated (Merriam & Brockett 2007:137, Pratt 1993:21), but because it is a recognisable concept that provides a framework for adult educators to work from (Merriam & Brockett 2007:137). Andragogy’s value lies in the support it provides to adult educators’ understanding of adult learners and how to apply this in the learning context. Brown, Irby, Fisher and Yang (2006:32) illuminate this as “a way to work effectively with others ... [and] to promote meaningful learning among adults”.

Andragogy supports the idea of self-directed learning with its assumptions regarding the self-concept of the learner and the relevance and goal orientation of adult learning. In the following section, self-directed learning is discussed in more detail.

4.4.3 Self-directed learning

Although not a new idea, self-directed learning is one of the concepts in adult learning that has recently received a lot of attention (Knowles *et al.* 2005:185, Merriam *et al.* 2007:137, Merriam & Brockett 2007:137). Caffarella (1993:25) notes that self-directed learning is described as “the essence of what adult learning is about”. The concept of self-directed learning was developed by Tough who built on the work of Houle (Merriam *et al.* 2007:105). Most commonly, self-directed learning is seen as the process in which adult learners take control of their own learning by identifying their learning needs, deciding on their learning goals, recognising the appropriate resources, implementing learning methods and strategies, and evaluating their progress (Brookfield 1995:2, Merriam *et al.* 2007:106, Merriam & Brockett 2007:138). Caffarella (1993:25-26) shows that self-directed learning integrates three distinct ideas:

1. Learning is “self-initiated”, implicating that the learner manages his/her own learning.

2. Personal autonomy is assumed.
3. The learning situation must be designed to provide more learner control.

According to Knowles *et al.* (2005:185-186), some conceptual confusion about self-directed learning exists. Some regard it as self-teaching, where learners take control and teach themselves, while others define it in terms of personal autonomy or what Candy (in Knowles *et al.* 2005:186) refers to as autodidaxy, where the learner takes control of the goals and purposes of learning.

In the last two decades, researchers working with this concept have realised that self-directed learning is more complex. Various models of self-directed learning were developed. Merriam *et al.* (2007:110) observe that self-directed learning can be seen as a process of learning; they divide the various models in three categories, namely linear, interactive and instructional models. Linear models regard the learning process as a series of steps that the learner works through to reach goals in a self-directed manner, while interactive models do not see the learning process as well-planned and linear, but rather depending on certain factors like the opportunities in the individual's personality and the environment. The instructional models, on the other hand, integrate self-directed learning into programmes and teaching activities, specifically aimed at formal settings. In Table 4.6 the different approaches to self-directed learning are set out to provide the full picture. However, not all these models will be discussed in detail for the purposes of this study.

Table 4.6: Summary of models described under three categories of self-directed learning

Linear	Interactive	Instructional
Tough – self-planned learning	Spear’s model on self-directed learning	Grow’s staged self-directed learning model
Knowles – six steps in self-directed learning	Personal Responsibility Orientation model (PRO model) (Brockett & Hiemstra)	Hammand & Collins – the only model that promotes emancipation learning
	Garrison’s Dimensions of self-directed learning model	
	Other interactive models: Cavaliere, Danis, Valente, Robertson & Merriam	

Source: Compiled from Merriam *et al.* (2007:110).

The two models regarding self-directed learning to be described are Garrison’s model on the dimensions of self-directed learning and the one of Grow. Garrison’s model is chosen because it is based on a social constructivist approach, and Grow’s staged self-directed learning model due to its application in formal settings and the developmental nature of the model. In Garrison’s model, self-directed learning is regarded as a process where self-directedness is regarded as a characteristic of adult learning, while in Grow’s model the focus is more on the role of the educator in analysing the current stage of the learner to support the learner in achieving self-directedness.

4.4.3.1 Garrison’s model on the dimensions of self-directed learning

Garrison (in Knowles *et al.* 2005:187) proposes an interactive (“collaborative constructivist”) and multidimensional model based on three components: self-management (control), motivation (entering the task) and self-monitoring (responsibility). Self-management takes the social environment into account, which includes the learning materials and learning collaboratively. While motivation and self-monitoring both focus on cognitive processes, motivation focuses more on the cognitive processes that will motivate the individual – not only to engage in self-directed learning, but also to complete the tasks.

Self-monitoring concerns the monitoring of one’s own cognitive and meta-cognitive processes and refers to the responsibility of constructing knowledge through critical and reflective thinking. Garrison (in Knowles *et al.* 2005:187) notes that traditionally only the control of learning received attention. According to Garrison, all three components must receive equal attention in the learning environment (Knowles *et al.* 2005:187-188, Merriam *et al.* 2007:114-115).

4.4.3.2 Grow’s staged self-directed learning model

Grow’s model is based on the assumption that not all learners will exhibit the same degree of self-teaching and personal autonomy and that in certain learning situations, some learners will need various kinds of support due to variances in competence and preferences. The educator can assist the learner to become more self-directed by matching the teaching style with the student’s current stage (Knowles *et al.* 2005:187, Merriam *et al.* 2007:117-118). In Table 4.7 the development of the learner’s autonomy from a dependent to self-directed learner is shown. The characteristics of the student as well as the applicable role of the teacher are indicated at every stage.

Table 4.7: Grow’s stages in learning autonomy

Stage	Characteristics of student	Teacher	Examples
Dependent learner	Low self-direction, needs authority figure to tell them what to do	Authority, coach	Introductory material, informational lecture, drill, overcoming resistance, immediate correction
Interested learner	Moderate self-direction, motivated and confident but ignorant of subject matter	Motivator, guide	Intermediate material, lecture with guided discussion, goal-setting and learning strategies
Involved learner	Intermediate self-direction, have skill and basic knowledge and view themselves as ready and able to learn specific subject area	Facilitator	Application of material. Facilitated discussion. Groups working with real-life problems, critical thinking
Self-directed learner	High self-direction, both willing and able to take control of learning process with or without the help of an expert	Consultant, delegator	Independent projects. Student-directed discussions, discovery learning

Source: Compiled by the researcher from Knowles *et al.* (2005:187) and Merriam *et al.* (2007:117-118).

4.4.4 Transformational learning

The terms transformational and transformative learning are used interchangeably in the literature. This could lead to some confusion regarding the body of theories, approaches and perspectives known as transformational learning, and about one theory in particular, i.e. Mezirow's transformation learning (Clark 1993:47, Merriam *et al.* 2007:130). Merriam *et al.* (2007:130) identify seven theories on transformational learning. These theories are classified in two categories – transformational theories that focus on individualistic perspectives and transformational theories that focus on socio-cultural perspectives. Table 4.8 provides a summary of the various approaches and theories regarding transformational learning and the focus of each approach or theory.

Table 4.8: Summary of different approaches to transformational learning

Individualistic perspectives	
Theory or approach	Focus
Mezirow's transformation learning theory	Focuses on how adults make sense of experience
Daloz's psychodevelopmental approach	Focuses on lifelong personal development through focusing on the narrative
Boyd's psychoanalytical approach	Focuses on spirituality in transformational learning
Socio-cultural perspectives	
Theory or approach	Focus
Freire's social-emancipatory approach	Regards personal empowerment and social transformation as inseparable
Cultural-spiritual perspective by Tisdell	Similar to Boyd's, but includes the role of culture in transformational learning
Race-centric approach	Focuses on the transformational learning of people of "African descent" to "raise race consciousness"
Planetary view	Acknowledges the "interconnectedness between the universe, planet, natural environment, human community and the personal world... to raise awareness of planetary consciousness"

Source: Compiled from Merriam *et al.* (2007:132, 137, 139, 140-143).

Transformational learning approaches have a few characteristics in common: all have developed from constructivist viewpoints and all believe that dialogue and critical reflection are necessary for transformational learning, while social change is an outcome of transformational learning. These approaches also share three key concepts, namely experience, critical reflection and development (Merriam *et al.* 2007:144). Experience is seen as the starting point of the transformational learning process and is used in various ways to lead to critical reflection of the learner's assumptions. Critical reflection is seen as the cornerstone of effective learning. In transformational learning, the outcome of utilising experiences and reflecting on these experiences would lead to individual development. Underpinning this development is the growth of the individual through change, which is congruent with the humanistic viewpoint (Merriam *et al.* 2007:144-149). Because Mezirow's transformation learning theory is regarded as the most comprehensive and influential theory, only this transformational learning theory is discussed in more detail (Gravett 2005:26, Merriam *et al.* 2007:131).

4.4.4.1 Transformation theory (Mezirow)

Initially Mezirow referred to his approach as perspective transformation, but later changed it to transformation theory. Mezirow's theory is based on the work of Habermas, a critical theorist that among others focused on the role of self-reflection in learning (Brookfield 1995:5, Merriam 1993:11-12, Merriam & Brockett 2007:141). Merriam *et al.* (2007:132) make use of the term psycho-critical approach to refer to Mezirow's theory. Mezirow (in Merriam 2007:132) defines his approach as "the process of using a prior interpretation to construe a new or a revised interpretation of the meaning of one's experience in order to guide future action". How individuals understand their life experiences is thus the core principle of transformation theory.

Mezirow identifies various kinds of meaning structures, namely habits of mind and points of view. Habits of mind is defined by Mezirow (in Gravett 2005:26-27) as "a set of assumptions that act as a filter for interpreting the meaning of experience" while points of view are seen as "clusters of meaning schemes, that direct and shape a specific interpretation and determine how we judge, typify objects and attribute causality". It is easier to change points of view than to change habits of mind. Although not all learning will be transformative in nature, learning

that challenges and changes points of view and habits of mind is transformational (Gravett 2005:27, Merriam *et al.* 2007:132-133).

The transformation learning process consists of four main components: experience, critical reflection, reflective discourse and action. The transformation learning process will start with existing experience and use it to assist the learner to critically examine and reflect on their own beliefs and assumptions. This new awareness is tested in a collaborative setting utilising reflective discourse. According to Mezirow (in Merriam *et al.* 2007:134), the goal of reflective discourse is not disagreement, but constructive debates that will assist the individual to attain a new level of understanding. Mezirow (in Gravett 2005:29, Merriam *et al.* 2007:143) proposes ideal conditions for effective discourse to take place that could be useful to adult educators. These ideal conditions include factors like openness to new points of view, plus opportunities to collaborate in an environment free from intimidation or coercion and an opportunity to reflect. The last component, action, follows the discourse; this can range from making a decision to more radical action (Merriam *et al.* 2007:134-135).

Mezirow's transformation theory is described as a milestone for adult learning and providing a distinctive characteristic to adult learning (Merriam 1993:9, Merriam & Brockett 2007:143). Not only does it focus the attention on the importance of making learners aware of their current ideas, but it also assist them in a supportive environment through reflection and discourse to reach a new level of meaning (Gravett 2005:31).

Andragogy, self-directed learning and the transformation theory focus on the idea in humanism of developing the potential of the individual. The three theories also focus our attention on other important principles in the learning environment for adults, namely the importance of using adults' prior experiences, making learning relevant to real-life and the importance of reflection in development. The three concepts are closely related to three other theories in adult learning, namely experiential learning, situated cognition and critical reflection. From a learning theory perspective these three theories support constructivist principles and are important in adult learning. Brookfield (1995:1) indicates that two of these, experiential learning and critical reflection, together with self-directed learning and meta-cognition have been said to be unique and exclusive to adult learning.

4.4.5 Critical reflection

Critical reflection is identified as an important aspect in adult learning by Knowles, Mezirow and Kolb. Knowles indicates the importance of critical reflection by incorporating it in one of the six assumptions – the role of experience. Through reflective activities adults examine their assumptions and in essence their self-identities (Fidishun 2000:¶11). Mezirow's theory of transformation learning explains how critical reflection is used by adults to make sense of their life experiences (Brookfield 1995:5). Critical reflection is also embedded in Kolb's experiential cycle, so an adult educator using Kolb's model will support the learning process by integrating experiences and critical thinking in teaching.

Although experience is important, it is the reflection on the experience that facilitates the learning (Taylor *et al.* 2000:26). Reflection is defined as "activities in which the individual engage[s] to explore their experiences in order to lead to new understandings and appreciations" (Taylor *et al.* 2000:27). Reflection is not only used by adults to visualise how to apply information, but also to get a holistic view of the learning content, while collaboration assists them with comparing their views with those of others (Dobrovolny 2003:2). Schön (in Merriam 2007:174) identifies two types of reflection, viz. reflection-on-action and reflection-in-action. The type of reflection that is most commonly used in educational settings is reflection-on-action. Reflection-on-action takes place after the experience. Educators facilitate learning by analysing and evaluating experiences and decide on how to do things differently. Reflection-in-action happens while you are in the experience. By thinking on your feet you are able to rethink what you are doing and adapt your thinking and behaviour to the event or try something different. According to Schön, reflection-in-action allows the practitioner to go beyond the application of the task and at the same time to be innovative and adapt a problem-solving attitude (Merriam *et al.* 2007:173-177).

In his transformation theory, Mezirow indicates that critical reflection is the outcome of using experiences. Experiences are used to create a dilemma or disequilibrium in the student, but critical reflection through interaction and collaboration with others leads students to adapt their thinking, behaviour and skills to develop and grow (Merriam *et al.* 2007:144-149). Mezirow (in Merriam *et al.* 2007:145) notes that not all types of reflection will lead to

transformative learning. He identifies three kinds of reflection, i.e. content reflection (thinking of the actual experience), process reflection (thinking about ways to deal with the experience) and premise reflection (examining beliefs, assumptions and values about the experience). Only premise reflection, where one challenges long held beliefs and assumptions will lead to transformative learning (Merriam *et al.* 2007:145).

Taylor *et al.* (2000:28, 29) indicate that critical reflection takes reflection to a higher level, where the learners reflect on their own reflection (meta-level). Critical reflection assists adults in realising that values, ideologies and beliefs are open for debate and that critically reflecting on them may cause change in the individual's beliefs and values that may lead to growth and development. Critical reflection fosters a deep approach to learning (Taylor *et al.* 2000:27). According to Brookfield (1995:4) critical reflection focuses on three interrelated processes:

1. The process of questioning and reframing existing assumptions.
2. The process of incorporating alternative perspectives that were previously taken for granted.
3. The process of realising the limitations of one's own culture and realising the value of other cultures.

The various perspectives on reflection highlight the importance of reflection, not only in thinking about one's own thinking but also the value that it has in transforming an individual's beliefs. Kolb's learning cycle is the most well-known model that is used in practice to facilitate reflection on learning (Cox 2005:463). Before we focus on experiential learning, situated cognition as another important adult learning theory from the constructivist paradigm will be discussed.

4.4.6 Situated cognition

Wilson (1993:74-76) describes how Dewey, Lindeman and Knowles, Kolb, and Jarvis acknowledge the importance of experience. However, the use of experience in the learning process is seen as an individual activity. Wilson (1993:76) points out that not one of these theories takes the situational context in account. Schön is the first scholar that considers the situation with his concept of reflection-in-action. Schön proposes that learning and knowing are dependent on the activity and the specific situation (Kiely Sandmann & Truluck 2004:24, Wilson 1993:76). Situated cognition acknowledges the importance of experience in the learning process, but believes that the context is the most important aspect in the learning process (Merriam & Brockett 2007:155, Wilson 1993:72, 74). This approach advocates authentic activities. Authentic activities are defined by Wilson (1993:77) as “ordinary cognitive practices that are situationally defined, tool dependent and socially interactive”. Such activities must be based as far as possible on real-life problems in actual situations. Examples of authentic activities are apprenticeships, internships, modelling, coaching and community service learning (Kiely, *et al.* 2004:25, Wilson 1993:77-78). According to Wilson (in Merriam & Brockett 2007:156), the three key elements of situated cognition are:

1. Learning and thinking are social activities.
2. The learner’s learning and thinking ability are determined by the tools available in the situation.
3. The interaction in the setting/situation determines the thinking and learning.

According to the situated cognition approach, educators cannot assume that learning takes place through abstract lectures or that one can provide context-neutral information to learners. Neither can we assume that learning will be transferred to different settings. Learning needs to be contextualised in complex real-life settings and learners need to understand these settings. If educators wish for transfer of learning to take place, they will have to explicitly indicate these links to the learners (Artess 2003:4-5, Wilson 1993:72-73).

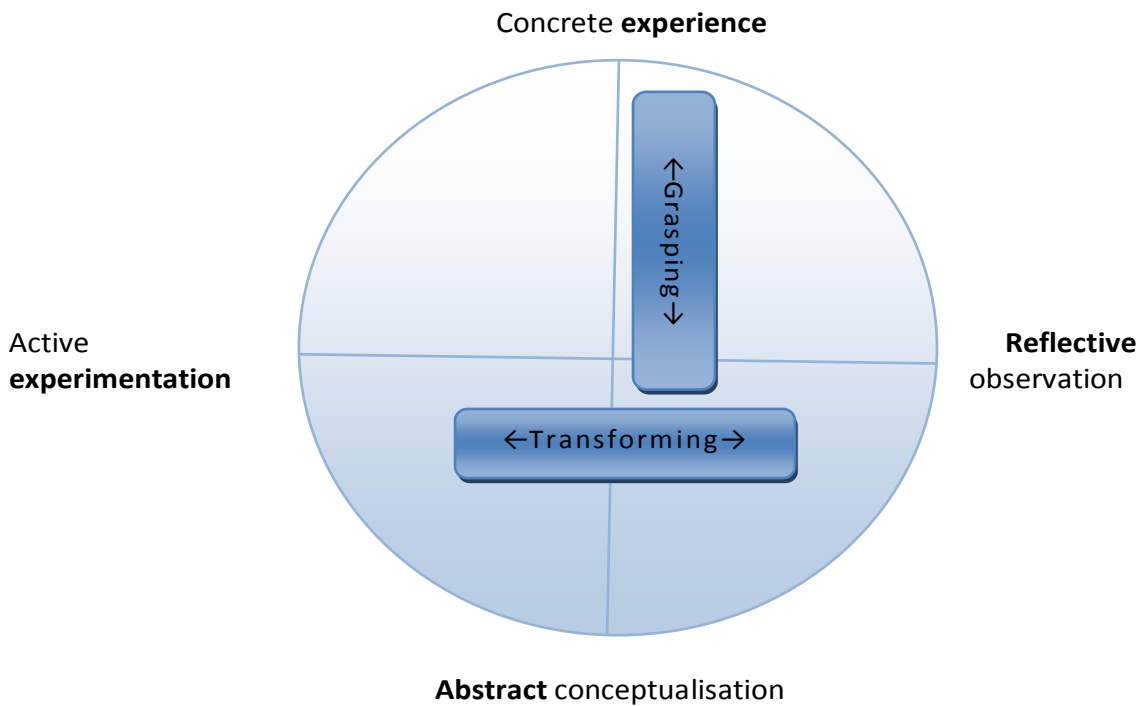
Kolb’s model of experiential learning not only focuses on the importance of experiences, but also addresses the importance of reflecting on these experiences. To a certain extent Kolb also

acknowledges the importance of situated cognition in learning. Therefore Kolb's model, although not exclusively an adult learning model, is an important model to consider when reviewing theories related to adult learning.

4.4.7 Experiential learning

Experience plays a central role in adult education (Knowles *et al.* 2005:197, Merriam *et al.* 2007:161). As Lindemann (in Brookfield 1995:6) points out: "experience is the adult learner's living textbook". Not only do experiences provide a rich resource for learners, but they are also employed to build a frame of reference that the learner can use in evaluating future learning, and they shape the identity of the individual learner (Gravett 2005:14). Gravett (2005:15-16) indicates that experiences are used in various ways in adult education, for instance in the beginning of the learning process by looking at prior knowledge, using experiences to link and reflect on new knowledge, and also to create learning experiences where new knowledge could be tested, evaluated and adapted.

The most influential model that focuses on experience, is the one developed by Kolb (Brookfield 1995:6). Kolb's model is based on a constructivist approach, where learners construct knowledge through reflection on their experiences and interactions with others to create deep learning (Gravett 2005:14, Merriam *et al.* 2007:163, Taylor *et al.* 2000:23). Kolb (in Knowles *et al.* 2005:197) defines learning as "the process whereby knowledge is created through transformation and experience". Kolb further notes that learning is "a continuous process grounded in experience" (Merriam *et al.* 2007:161). Kolb's model is cyclical and integrates four dimensions that are divided in two main categories by Taylor *et al.* (2000:23-24), as indicated in Figure 4.2.



Source: Taylor *et al.* (2000:24).

Figure 4.2: Kolb's experiential learning model

Taylor *et al.* (2000:23-24) divide the four approaches to learning (concrete experiences, abstract conceptualisation, active experimentation and reflective observation) in two main categories, namely grasping experience (on the vertical axis in the figure) and transforming experience (on the horizontal axis). According to them, grasping experiences uses senses and "conceptual facilities" to obtain information through using experiences (top of the figure) and abstract conceptualisation (bottom of the figure). Knowles *et al.* (2005:197) describe concrete experience as participating in current experiences and abstract conceptualization as the "formation of abstract concepts and generalisations". The second main category is transforming experiences, described by Taylor *et al.* (2000:23-24) as: "to transform... through either reflection or action". The two approaches to learning under transforming experiences are active experimentation, which Knowles *et al.* (2005:197) define as "testing implications of new concepts in new situations", and reflective observation, which they define as "reflecting and observing experiences from many perspectives".

According to Kolb (Taylor *et al.* 2000:24), for learning to take place, the learner needs to work through all four dimensions of the cycle. In the terminology, of Taylor *et al.* (2000:24), learners needs to “grasp” and “transform” it. Kolb states that it does not matter where in the cycle the learner starts. Jarvis (in Merriam *et al.* 2007:164) notes that learning from experience can lead to either nonreflective learning – where the learner will just remember past experiences – or the preferred reflective learning – where experiences are monitored and reflected upon. By implementing Kolb’s model, educators can address individual differences because various learning styles are accommodated in the learning process and they also create awareness of the diverse responses of learners to their experiences. For Kolb the ultimate goal of his model is the development of “a fully integrated personality” (Merriam *et al.* 2007:164).

Kolb and Kolb (2005:194) studied the work of Dewey, Piaget, Jung and Rogers to identify the key ideas of experiential learning theory:

1. Learning is seen as a process and not a product.
2. Learning is relearning.
3. Learners must consider various modes (reflection, action, thinking and feeling) during the learning process.
4. Learning is holistic.
5. Learning is about the interaction between the learner and the environment.
6. Learning is constructivist by nature.

By combining the four dimensions, four learning styles can be created, although extant research on learning styles does not validate the theory due to methodological concerns (Knowles *et al.* 2005:198). The contribution of Kolb’s model lies in the theoretical model that it provides for research, and on a practical level, in the implementation of experiential learning (Knowles *et al.* 2005:197).

4.4.8 The importance of adult learning theories

The discussion on the various adult learning theories has shown the similarities of some of the theories that can be used with success with children and adolescents. However, the theories also indicate differences related to the characteristics of the adult, the context and the learning

process (Merriam *et al.* 2007:433). The application of these theories is crucial in the development of a learning environment for adult learners.

The three most prominent adult learning theories (andragogy, self-directed learning and transformation learning) that were first discussed brought similar concepts of adult learning to the table. They include the idea of self-directedness or responsibility for one's own decisions, the motivation of the adult to learn and learner control (all discussed in andragogy and self-directed learning), the importance of experiences (andragogy, transformation theory and experiential learning) and reflection (andragogy, self-directed learning, transformation theory, and experiential learning and critical reflection). Some important aspects are further highlighted by the various theories. Transformation theory elaborates on development and change in the adult learner, while andragogy also stresses the importance of a real-life orientation when it comes to the learning environment. This is further expanded with the theory on situated cognition.

The discussion on critical reflection, situated cognition and experiential learning further elaborates on aspects briefly discussed in the main adult learning theories (see sections 4.4.5, 4.4.6 and 4.4.7). Kolb's experiential learning model in particular is important because this model integrates various important concepts related to the adult learning process such as the importance of using experiences and interacting with these experiences, the constructivist nature of learning, the importance of reflection, the focus on individual differences in learning and the developmental nature of the learning process.

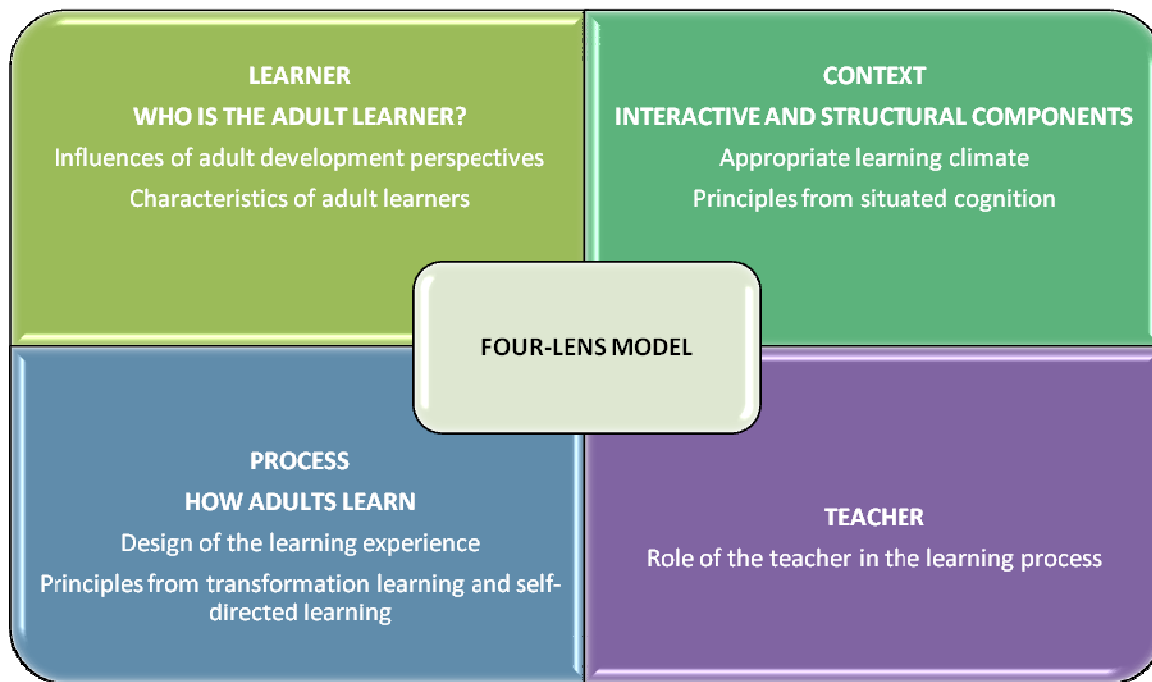
Brookfield (1995:1) indicates that we do not have a comprehensive model of adult learning and that there are various perspectives regarding adult learning. He nevertheless cautions against a single viewpoint of adult learning. Knowles (in Eisen 2005:19) indicates that we are allowed to take ideas from various approaches and incorporate them in a personal philosophy. By incorporating various theories on adult learning, a more holistic picture of adult learning is created.

In the last section of this chapter a more integrated view of adult learning will be provided that incorporates the ideas on adult development and adult learning that should be taken into account in designing learning for adults.

4.5 DESIGNING LEARNING FOR ADULT LEARNERS

In Chapter 3, it was emphasised that although the learning theories all do have value and contribute to the learning process, the emphasis in contemporary society is on developing the necessary skills to survive in a knowledge economy through the use of technology (see 3.2). To develop the necessary skills, students need to engage in the learning situation. Constructivism and connectivism provide the educator with useful principles for promoting deep learning. When one reviews the literature on adult learning, it is clear that the most influential adult learning theories advocate a constructivist approach, but that they add a personal development dimension to the learning process through humanism.

In assisting adult educators in understanding the different approaches and perspectives to adult learning, Merriam and Caffarella (in Kiely *et al.* 2004:18) developed a conceptual framework to incorporate the most prominent adult learning theories. This framework was expanded by Kiely *et al.* (2004:18) to include four areas (or lenses) relevant to adult learning (referred to as the Four-lens Model). While each lens provides a different perspective on adult learning, the four must be seen as complementary and informing each other to provide a holistic view of adult learning. The four lenses represent the adult learner, the learning process, the context within which adults learn and the educator (the latter is the specific contribution by Kiely *et al.*). A summary of the Four-Lens Model is provided in Figure 4.3.



Source: Compiled by researcher from Kiely *et al.* (2004:19)

Figure 4.3: Four-lens model of Kiely *et al.*

A short overview of each lens will indicate the interplay among the various theories in creating a more holistic overview of adult learning.

4.5.1 Individual learner lens

The focus of this lens is the characteristics of adult learners. Determining the needs of students is good practice in teaching; this is seen as even more relevant in adult learning, because in adult education the learners must contribute in determining their needs. Consultation with adult learners regarding their needs is important. This is not only applicable to the learning goals, but also to the resources, content, and assessment, as is proposed in self-directed learning. The assumptions by Knowles are applicable in this context (Kiely *et al.* 2004:20)(see section 4.4.2). Illeris (2003:13) notes that the characteristics brought by adult learners to the educational context are sometimes different from the ones that programmes are designed for. The common themes in terms of the characteristics of adult learners are as follows:

1. The learners are adults by definition, meaning that they are autonomous, responsible, self-determined (directed) and goal-orientated (Gravett 2005:9, Ross-Gordon 2003:48).

2. The readiness of adults to learn is linked to their current life roles and life tasks (Gravett 2005:10-11, Illeris 2003:13, Knowles *et al.* 2005:67).
3. Adults bring their life experiences to the learning situation (Gravett 2005:9-10, Illeris 2003:13, Knowles *et al.* 2005:66).
4. Adults will be more inclined to learn information that is meaningful to their lives, and if they are ready to learn (Illeris 2003:13, Knowles *et al.* 2005:67, Kiely *et al.* 2004:20).
5. Adult learners exhibit an initial lack of confidence when returning to education (Ross-Gordon 2003:48, Knowles *et al.* 2005:65).
6. Adult learners are more internally motivated (Kiely *et al.* 2004:20)

Although not indicated by Kiely *et al.*, it is important to add the dimension of the development of the adult and of the focus on personal development in adult education. From a transitional and integrative perspective on adult development, the life stages and life events will influence the development and learning goals of the adult learner, known in the adult development literature as differentiation and integration (see sections 4.3.3 and 4.3.4). Adults will aim to reframe their experiences, which will lead to development.

From a humanistic point of view the individual has a responsibility to develop and grow to their full potential (Merriam & Brockett 2007:29). Although not all learning leads to development, certain learning processes do transform the learner. Mezirow refers to this as transformative learning. The outcomes of self-directed learning include personal growth and autonomy; and Pratt (1993:21) regards the growth towards one's own potential as one of the purposes of adult education (Caffarella 1993:27, Merriam *et al.* 2007:107, Trotter 2006:12). Through the construction of meaning and reflection, adults develop and in the process change their viewpoints, which results in change (growth) (Taylor *et al.* 2000:18). This development is not restricted to personal development but affects all aspects of the individual's life such as their relationships, work and interaction with their social environment as reflected in the overview on adult development. The role of the educator is to nurture this process of development and growth (Brookfield 1986:11).

4.5.2 Context lens

Kiely *et al.* (2004:24) distinguish between the interactive and structural dimensions in adult learning. The interactive dimension refers to the “relationship among the learners, the social surroundings and the physical setting” while the structural dimension is concerned with “*how* relationships of power affect the ability of adult learners”. In the discussion the focus will be more on the interactive dimension in the context of learning, but the structural context will be indirectly addressed through the creation of an appropriate learning environment.

The interactive dimension suggests the learning environment in which the learning will take place. Gravett (2005:43) adopts a very broad view of the learning climate (environment) and includes not only the learning climate of the physical learning situation but also the affective-social and intellectual climate. According to her, the physical environment refers to the traditional face-to-face situation and highlights aspects like the layout of the classroom and ergonomics, e.g. air conditioning and the positioning of overhead and data projectors.

The affective-social dimension refers to the psychological safety of the learners, where they feel trusted and respected. Knowles (in Pratt 1993:19) regards this psychological climate between the learner and educator as one of the cornerstones in the facilitation of adult learning. The experiences that adults bring to the learning environment reflect their self-identity and should be respected and dealt with in a sensitive manner (Gravett 2005:43, Knowles *et al.* 2005:65-66).

The intellectual climate would focus on providing tasks and experiences that challenge the learners, assuming there is enough trust among the educator and learners to engage with and explore learning. Such a learning climate is characterised by respect and comfort, while challenging learners in a nonthreatening way and ensuring that the responsibility of learning is shared (Biswalo 2001:54, Brookfield 1986:10, Gravett 2005:43). This climate is not only applicable to interactions between the educator and learners, but also among learners (Brookfield 1986:10). Moore (in Royer 2007:4-5) identifies three types of interaction that assist in making meaning: learner-content, learner-educator and learner-learner interactions. Royer (2007:4-5) also adds learner-technology as another type of interaction.

Beyond the interaction and creation of an appropriate learning climate lies the use of ideas of situated cognition to embed the learning for the students in a context that is relevant to them. The learning must be embedded by using the experiences of adults, but the adults must also be submerged in experiences so that they learn in situations that simulate real life. Kiely *et al.* (2004:24) point out that the “situatedness of learning” implies “experimental activity that is ‘situationally located, tool dependent and socially interactive’”.

4.5.3 Process lens

According to Kiely *et al.* (2004:22) the process lens, focusing on how adults learn, is now receiving more attention. The most important theory in this regard is Mezirow’s transformation theory, with his idea of using prior experiences through reflection to lead to a new interpretation that will influence the future of the learner (see section 4.4.4.1). In general, the adult learning process supports the constructivist learning principles. Authors such as Gravett and Knowles suggest steps in the design of learning for adults. Gravett (2005:56) identifies seven steps in designing learning events for adults. The first three steps encompass an extended needs analysis focusing on the profile of the target audience, the reasons for participation and the needs of the learners. Thereafter the learning, learning tasks and resources are determined together with the timeframe and type of delivery.

Knowles *et al.* (2005:115) propose a process model for designing the learning experience for adults. According to Knowles, the difference between the more traditional content model and the proposed process model is that with content models the educator determines the content beforehand and designs the learning around the content in the form of lectures, guides etc., while in the process model the educator prepares a set of procedures that will be used to involve the learner. The difference lies not in the way content is handled, but in the fact that the content model is concerned with the transmission of information, while the process model is more concerned with procedures and resources that will help learners acquire skills and knowledge. Knowles *et al.* (2005:115) identify the following steps in this process model:

1. Preparing the learner
2. Establishing a cooperative learning climate

3. Creating a mechanism for mutual planning
4. Diagnosing the needs of the learner
5. Formulating the outcomes that will satisfy the needs
6. Designing a pattern of learning experiences
7. Conducting these learning experiences with appropriate techniques and materials and
8. Evaluating the learning outcomes and re-diagnosing learning needs.

In both these models the active participation of the adult learner from the beginning of the learning process is clear. As Pratt (1993:19) points out, the key elements of this andragogical process design lie in participation and choice, which also form the central idea in self-directed learning. Some learners will, however, feel unsure and will need more guidance (Ross-Gordon 2003:50). The Staged Self-Direction model proposed by Grow provides guidelines to the educator for helping the adult learner develop from being a dependent learner to becoming a self-directed learner (Knowles *et al.* 2005:187, Merriam *et al.* 2007:117).

4.5.4 Teacher lens

Kiely *et al.* (2004:26) warn that teachers must be aware of their own “set of beliefs, values and assumptions” and how this influences their teaching. Teaching for adults demands various roles of the teacher. Adults prefer learner-centred environments. The aspects described in the Four-lens Model all provide guidelines about the role of the teacher in the learning process. The learning situation should be learner-centred and adult learners in particular need to be regarded as partners in the learning process (self-directed learning). Grow’s Staged Self-Directed Learning model provides guidelines for the role that the educator can adopt to assist the learners in developing from dependent to self-directed learners. The educator needs to create a learning climate that is conducive for sharing, but challenging enough to encourage critical reflection and a reconsideration of who the student is (developmental focus).

One of the key aspects of adult learning is using the learners’ experiences. Experiential learning provides a framework so that the adult educator can use the learners’ experiences in a constructive way that facilitates learning. When linking content with prior experiences, students can have mixed feelings. While some students may experience confusion (if their

experiences are different from those in the learning material) others may feel confidence (if the two are similar), while learners with no prior experience on which they can fall back may feel lost (Dobrovlny 2003:3). The role of the educator as a guide or facilitator, would be to identify relevant experiences that could be used to reflect upon in the learning process. The educator also needs to be a catalyst, creating a dilemma for the students to reflect upon. Furthermore, the educator is a coach and mentor, assisting students to assess their prior experiential learning (Merriam *et al.* 2007:169).

4.6 DIRECTIVES FOR DESIGNING LEARNING FOR ADULTS

From the overview on adult learners presented in this chapter it has become clear that there are a wealth of different perspectives, from conceptualising who the audience is (the definition) and the influence on adult development theories on the development of learning, to the factors that influence adult learning. The Four-lens Model provides a framework for looking at adult learning from a more holistic and multidimensional viewpoint – which is of particular value in South Africa with its very diverse adult learner population. Such a multidimensional viewpoint not only opens up more possibilities but the interplay between the various viewpoints enriches the learning environment. In the review of adult learning it was determined that adult learning prefers a constructivist and humanistic approach to learning. It has also become clear that adult learning theories are directing the way in which teaching and learning for adults are developing. The most prominent guiding principles in designing learning for adults are summarised in Table 4.9.

Table 4.9: Guiding principles in designing learning for adults

Through an adult learner lens
1. Make provision for the characteristics of adult learners – as described by andragogy (see section 4.4.2).
2. Consider adults’ life stages and life events (see section 4.3).
3. Design with the overall goal of development in mind (see section 4.4.1).

Through a context lens
4. The learning environment should reflect the physical, affective-social and intellectual dimensions needed to create an optimal learning climate (see section 4.5.2).
5. The learning context (environment) should include the ideas related to situated cognition (submerging adults in real-world experiences and indicating the relevance of the learning to the real world) (see section 4.4.3).
Through a process lens
6. Design for active participation – as advocated in self-directed learning (see section 4.4.3).
7. Make provision for the inclusion of prior experiences and reflection – as advocated by experiential and transformation learning respectively (see sections 4.4.7 and 4.4.4.1).
Through a teacher lens
8. The learning environment should reflect a student-centred, self-directed learning environment (see section 4.5.4).
9. Keep in mind that the roles of teachers are flexible and change continuously to accommodate the growth of the individual from dependent to self-directed (see section 4.4.3.2).

Source: Compiled by the researcher.

Table 4.9 summarises the guiding principles that can serve as directives in the design of learning specifically for adult learners. This summary represents a response to research question three: *What are the characteristics that adult learners bring to the learning environment that need special consideration in effective learning design?* These guiding principles, in conjunction with those identified for effective learning in chapter 3, can therefore, serve as indicators of the appropriateness of the learning design for a specific programme that is presented in different modes of delivery.

4.7 CONCLUSION

The discussion of the changing higher education context (Chapter 2) has provided the background for an exploration of the most prominent views on effective teaching and learning in higher education (Chapter 3). This chapter on adult learning has further contextualised the study with its focus on the needs of adult learners as an important section of the changing higher education sector. In the search for directives in the design of learning for this group, the review firstly focused on the definition of adult learners, followed by a discussion on various adult development perspectives and adult learning theories. In the last section of this chapter

an integrated viewpoint on adult learning was suggested, culminating in the identification of guiding principles in the design of learning for adults.

In the next chapter the research design and methodology employed in the empirical investigation is discussed. This investigation built directly onto the literature review by focusing on the directives for effective learning design identified in Chapters 3 and 4 in a questionnaire survey among adult learners in a programme delivered in different modes of delivery.

CHAPTER 5:

RESEARCH DESIGN AND METHODOLOGY

5.1 INTRODUCTION

Chapter 5 describes the nature of the empirical investigation that was undertaken to address the fourth research question, i.e. *Does an existing adult learning programme (offered in different modes of delivery) (a) comply with the principles of effective learning design and (b) how can possible shortcomings be addressed/enhanced?* The chapter addresses the research design that was selected and methodology employed in the investigation.

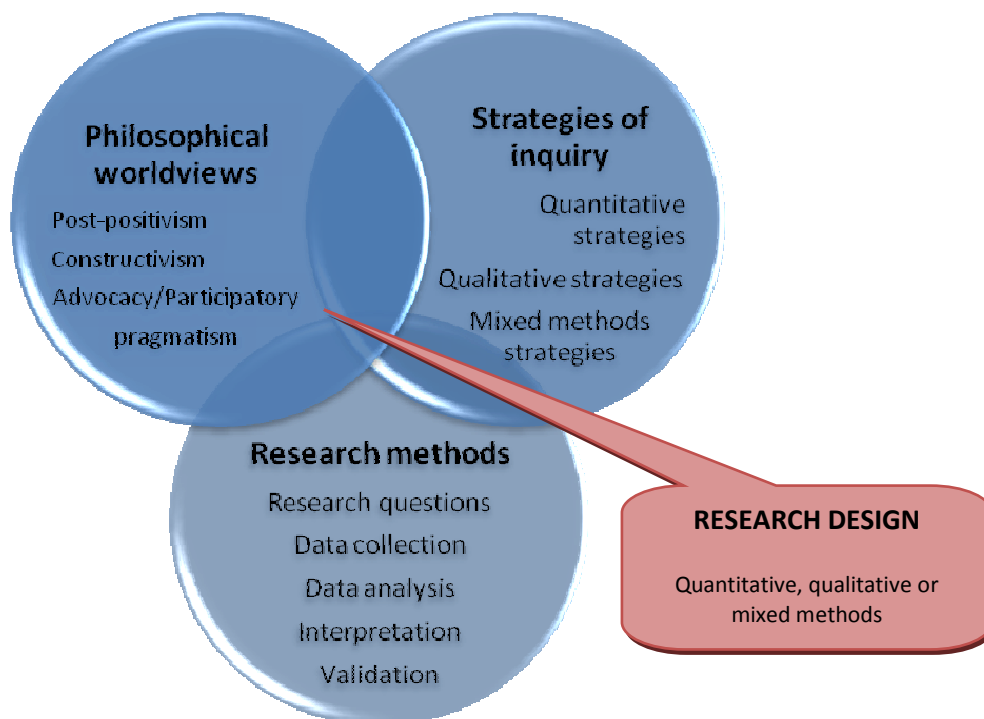
5.2 TYPE OF RESEARCH

The goal of the study is to provide a practical solution to a problem and it therefore represents applied research. McMillan and Schumacher (2006:14) describe applied research as “concerned with the application and development of research-based knowledge about a practice... [to] produce knowledge that [is] relevant to providing solutions to general problems”. Applied research is conducted in the natural location and the results of such studies are immediate and applicable to decision-making processes (McMillan 2008:15-16, McMillan and Schumacher 2006:14). The focus of this study is on improving the effectiveness of the learning design of an existing programme and the findings will therefore be applied in practice. Due to the relevance of the problem in the BML programme, the investigation is integral to decision-making and will influence the future learning design of the programme.

In the next section the research design used in this study is discussed.

5.3 RESEARCH DESIGN

Creswell (2008:5) defines the research design as the “plan or proposal to conduct research” and he indicates that the research design addresses the overlap of three aspects, namely the philosophical worldview, the strategies of inquiry and the methodology, which will be employed. He depicts it in a figure reproduced in Figure 5.1. In this figure the research design is in the centre where the three aspects overlap. Trochim (2006:¶1) makes a distinction between epistemology and methodology. According to him the epistemology (philosophical worldview) refers to the “philosophy of knowledge” or “how we come to know”, while the methodology also refers to “how we come to know”, but is more concerned with the practical aspects, viz. the methods that we use to come to knowing. Trochim (2006:¶1) indicates how the two concepts are related – epistemology refers to the philosophy while methodology is more concerned with the practice. The strategies of inquiry are the “types of design [quantitative, qualitative and mixed methods] that provide specific direction for procedures in a research design” (Creswell 2008:11).



Source: Creswell (2008:5)

Figure 5.1: Framework for research design

In the following section each of the three aspects will be discussed in more detail.

5.3.1 Strategies of inquiry or research strategies

In order to address the fourth research question, the strategy of inquiry deemed most suitable for this study was a mixed method design. The design is relatively new, in fact less than a decade old (Denscombe 2007:107). Creswell (2008:3) states that a mixed method study is located in the centre of a continuum where the two ends are represented by quantitative and qualitative research respectively. Creswell (2008:4) defines mixed methods research as:

an approach to inquiry that combines or associates both quantitative and qualitative forms. It involves philosophical assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in a study. Thus it is more than just simply collecting and analyzing both kinds of data; it also involves the use of both approaches in tandem so that the overall strength of a study is greater than either qualitative or quantitative research.

The advantage of mixed methods research lies in the use of different methods and different types of questions to obtain more comprehensive data than would have been the case with single-method research. Furthermore, the credibility of findings can be enhanced through triangulation (McMillan 2008:311).

Four main types of mixed methods designs are reviewed in the literature, namely explanatory, exploratory, triangulation and embedded mixed method designs (Ivankova, Creswell & Plano Clark 2007:264-268). The selection of a specific mixed method design is dependent on three factors, i.e. a timing, a weighting and a mixing decision. These decisions are based on the appropriateness of the design to the research question, the expertise of the researcher and the available resources. The timing decision involves the order in which the data will be collected – it can either be collected simultaneously (concurrently) or sequentially with either the quantitative or qualitative first. The weighting decision refers to the equal or unequal weight (in terms of the importance or priority) of the quantitative and qualitative methods. The worldview and literature, the goal or purpose of the study and practical considerations will guide decisions regarding the weight (Creswell & Plano Clark 2007:79-82). The last decision refers to how the data will be mixed, which indicates the “explicit relating of the two data sets” (Creswell & Plano

Clark 2007:83). Three strategies can be used in mixing data – merging, embedding data and connecting data.

In terms of the timing decision, the explanatory and exploratory studies use one set of data – either quantitative or qualitative, one before the other – while in the triangulation design the collection of both data sets – quantitative or qualitative – happen at the same time. In the embedded design, one set of data is embedded in the other. While the explanatory design weights the quantitative data, the exploratory design weights the qualitative data. The weighting is usually unequal in the embedded design, and equal in the triangulation design. Regarding mixing, the explanatory and exploratory designs are more concerned with connecting data sets, while the embedded design embeds the data and the triangulation design merges data (Creswell & Plano Clark 2007:79-83). Table 5.1 indicates the most appropriate design according to the three decisions.

Table 5.1: Proposed choice of the mixed methods design based on the three key decisions

	Timing	Weighting	Mixing
EXPLANATORY	Sequential: quantitative first	Usually quantitative	Connect the data between the two phases
EXPLORATORY	Sequential: qualitative first	Usually qualitative	Connect the data between the two phases
EMBEDDED	Concurrent or sequential	Unequal	Embed one type of data within a larger design using the other type of data
TRIANGULATION	Concurrent	Usually equal (not necessarily)	Merge the data during the interpretation or analysis

Source: Compiled from Creswell and Plano Clark (2007:85)

The triangulation mixed methods design is the most popular and well-known method of all the mixed methods designs (Ivankova *et al.* 2007:266, Creswell & Plano Clark 2007:62). The purpose of the data collection is “to obtain different but complementary data on the same topic” (Morse in Creswell & Plano Clark 2007:62). This design compares and contrasts findings to reach carefully considered conclusions (Ivankova *et al.* 2006:266). In the triangulation design,

the research is conducted in one phase. Creswell and Plano Clark (2007:63-65) elaborate on four variants of the triangulation designs. Table 5.2 tabulates the different variants with the main purpose of each variant.

In this study a questionnaire was used to collect the data. The questionnaire contained quantitative and qualitative questions, and data was therefore collected concurrently. The qualitative data was subordinate to and only used to enhance the quantitative data. The quantitative data thus carries more weight, and the distribution of the weight in this study is unequal. Lastly, the data was analysed separately and merged during the interpretation of the data. The triangulation mixed methods design was the most appropriate for this study.

Table 5.2: Variants of triangulation design

Variant	Implementation and purpose
Convergence model	Traditional model of mixed methods Compare results to validate, confirm or substantiate quantitative results with qualitative findings. Quantitative and qualitative data collected separately and then converged during interpretation.
Data transformation model	Compare results to validate, confirm or substantiate quantitative results with qualitative findings. Quantitative and qualitative collected separately, but the one data set is then transformed into the other (e.g. quantifying qualitative data).
Validating quantitative data model	Validate and expand on quantitative data from a survey with a few open-ended qualitative questions.
Multilevel model	Different methods (quantitative and qualitative) are applied at each level in a system, whereafter the findings are merged.

Source: Creswell and Plano Clark (2007:64-65)

In this study the validating quantitative data model was regarded as the most appropriate, because the collection of the data was done with a single questionnaire consisting mainly of quantitative items and a few qualitative open-ended questions to expand and validate some of the information. As Creswell and Plano Clark (2007:65) indicate, the qualitative data is used as an add-on and does not resemble a complete qualitative data set. Such qualitative enhancements nevertheless provide the researcher with information that can be used to confirm and elaborate on the quantitative data.

5.3.2 Epistemology or philosophical world view

Creswell and Plano Clark (2007:21) specify that knowledge about the epistemology or worldview is important because it also provides information regarding “the assumptions that the researcher makes about reality, how knowledge is obtained, and the methods for gaining knowledge.” It represents the “basic set of beliefs that guide action” (Creswell 2008:6).

Creswell and Plano Clark (2007:22) identify four worldviews – post-positivist, constructivist, advocacy/participatory and pragmatic. According to them, a post-positivist worldview is associated with quantitative approaches, while the constructivist and advocacy/participatory worldviews employ qualitative approaches. The pragmatic worldview makes use of mixed methods approaches. Creswell and Plano Clark (2007:27) point out that pragmatism is the best philosophical viewpoint to justify the combination of different methods in one study. The worldview that was adopted for this study is therefore pragmatic in nature. Tashakkori and Teddlie (in Creswell and Plano Clark 2007:26-27, Creswell 2008:10-11) indicate that pragmatism is characterised by the utilisation of both quantitative and qualitative research methods and is not obliged to work from a specific worldview. By using both research methods a more holistic view is obtained, the focus is on the research problem and the methods will be utilised to understand the problem. Truth is absolute and for pragmatists “truth is what works at the time” (Creswell 2008:11). Pragmatists also acknowledge the role that the context is playing. As Creswell (2008:11) summarises the pragmatic worldview – “Pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis.”

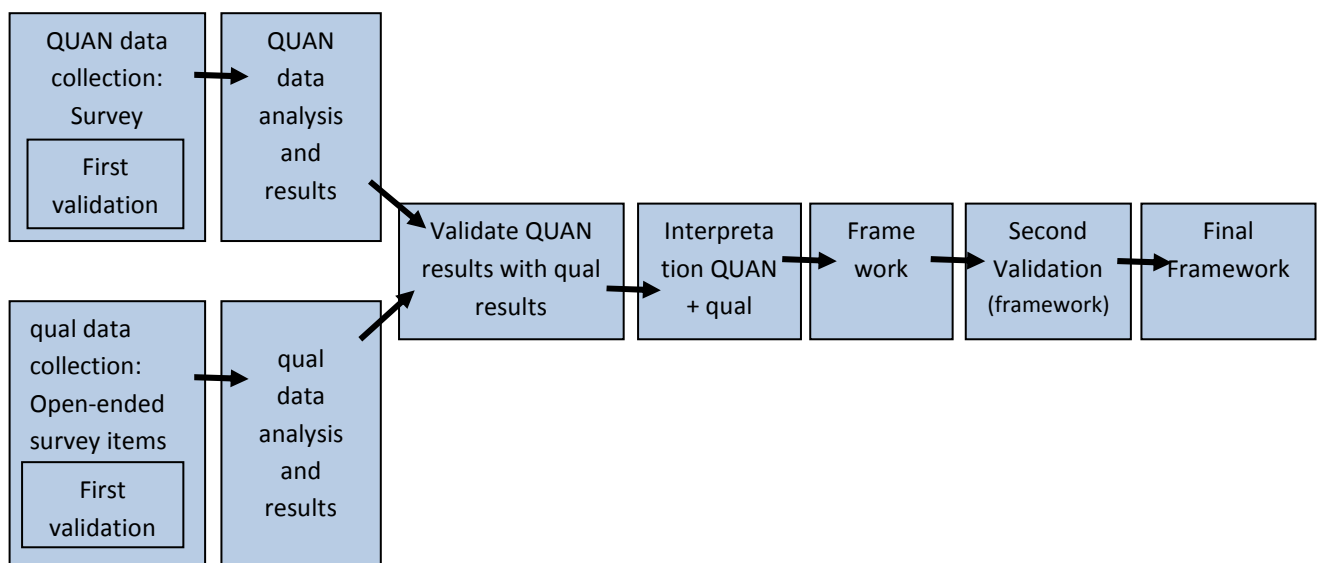
From a quantitative perspective, a descriptive exploratory approach was implemented. Mouton and Marais (1990:44) points out that the goal of a descriptive study is to “describe that which exists as accurately as possible”. Shuttleworth (2008:¶1) indicates that a descriptive design is a description of a phenomenon that does not influence it, while McMillan and Schumacher (2006:23) classify descriptive studies under both quantitative and qualitative research. Mouton and Marais (1990:44) also indicate that descriptive studies can be either quantitative or qualitative depending on the choice of strategies by the researcher. In this study a

questionnaire was used to gather mainly quantitative data, and descriptive statistics with inferential enhancements were used to analyse the current learning design.

The focus of the qualitative aspects in the study was also exploratory. Mouton and Marais (1990:43) state that the goal of exploratory studies is: “the exploration of a relatively unknown research area... to gain insight and comprehension rather than the collection of accurate and replicable data”. Jansen (2007:11) points out that it is possible to combine descriptive and exploratory research questions, but cautions that the focus should firstly be on the exploratory questions and then on the descriptive questions.

In addition, two validation meetings were held. The first validation meeting took place before the construction of the questionnaire, while the second validation meeting took place after the proposed framework was drawn up based on the interpretation of the quantitative and qualitative data.

The researcher adopted the notation system of Creswell and Plano Clark (2007:63, 73) for the triangulation mixed methods with the validating quantitative data model to make it applicable to this study. This is represented in Figure 5.2.



Source: Compiled by the researcher according to Creswell and Plano Clark (2007:63, 73)

Figure 5.2: Triangulation design of the study: Using the validating quantitative data model

5.3.3 Research methods

The research methods “involve the forms of data collection, analysis, and interpretation that researchers propose for their studies” (Creswell 2008:15). In this section information on the sampling, data collection, data analysis, validation and ethical considerations is provided.

5.3.3.1 Sampling

Sampling methods are divided into two main classes, consisting of probability and nonprobability sampling. Probability sampling is based on the random selection of a sample from a population in order to generalise the research findings to the general population. Nonprobability sampling does not randomly select subjects in a study, but uses subjects that are available; therefore researchers should be careful in generalising such research results to a population (Maree & Pietersen 2007:172, 176-177). Despite this disadvantage, McMillan and Schumacher (2006:125) indicate that nonprobability sampling is a popular sampling method in educational research. In this study, the results of the empirical investigation were aimed at a specific programme in a specific context and therefore the results were not meant to be generalised to other programmes and institutions. The study can nevertheless be generalised to the extent that it could be applied in similar situations in other programmes and at other institutions (McMillan & Schumacher 2006:319).

More specifically, purposeful sampling was employed for this study. In addressing the fourth research question, namely to determine if the programme complies with the directives for effective teaching and learning of the various modes of delivery in the current programme, it was decided to use the opinions of current students in the programme to evaluate the programme. It was reasoned that the students would be the most objective group for evaluating the programme. Not only were the students enrolled in different modes of delivery, but they were involved in all aspects of the programme in terms of the learning process and would be in a very good position to provide an overview of a holistic nature and indicate if the objectives of the programme were reached. In an attempt to obtain comprehensive data, all students enrolled in the programme were invited to engage in the study through the completion of a questionnaire, i.e. comprehensive sampling was applied (McMillan &

Schumacher 2006:320). The current enrolment of 393 students across the three modes of delivery was also relatively small – a survey targeting the whole group could easily be administered and implemented without high costs.

Except for the student body that was requested to participate in the study, the researcher also held two validation meetings with members of the management, administration, lecturers and a specialist involved in the programme. The panel consisted of:

- The director of the School of Management. (She ultimately decides on changes in the programme format, curriculum and design.)
- The administrative staff of the programme. (Each person of the administrative staff is responsible for the administrative arrangements regarding a specific mode of delivery. They provided useful information regarding the practical impact of the various modes of delivery and the feasibility of ideas.)
- A specialist in the field of E-learning.
- Lecturers who were involved in the BML programme and provided valuable insights from a practitioner perspective.
- Staff members who were involved in the programme from its inception also attended the meetings to ensure that the character and original philosophy of the programme was retained.

5.3.2.2 Data collection

To determine the effectiveness of the programme for the three modes of delivery, survey research was employed. According to McMillan and Schumacher (2006:233), survey research allows researchers to collect information through either questionnaires or interviews and provides information on people's demographics, opinions, habits, behaviour and other aspects. According to Cohen (in Maree & Pietersen 2007:155) survey research "set[s] out to describe and to interpret what is". Maree and Pietersen (2007:155) further, indicate that the two main characteristics of a survey are large samples and testing of various variables. The questionnaire survey in this study complies with these two main characteristics (see section 5.3.2.2 (c)).

The questionnaire in this study offers several advantages amongst others the engagement of as many students as possible, the relatively low costs with implementation on the Internet and a saving in time. Furthermore, different types of questions and themes could be addressed with ease, and descriptive and explanatory closed and open-ended questions could be employed. It was also convenient because two of the three subgroups of students (online and modular) were not residential students and therefore not available on campus. Lastly, because the three subgroups were compared with each other, the data had to be generalised across the population. Such surveys allow for generalisability across a population when different subgroups are compared (McMillan & Schumacher 2006:233).

In order to validate the information collected, two validation meetings were held.

The first validation meeting was held to obtain insight in current thinking about the future of the programme for the different modes of delivery. This validation meeting was also used to test ideas about the intended data collection and the aspects that should be covered in the questionnaire.

The second validation meeting took place at the end of the study and was used to obtain feedback on the feasibility of the framework after the incorporation of the quantitative and qualitative data.

(a) Distribution of questionnaire survey

Almost half of the students were not residential students. Since most of the on-campus (face-to-face) and the students in the online and modular groups have an e-mail address, an Internet survey was the most cost and time-efficient way to collect the data. The questionnaire was created as a Microsoft Word document and then also uploaded as an Internet-based survey using SurveyMonkey (www.surveymonkey.com). An e-mail invitation to participate in the research was sent to all students enrolled in the BML programme, giving a link to the questionnaire. The invitation is included as Appendix A. Students received two weeks to complete the questionnaires. Reminders were sent via e-mails and the short message service (SMS).

It is interesting to note that available evidence up to date indicates no difference between Internet surveys and the more traditional formats (Denscombe 2007:10). The aim of the questionnaire was to allow for the maximum participation in a relatively short time and the Internet-based survey also assisted in distributing the questionnaire to the whole population of enrolled students. The advantages of questionnaires are also applicable to Internet surveys. A disadvantage of Internet-based surveys is that they are only accessible to those with computer and Internet access (McMillan & Schumacher 2006:239). To eliminate this disadvantage, especially in the face-to-face subgroup, the students without e-mail addresses and those who requested paper-based questionnaires were given a paper-based questionnaire that was uploaded manually to the Internet-based questionnaire by the researcher.

(b) Design of the questionnaire

The questionnaire consisted of 100 questions grouped together in seven sections. It was projected that the questionnaire would not take longer than 15-20 minutes to complete. The questions were grouped, so that the actual questionnaire in fact contained 50 questions, in an attempt to avoid discouraging respondents when they started completing the questionnaire. This is in line with the guidelines provided in Maree and Pietersen (2007:159) indicating that questionnaires should not take longer than 20 minutes and should not contain more than 100-120 questions.

The questionnaire consisted of mainly quantitative questions using various types of questions and scales, with the addition of qualitative questions that gave respondents the opportunity to add comments to otherwise closed questions or qualitative open-ended questions of an exploratory nature.

Three main aspects of the design of the questionnaire are discussed: Firstly, an overview of the content of the questions is given, followed by the types of questions utilised in the questionnaire, and lastly general aspects related to the design of the questionnaire.

(i) Content of questions

The questionnaire was based on the overview of the literature in respect of the first three research questions addressed in Chapters 2, 3 and 4.

Research question 1: *What is the influence of the changing higher education environment, technology in particular, on learning and the design of learning?* (see section 1.4)

Research question 2: *What are the most prominent perspectives on effective teaching and learning that can serve as directives in the design of learning for various modes of delivery?* (see section 1.4)

Research question 3: *What are the characteristics that adult learners bring to the learning environment that need special consideration in effective learning design?* (see section 1.4)

The directives flowing from the overview in each chapter in particular guided the construction of the questions (see sections 2.5, 3.5, 4.5). The questionnaire consisted of seven main sections focusing on the following aspects:

- Demographic information
- Questions regarding students' own learning
- Questions regarding lecturers
- Questions regarding collaboration and working with other students
- Questions regarding study material
- Questions related to technology
- Questions regarding experiences in their personal life.

(See Appendix B for an example of the questionnaire.)

Demographic information in the format of closed questions was collected on students' age, city where they were living, management positions and progress in the programme. Two open-ended questions were included that referred to the reasons why they enrolled in the programme and the selection of the mode of attendance. Main-type variable questions in this questionnaire included the mode in which students were enrolled in the programme, their

marital status and age, while secondary-type variable questions included questions related to the type of technology used by the respondent (Maree & Pietersen 2007:164-166). The rationale of the demographic questions was to assist the researcher in comparing the characteristics of respondents to those of the population in order to test for representativeness (Maree & Pietersen 2007:164). Furthermore, these questions were needed to group students in one of three categories in terms of the mode of delivery for which they were currently enrolled. Some questions were meant to determine whether the group could be classified as adults and also to identify the prior experiences of the students. These questions therefore addressed the importance of student characteristics and defined the adult population in this study (see Table 4.9).

The sections on how the respondents learned, questions about lecturers and questions on collaboration and working with other students focused on a community of practice and the preferred learning strategies that the students employed in the learning process. Communities of practice included contact with the teacher, contact with other students as well as the cognitive interaction with the material (see section 2.4.2.2). Questions on the cognitive interaction explored surface and deep learning approaches (see section 3.3) and others examined the type of learning strategies (for example use of reflection, collaboration with other students etc).

The section on study material focused mainly on the parts of the study material that students use most in their learning. Questions on respondents' satisfaction with the study materials and scope for suggestions about the improvement of the study material were also included (see section 2.4.2.3).

The section on the use of technology focused on students' current use of technology, their attitudes to technology and their opinions on the role that technology could play in their learning. These questions were incorporated to determine the students' readiness for using technology in a blended learning approach. This section relates to Chapter 2 on the influence of technology on learning and the design of learning for this specific target group (see section 2.2.3).

The last part of the questionnaire focused on questions about respondents' roles as adults and the experiences they were confronted with in their lives, related to the literature on adult development theories (see section 4.3.1).

As part of the validation of the questionnaire, a validation meeting was held during this stage to incorporate the opinions of a panel consisting of the management, administration, facilitators and specialists involved in the BML programme. Their opinions were requested in terms of the type of questions asked and to ensure that all the issues pertaining to the programme had been addressed in the questionnaire.

(ii) Types of questions

As indicated, closed as well as open-ended questions were used to obtain responses from the students. The open-ended questions provided the respondents with an opportunity to come up with honest answers which would reveal their thinking and provide additional insights and information not necessarily incorporated in the development of the questionnaire (Maree & Pietersen 2007:161). Most of the questions in the questionnaire, however, were closed questions. Closed questions were selected because they are easy to complete and take less time to complete than open questions; the statistical analysis is easier, while sensitive questions are usually answered more readily (Maree & Pietersen 2007:163-164).

Various types of closed questions were employed. List questions, making use of both dichotomous and multi-choice questions with more than two response categories, were used, where students had to select the most appropriate answer. An example of a dichotomous question from the questionnaire would be:

It is important for me to:

Perform well academically	
Understand what I learn, regardless of the marks that I get	

An example of a multiple-choice question from the questionnaire would be:

Please select the statement that best reflects how you feel:

I am more motivated to learn if

I find the lecturer supportive	
I work in a group	
I know I can do well in a module	
I get personal satisfaction from the module	

The above question also represents an ordinal scale where the choices are arranged in an order. The demographic question on the respondents' home language is typical of a nominal scale. For the demographic question on their age, age ranges were grouped in five-year intervals. This represents an interval scale (Maree & Pietersen 2007:148).

In some cases, students were forced by the questionnaire design to select only one option (like the example above) while in other cases, they were encouraged to mark all the appropriate questions, as in the following example:

I like to discuss information that we have covered in the BML with (select all applicable answers):

Other students	
My colleagues at work	
I like to think about the information on my own	
Other, please specify	

This question is also an example of questions that combine a closed question format with some open-ended enhancements where students could add other possible information.

Only one ranking question was asked, where students had to rank four options. This was done to gain insight in the way students regarded the role of the lecturer in the programme, as in the following question from the questionnaire:

Rank the following roles of a lecturer, where 1=most important, 2=important, 3=not that important and 4=least important.

I prefer the role of the lecturer to be that of:

	1	2	3	4
An expert in the field with experience in the workplace.				
Someone that guides me through the learning process.				
A facilitator that just facilitates the learning process.				
A consultant/mentor that gives advice when I ask for it.				

Likert scale questions were also used to provide information regarding the attitudes and opinions of the respondents. A four-point Likert scale was employed throughout, ranging from Strongly disagree, Disagree, Agree and Strongly agree, with no possibility of a neutral answer. This was done to force students to decide on their opinion regarding the statements. Likert scale questions were included owing to their convenience in measuring opinions, attitudes and constructs (Maree & Pieteren 2007:167). The following is an example of the four-point Likert scale in the questionnaire:

Please rate the following statements:

	Strongly Disagree	Disagree	Agree	Strongly Agree
	1	2	3	4
I like to participate in class activities and discussions.				
When I do not agree with other students, I will engage with them.				

(iii) General aspects related to the design of the questionnaire

Care was taken to ensure that the questionnaire was user-friendly. Words that students would not understand were avoided, including educational jargon such as deep and surface learning. In addition, the sentences were kept as short as possible. The questions were also grouped according to categories that would make sense to the respondents. The questions were arranged in such a way that each section was introduced by a few Likert scale questions or questions that would be answered easily, followed by open-ended questions where the students had to provide their opinion. Potentially sensitive questions, such as those on events that had happened to them during the past few years, were put at the end of the

questionnaire. This was done so that if students decided not to continue with the questionnaire because they were possibly afraid that more sensitive questions could follow, then at least the rest of the questionnaire would have been completed because it is uploaded as they complete it (Maree & Pietersen 2007:160). The questionnaire was sent for language editing and comments on the design were requested from the statistician before implementation. It was piloted to confirm the duration and also to ensure that the questions and instructions were clear.

The e-mail and the first Internet page of the questionnaire both contained information on the purpose of the questionnaire and an indication of the time that it would take students to complete the questionnaire (see Appendix B).

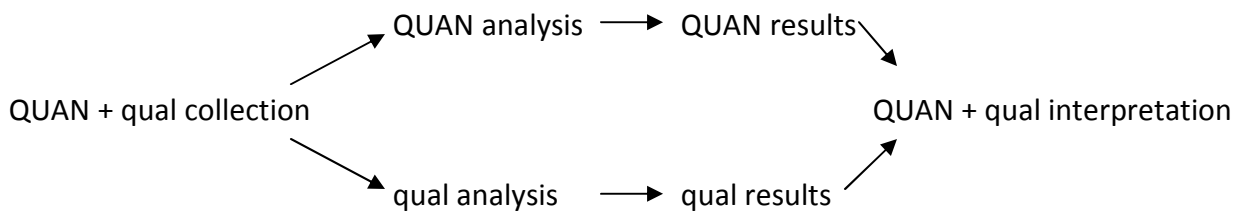
The Internet-based survey required fewer instructions because the requirements were built into the questionnaire. For example, where students were only allowed to select one option, the Internet-based questionnaire would reject the answer if the respondent clicked on more than one option. It would then display an error message and prompt the respondent to try again. Such instructions had to be included in the Microsoft Word version of the questionnaire for students who did not have Internet access (McMillan & Schumacher 2006:239).

5.3.2.3 Data analysis

An important aspect of the analysis of the data in the mixed methods designs is the mixing of data. McMillan (2008:317) defines data mixing as “how quantitative and qualitative data are combined and the types of data that are mixed”. According to Creswell and Plano Clark (2007:128), mixed method designs use quantitative techniques to analyse quantitative data and qualitative techniques to analyse qualitative data. While quantitative approaches look for relationships between variables to generalise to the population, the qualitative approaches are looking for in-depth understanding of the individual’s experiences regarding an issue (Invankova *et al.* 2007:259). The mixing of data can occur at the analysis or interpretation phase of the research and the data can be merged, embedded or connected (Creswell & Plano Clark 2007:83).

In this study the quantitative and qualitative data were analysed separately and then merged at the interpretation phase. The analysis of the quantitative data was done using descriptive and basic inferential statistics. In the statistical analysis SAS software was used with the assistance of a statistician. The qualitative responses were analysed by the researcher employing content analysis. The purpose was the verification and enhancement of the quantitative data. In order to increase the credibility of the qualitative part of the study, an objective view was kept in mind in the identification of the different themes to identify “alternative themes, divergent patterns and rival explanations” as described by Patton (2002:553).

The data was merged during the interpretation phase to provide a more holistic picture in answering the research question (Creswell & Plano Clark 2007:83, 85, McMillan 2008:314). The notation in terms of the collection, analysis and interpretation can then be presented as follows (see also Figure 5.2):



5.3.3.4 Quality assurance: Rigour or trustworthiness

The interdependence of validity (rigour) and reliability (trustworthiness) are illustrated by Lincoln and Guba (in Nieuwenhuis 2007:80) when they remark that “there can be no validity without reliability, a demonstration of the former [validity] is sufficient to establish the latter [reliability]”.

In reflecting on how to present the aspects related to the assurance of quality (validity and reliability) in this study, the researcher experienced great difficulty with deciding between a quantitative or qualitative perspective. Patton (2002:551) provided some advice in this regard:

Which criteria you choose to emphasize in your work, will depend on the purpose of your inquiry, the values and perspectives of the audiences for your work, and your own philosophical and methodological orientation. Operating

within any framework and using any specific set of criteria will invite criticism from those who judge your work from a different framework and with different criteria.

Reflecting on my initial training in quantitative research and the focus of this study on quantitative data collection (only with qualitative enhancements) I decided to use a quantitative framework in reporting on the validity and reliability of the study. Upon further investigation, doubt reared its head again when I read that Patton (2002:552) also stated that it was acceptable to move between quantitative and qualitative frameworks:

The borders set between sets of criteria for evaluating the quality of qualitative work will necessarily remain fluid as qualitative inquirers move back and forth among genres ignoring the boundaries much as birds ignore human fences- except to use them occasionally as convenient places to rest.

To solve the dilemma, I used the advice of Creswell and Plano Clark (2007:128) who stated with regard to data analysis that quantitative methods should be used with quantitative data and qualitative methods with qualitative data. In this section, terminology was borrowed from both approaches and emerging terminology in the field of mixed methods research is also indicated.

(f) Inference quality (internal and external validity/credibility and transferability)

According to Patton (2002:546), internal validity is reflected by the term credibility while external validity reflects transferability in the qualitative framework. Creswell and Plano Clark (2007:133) point out: “the validity differs in quantitative and qualitative research, but in both approaches it serves the purpose of checking on the quality of the data and the results”. Validity in mixed methods designs is defined by Creswell and Plano Clark (2007:146) as “the ability of the researcher to draw meaningful and accurate conclusions from all of the data in the study.” Tashakkori and Teddlie (2003) propose the term inference quality to incorporate the quantitative term *internal validity* and the qualitative term *trustworthiness and credibility*.

(g) Internal validity/credibility

In order to draw accurate conclusions from the data, the researcher has to eliminate factors that could affect the internal validity of the study. Internal validity is described as the “accurate presentation of a particular context or event as described by the researcher” (Mayan in Maree 2007:297). In order to minimise the threats to validity in the triangulation design of collecting data, the questionnaire used in this study contained both quantitative and qualitative questions. When respondents completed the questionnaire, the quantitative and qualitative data were then collected from the same group of respondents. This also eliminated the problem of unequal sample sizes in the triangulation design (Creswell & Plano Clark 2007:147). Because an Internet-based questionnaire survey was used, data was collected unobtrusively and the whole population could be invited to obtain a better response rate (Creswell & Plano Clark 2007:147). Patton (2002:553-554) indicates that credibility is related to three aspects, viz. the rigour of the methods used, the credibility of the researcher and the belief in the value related to the philosophical belief. The aspect of the philosophical belief was addressed in section 5.2.2.

The aspect of the rigour of the methods used was discussed earlier in this section. Another method to increase the credibility or internal validity of data is to use triangulation. Different types of triangulation are proposed by Denzin (in de Vos 2005a:362), i.e. data sources triangulation, analyst triangulation, theory/perspective triangulation and methods triangulation (Patton 2002:556). Neuman (in de Vos 2005a:362) adds triangulation of measures indicating “multiple measures of the same phenomenon”. Methods triangulation, analyst triangulation and triangulation of measures were utilised in this study. The triangulation mixed methods design represents methods triangulation, which is defined as the integration and comparison of the data collected through quantitative and qualitative methods. This assisted in ensuring that discrepancies in the findings could be identified and clarified. The qualitative data was used to verify the quantitative data. In the triangulation design adopted, the qualitative and quantitative data sets together also served as a mechanism for providing more complete data than would have been possible using only the one or the other than using them alone (Creswell & Plano Clark 2007:147). The validation meetings held with specialists in the programme

represented analyst triangulation and more specifically related to an expert audit review, although in this instance the focus was on a confirmability judgment, which is defined by Patton (2002:562) as “the part of the audit that examines... the product”.

Patton (2002:566) points out that it is important that the researcher should “report any personal and professional information that may have affected data collection, analysis or interpretation”. This includes “experiences, training and perspectives... personal connections [that the researcher might have with the] people, programme or topic.” I am the Teaching and Learning Manager in the Faculty of Economic and Management Sciences at the University of the Free State. I am also involved in the BML programme as a lecturer and academic advisor of the programme. I therefore have a very good understanding of how the programme operates and understand the jargon that is used in the programme, e.g. Portfolio Development Course (PDC) and LEM (Leadership domain) and can provide more clarity on identifying themes in the qualitative data analysis. Because of my involvement in the programme as a lecturer, the Internet-based questionnaire, provided a greater measure of anonymity and confidentiality to students with a choice whether they wished to participate and whether they wanted to include their student numbers.

(h) External validity/transferability

External validity, or transferability according to Patton (2002:546), refers to the degree to which generalisations can be made from the data and context of the research study to the wider population and settings (McMillan & Schumacher 2006:261). In order to limit threats to external validity, comprehensive sampling was employed where the whole population was invited to participate. By using the whole population, the researcher attempted to obtain a better response rate that would enable generalisation to the population (McMillan & Schumacher 2006:261). The aim of this study was not to generalise the findings to other contexts, but to specifically provide a solution to a problem in a specific context. McMillan (2008:16), however, indicates that with applied research “...where general theories are tested, the results may be generalized to many different educational settings”. Guba (in Patton 2002:583) suggests “treating conclusions as hypotheses for future applicability and testing rather than as definitive”. From a qualitative perspective Lincoln and Guba (in Patton 2002:584)

use the terms transferability and fittingness to refer to generalisability. According to them results can be transferred if there is:

...similarity in the two contexts we shall call fittingness. Fittingness is defined as degree of congruence between sending and receiving contexts. If context A and context B are 'sufficiently' congruent, then [a] working hypothesis from the sending originating context may be applicable in the receiving context.

The meaning of the discussion on external validity or transferability is that although the findings of this study apply to a specific context, there is a possibility that these findings (as proposed in the framework) are applicable in similar contexts which are "sufficiently congruent".

(i) Data quality (reliability/dependability)

The term reliability is used in quantitative research, and dependability is used in qualitative research (Patton 2002:546). Tashakkori and Teddlie (2003:706) propose the term data quality to refer to the reliability in a mixed methods study. Tashakkori and Teddlie (2003:706) describe data quality (with specific reference to data collection) as the standard against which the data can be considered to be trustworthy and dependable. Lincoln and Guba (in Patton 2002:546) define dependability as a systematic process followed in a systematic way while de Vos (2005b:346) sees it as an attempt by the researcher "to account for changing conditions in the phenomenon chosen for study as well as changes in the design created by increasingly refined understanding of the setting". Reliability is defined as the "stability or consistency of a measurement" (Delpont 2005:162). De Vos (2005b:346) indicates that dependability and reliability refer to different sets of assumptions that do not measure exactly the same aspect, but refer to two separate but related aspects.

In order to increase the reliability of the questionnaire in this study, the constructs tested were clearly defined and care was taken to ensure that the questions reflected the different constructs. At least two questions in the questionnaire were used to measure each major construct (Delpont 2005:163) (see Appendix C for the analysis of the questionnaire with regard to the constructs). From a qualitative point of view, the aspects related to dependability included the use of both quantitative and qualitative questions, in order to enhance the

quantitative data and to incorporate perspectives which would lead to a more holistic picture (De Vos 2005b:346). Furthermore, the data was triangulated. Here, triangulation was not used to reject or accept a hypothesis as in quantitative research, but to confirm and generalise the research findings. If the data sets opposed each other, the theory or proposed application of the data would then be changed or adapted (Nieuwenhuis 2007:80).

McMillan and Schumacher (2006:28) caution that the “overall credibility of a mixed methods study depends on the independent quality of the quantitative and qualitative designs as well as the interplay between them”. Objectivity is thus very important.

(j) Objectivity/Confirmability

McMillan and Schumacher (2006:9) indicate that objectivity refers to both a characteristic of research and a procedure:

As a procedure, objectivity refers to data collection and analysis procedures from which reasonable interpretation can be made, [while as a characteristic, it refers to] the quality of the data produced by procedures that control for bias or take into account subjectivity (McMillan & Schumacher 2006:9).

De Vos (2005b:347) indicates that confirmability refers to the question of whether the “findings of the study could be confirmed by another”. In order to provide a more objective viewpoint in this study, two different data sets were used (quantitative and qualitative data). Furthermore, validation meetings were held to increase the objectivity of the data collection procedure and the feasibility of the proposed framework in this particular case, where the researcher was involved in the programme being researched (Delpont & Fouché 2005:353).

5.3.2.5 Ethical considerations

Babbie and Mouton (2001:520) accept the definition of ethical considerations provided by the Webster New World Dictionary – “conforming to the standards of conduct of a given profession or group” – as the most appropriate definition of ethical considerations. Different aspects relating to ethical issues are addressed by different authors (Babbie & Mouton 2001:521-527, Strydom 2005:57-67, McMillan & Schumacher 2006:142-144). Only the aspects relevant to this

study are discussed in this section, namely voluntary participation, no harm to participants, anonymity and confidentiality, obtaining permission and minimising potential misinterpretation of results.

(a) Voluntary participation

Two aspects of voluntary participation are important. The first is that the participants must be informed about the goal of the research, where possible, and the second is that they must be able to choose to participate or not without any negative effects (Babbie & Mouton 2001:521). In the e-mail and the instructions to the questionnaire used in this study the goal of the study was explained so that the participants were informed about the purpose of the study. Participants were also invited to e-mail the researcher if they were unsure about any aspect of the questionnaire or if they wanted more information (Babbie & Mouton 2001:521, Strydom 2005:59).

Regarding the second aspect in this study, the whole population received an invitation to participate, with a follow-up e-mail and three reminders. If participants nevertheless did not complete the questionnaire, this would not have influenced them negatively in any respect.

(b) No harm to participants

Regarding the ethical aspect of not harming participants, Babbie and Mouton (2001:522) and Strydom (2005:58) not only refer to physical harm to participants but also to emotional harm, where participants can feel uncomfortable or agonised. The aspect of not harming participants is closely related to a possible perception by students that they could be influenced negatively (e.g. through affecting their marks) by not participating in the research. Therefore, the questionnaires were sent via e-mail instead of handing them out during a face-to-face or online contact session. Care was taken to ensure that students did not feel victimised if they did not complete the questionnaire. The researcher reaffirmed this with a statement in the questionnaire about providing their student numbers (See Appendix B). With the potentially uncomfortable question regarding major changes in their life, the option was left open to students not to answer these questions in the Internet-based questionnaire.

(c) Anonymity and confidentiality

Babbie and Mouton (2001:523) indicate that anonymity and confidentiality are sometimes confused. Anonymity is involved when the researcher cannot identify the responses to a given respondent, while with confidentiality the responses by the participant can be identified but the researcher promises not to do so publicly.

In this study anonymity was enhanced by making use of an Internet-based questionnaire and by the fact that the whole population received the request to participate (Babbie & Mouton 2001:523). Bergh (2004:59) indicates that Internet-based questionnaires are more anonymous than other data collection types. In this study total anonymity was not assured due to practical considerations. To avoid bothering participants that had already completed the questionnaire with reminders, the researcher requested their student numbers in the questionnaire. This was, however, an optional question and students could choose not to respond. Next to the question, the statement regarding confidentiality was repeated (see Appendix B). The results of this study are reported for the group; individual responses were not singled out. (McMillan & Schumacher 2006:144, Strydom 2005:62).

(d) Permission obtained

The participants in this study are registered as students in the School of Management, which forms part of the Faculty of Economic and Management Sciences at the University of the Free State. Permission was granted by the Director of the School of Management to conduct the research in the BML programme. The letter of permission is included in Appendix D. The proposed research project also served at the Faculty Committee meeting of the Faculty of Economic and Management Sciences of March 19, 2009 and was approved (compare McMillan & Schumacher 2006:144).

(e) Minimise potential misinterpretation of results

To ensure the correct analysis of the quantitative data, a statistician was contracted to do the analysis of the data (compare McMillan & Schumacher 2006:144).

Another aspect subject to misinterpretation is the questions that were asked in the questionnaire. All the questions developed for the questionnaire focused on specific aspects that can be traced back to the literature. For the complete analysis of the questions posed in the questionnaire, consult Appendix C.

The researcher is convinced that all possible measures were taken to ensure that the study complied with high ethical standards.

5.4 CONCLUSION

In this chapter an overview was given of the research design and methodology employed in this study. The research design was discussed according to the research strategies, philosophical worldview and research methods applied. By means of the discussion the researcher also dealt with the methodology used in addressing the research question: *Does an existing adult learning programme (offered in different modes of delivery) (a) comply with the principles of effective learning design and (b) how can possible shortcomings be addressed/enhanced?*

In Chapter 6 the analysis and interpretation of the data will be discussed in order to respond to the abovementioned research question.

CHAPTER 6:

DATA ANALYSIS AND INTERPRETATION

6.1 INTRODUCTION

This chapter builds on chapter 5 in answering the fourth research question: *Does an existing adult learning programme (offered in different modes of delivery) (a) comply with the principles of effective learning design and (b) how can possible shortcomings be addressed/enhanced?*

The chapter firstly provides a brief overview of the adult learning programme mentioned in the question in order to orientate the reader to the context of the data analysis and interpretation. Thereafter the results of the questionnaire survey are discussed and interpreted. The aim of this investigation and this interpretation is to reach some conclusions (based on respondents' opinions and experiences) on whether the learning design in the specific programme complies with or addresses the identified principles for effective learning design for adult learners (as summarised in Table 3.4 and Table 4.9). In this way the possible strengths and, in particular, weaknesses of the programme may be identified, which is important when the enhancement of the programme is considered.

6.2 BACHELOR IN MANAGEMENT LEADERSHIP (BML) PROGRAMME

The BML programme, situated in the School of Management in the Faculty of Economic and Management Sciences at the University of the Free State, was launched in 1999. The first intake consisted of 48 students and in September 2002, 23 students graduated from the programme (Finance Week 1999:45, Newline 2002:3). Currently the BML programme has approximately 400 students enrolled.

The programme aims to develop the managers in the workplace by becoming change agents in their organisations. By focusing specifically on working adult learners the programme not only creates opportunities for learners who have not previously had the opportunity to participate in formal higher education, but it also aims to develop individuals in one of the critical disciplinary fields needed in the country with an emphasis on lifelong learning (Anderson 1998:1). The 2009

BML Programme Brochure (2009:1) summarises the purpose of the programme very adequately: “The objective of the BML is to deliver a new generation of formally qualified and innovative managerial leaders equipped to excel in, and add value to today’s corporate and business environment.”

6.2.1 Key features of the BML programme

The key features of the BML programme as pointed out by amongst others Anderson (1998:2) and van Zyl (2005:209) are:

- Students start the programme with the Portfolio Development Course (PDC) where students are supported in the development of a RPL Portfolio where they apply for credits in the programme for previous formal and informal learning.
- A modularised curriculum unpacks the learning experience in three domains i.e. the Management (MAM) domain, Leadership (LEM) domain and Environment (ENM) domain. Each domain addresses various aspects related specific subject knowledge and the application of the knowledge in the managerial leadership context to demonstrate their knowledge, skills and attitudes.
- The BML Programme is developed in such a way that there are various articulation opportunities for students in the School of Management. Not only could students that completed a certificate in Management Development enroll in the BML degree programme but students could also continue with the MBA programme if they meet the admission and selection criteria involved in the MBA programme (BML Programme Brochure 2009:7, Anderson 1998:2-3).
- Students are (where possible) kept in cohort groups, meaning students who started the programme together will complete the programme as a group. The cultivation of the cohort groups serves as an additional support mechanism to increase the retention rate of students and also encourage and develop team work (Anderson 1998:2).
- Classes are presented in three delivery modes in order to support the work and life schedules that best suit the specific needs of the adult learners.

Due to the importance of the various modes of delivery for this study this is further elaborated on in the next section.

6.2.2 Modes of delivery in the BML programme

In accommodating the varying needs of adults, the BML programme is delivered in three delivery modes. When the programme was launched in 1999 it was only delivered in the *traditional face-to-face* mode, where students receive all their study materials in the traditional paper format and attend contact sessions on Friday afternoons and evenings from 13:00-19:00.

Due to a substantial number of requests to present the programme in other provinces in South Africa, especially Gauteng, the *online mode* was introduced in 2000. With the online format, students employ technology and the internet to participate in learning through synchronous and asynchronous communication on a weekly basis with the respective lecturers. A LMS (currently Moodle) is used to distribute study materials.

The *modular mode* of delivery was introduced in 2007 due to requests from students and employers who are more willing to send their employees away for a week training per term than having them out of the office every Friday (as with the face-to-face mode) and it also makes the programme more accessible to students not living in Bloemfontein as they would otherwise have to travel to Bloemfontein on a weekly basis for contact sessions. Lastly the School of Management has restricted physical learning spaces (classrooms) to accommodate all the students on a Friday afternoon. Allowing the students to attend in the week alleviates the pressure on the physical spaces on a Friday afternoon. Students in the modular mode only have contact with lecturers four times a year and 22 credits are taught through interactive contact sessions during this week. These students attend classes in block sessions (one block session of a week per term) on campus with no further formal online or other face-to-face contact between the contact sessions. These classes are presented from a Monday to a Friday from 8 a.m.-6 p.m. every day, except for Fridays when classes end at 12:00 to provide physical space for the face-to-face lecturers. The modular mode students receive their study materials in the traditional paper format (BML Programme Brochure 2009:6).

Table 6.1 provides a summary of the contact hours of the students in the different modes of delivery. An average amount of contact hours per semester are given. The table illustrates some discrepancy between the contact hours for the different modes of delivery.

Table 6.1 Contact hours of students in different modes of delivery

MODE OF DELIVERY	CONTACT HOURS PER WEEK	TOTAL
FACE-TO-FACE	5.25 hours per week x 12 weeks per semester	63 hours contact per semester
MODULAR	32 hours per week x 2 block sessions per semester	64 hours contact per semester
ONLINE	2 hours synchronous sessions per week + 2 hours asynchronous sessions per week x 12 weeks	48 hours synchronous and asynchronous contact per semester

Source: Compiled by the researcher

6.2.3 Teaching and learning in the BML programme

The teaching philosophy of the BML programme underwrites experiential learning and is designed to include active and collaborative learning, problem-based learning while utilising various learning resources (BML Learning Guide 2007:2). The Facilitator’s Guide, developed for the lecturers teaching in the programme, proposes that lecturers use Kolb’s experiential learning cycle to ground the learning experience for the students. Kolb’s cycle is proposed as a way to incorporate the experiences of adult learners in a systematic way in the learning process regardless of the mode of delivery. In order to assist students in the development and formalisation of their knowledge, it is suggested in the guide that the assignments are based on real-world scenarios. Assessments that test lower order skills like memorisation are discouraged (Sharp 2002:2).

The assessment in the BML programme is continuous and formative in nature and encourages students to learn from their previous experiences. If summative assessments are given to students, the main focus has to be on integrated assessment. Throughout the programme

formative feedback is encouraged. Towards the end of their studies students must complete a Major Piece of Work (MPW). The goal with the MPW is to provide students with an opportunity to demonstrate the integration of the competencies and skills that they have gained throughout the programme. For the purpose of this major assignment each student is assigned a study leader that provides guidance and support in this endeavour (van Zyl 2005:209-210).

In terms of the learning materials, Sharp (2002:3) indicates that the learning guide will unpack the content. The learning guides are written in an outcomes-based format and divided in different units and sections to present the material in manageable chunks to students. Each unit should consist of the following: an introduction, the learning outcomes, a table of contents, learning activities and a summary or conclusion followed by an assignment that is used to complete the learning cycle proposed by Kolb. Sharp (2002:4) further mentions that the learning material must also provide support to students in terms of the type of participation that is expected from students, information regarding the assessments, and resources, details regarding the facilitators of the modules and how to contact them, information regarding the progression of information and providing a holistic view of how the module fits within the programme.

The background of the BML programme provides the context in which the analysis of the data should be interpreted. In the section that follows the analysis of the data will be discussed.

6.3 ANALYSIS OF THE QUESTIONNAIRE

The analysis of the questionnaire will start with the quantitative data analysis followed by the qualitative data analysis. The two data sets are merged at the interpretation section of this chapter.

6.3.1 Analysis of quantitative data

In this section the results of the quantitative data analysis will be presented according to the guiding principles in Table 3.4 and 4.9. Respondents' opinions regarding the usefulness of the study material and how they use technology were included in the analysis. The reporting on the results of the quantitative analysis in this section will take place within the following categories:

- The response rate
- Profile of the learners
- Guiding principles for the design of learning using the framework of Garrison *et al.*(2000) (teacher presence, social presence and cognitive presence)
- Guiding principles related to adult learning in the BML programme using the framework by Kiely *et al.* (2004) (adult learner lens, context lens, process lens and teacher lens)
- Study material used in the BML programme
- Utilisation of technology in the BML programme

As mentioned before, the statistical analysis was undertaken by a statistician. The major variables were the three modes of delivery; with another important set the deep and surface learning respondents or, more accurately, those with a tendency to adhere to either a deep or a surface learning approach.

In this report most of the results are presented in a simplified graphical format, the rationale being that visual representation can contribute to the ease of interpretation by the reader and thus in making the large amount of data more comprehensible. It is also clearly indicated where more advanced statistical analyses provided statistically significant differences between variables. For auditing and possible referencing purposes the processed numerical data is included on a CD at the back of the report. The researcher is however convinced that the presentation and interpretation are adequate for purposes of this survey, namely to determine the effectiveness of the BML programme in terms of its compliance with the identified guidelines/principles for learning design in different modes of delivery. Ultimately the survey aimed at the identification of possible shortcomings in the programme that need attention. In the concluding part of this chapter such shortcomings are tabled.

6.3.1.1 Response rate

Table 6.2 depicts the response rate of the students who participated in the questionnaire survey for the different delivery modes. Babbie and Mouton (2006:261) point out that with survey research a response rate of 50% is adequate for analysis and reporting, while a response rate of 60% is regarded as good. According to Table 6.2 the overall response rate as well as the

response rates of the three individual response groups based on mode of delivery is therefore adequate to good. The response rates reported here indicate all respondents that started with the questionnaire, although not all of them completed the questionnaire.

Table 6.2: Response rate according to delivery modes

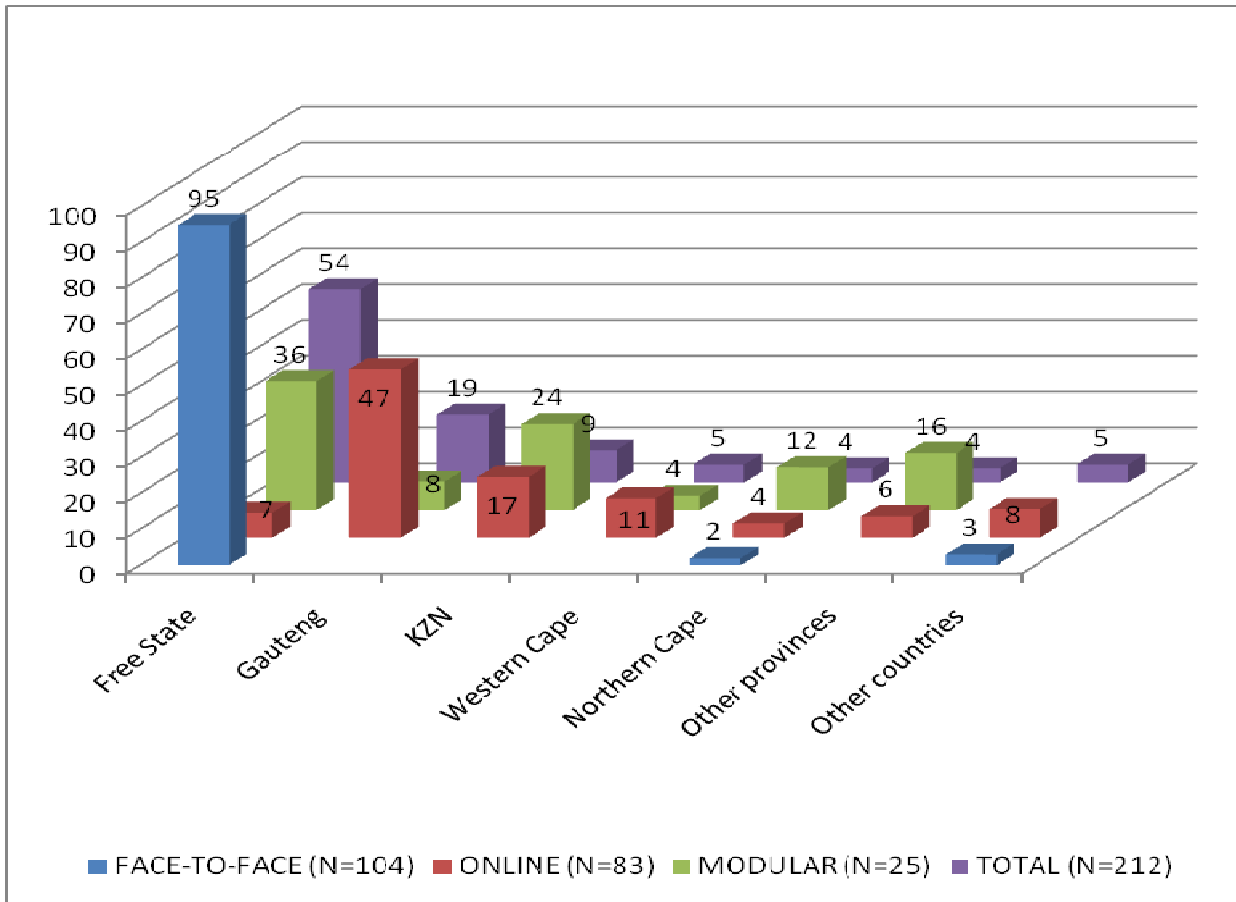
MODE OF DELIVERY	TOTAL NUMBER OF STUDENTS ENROLLED	RESPONDENTS THAT TOOK PART IN THE SURVEY	RESPONSE RATE
Face-to-face mode of delivery	193	123	64%
Online mode of delivery	160	92	58%
Modular mode of delivery	40	26	65%
TOTAL POPULATION (N)	393	241	61%

6.3.1.2 Profile of the respondents

In this section an overview of the profile of the respondents according to different modes of delivery they are enrolled in is supplied.

(a) Geographical distribution of respondents

The geographical distribution of the respondents is depicted in Figure 6.1. As was mentioned in 6.2.2, the different modes of delivery arose, amongst others, in response to the geographic needs of students, and this is clearly evident when the distribution is taken into account.



*All values in the graph are presented as percentages.

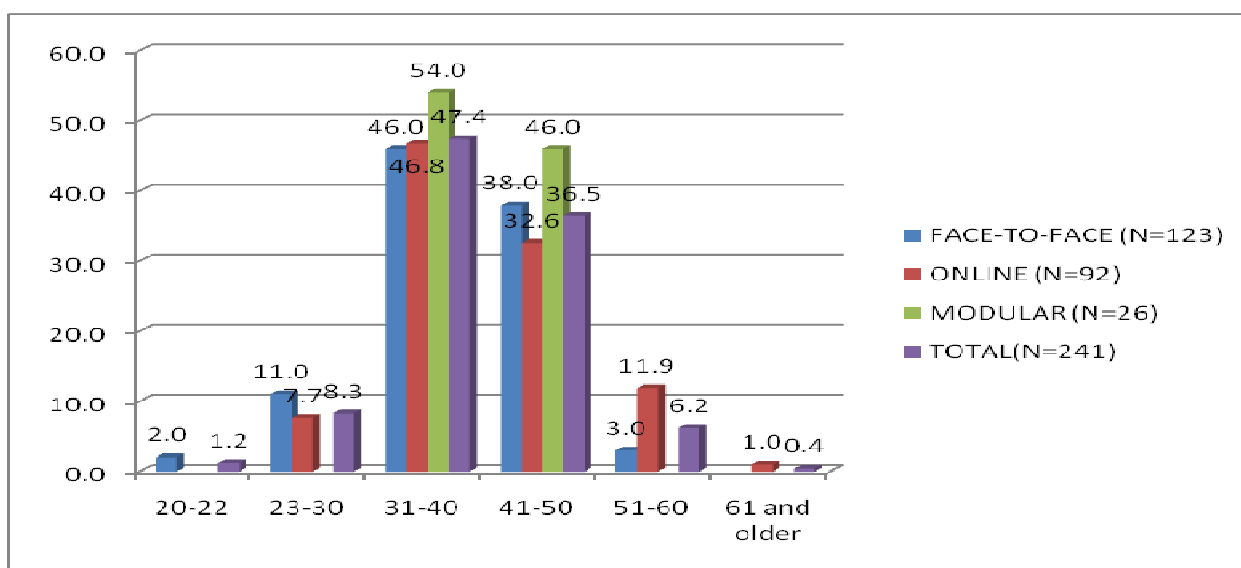
Figure 6.1: Geographical distribution of respondents according to mode of delivery

For the face-to-face delivery mode, almost all the students (95%) came from places close to Bloemfontein in the Free State and only 2% from the Northern Cape (which is not far) and 3% from nearby Lesotho. The other two delivery modes had a fair spread across the various provinces, with the vast majority (47%) of the online students living in Gauteng, and a further 11% in the Western Cape. As mentioned in section 6.2.2 the modular format favours working students, and therefore, the majority (36%) were residents in the Free State (again allowing for travel to Bloemfontein), although there were still students from all provinces enrolled for this mode (24% came from Kwa-Zulu Natal and 12% from the Northern Cape). Overall, just fewer than five percent (5%) live outside the borders of South Africa. Respondents from Lesotho do not show a preference for one mode, but are enrolled in both the face-to-face and online groups, although that particular group is too small to make any certain inferences from. Overall,

more than half of the respondents are from the Free State (54%), followed by Gauteng (19%) and then Kwa-Zulu-Natal (9%).

(b) Age related to mode of delivery

In Figure 6.2 the age of the respondents is depicted in terms of the different modes of delivery. The majority of the respondents (84%) are between 31 and 50 years of age, with almost half (47%) of the total number of respondents being between 31 and 40. Only three respondents (1%) are under the age of 23. According to the age dimension in the definition of adults, the majority of the respondents (99%) can be classified as adult learners. (See section 4.2)



*All values in the graph are presented as percentages. (The 0% in the total column for 61 and older is a result of rounding.)

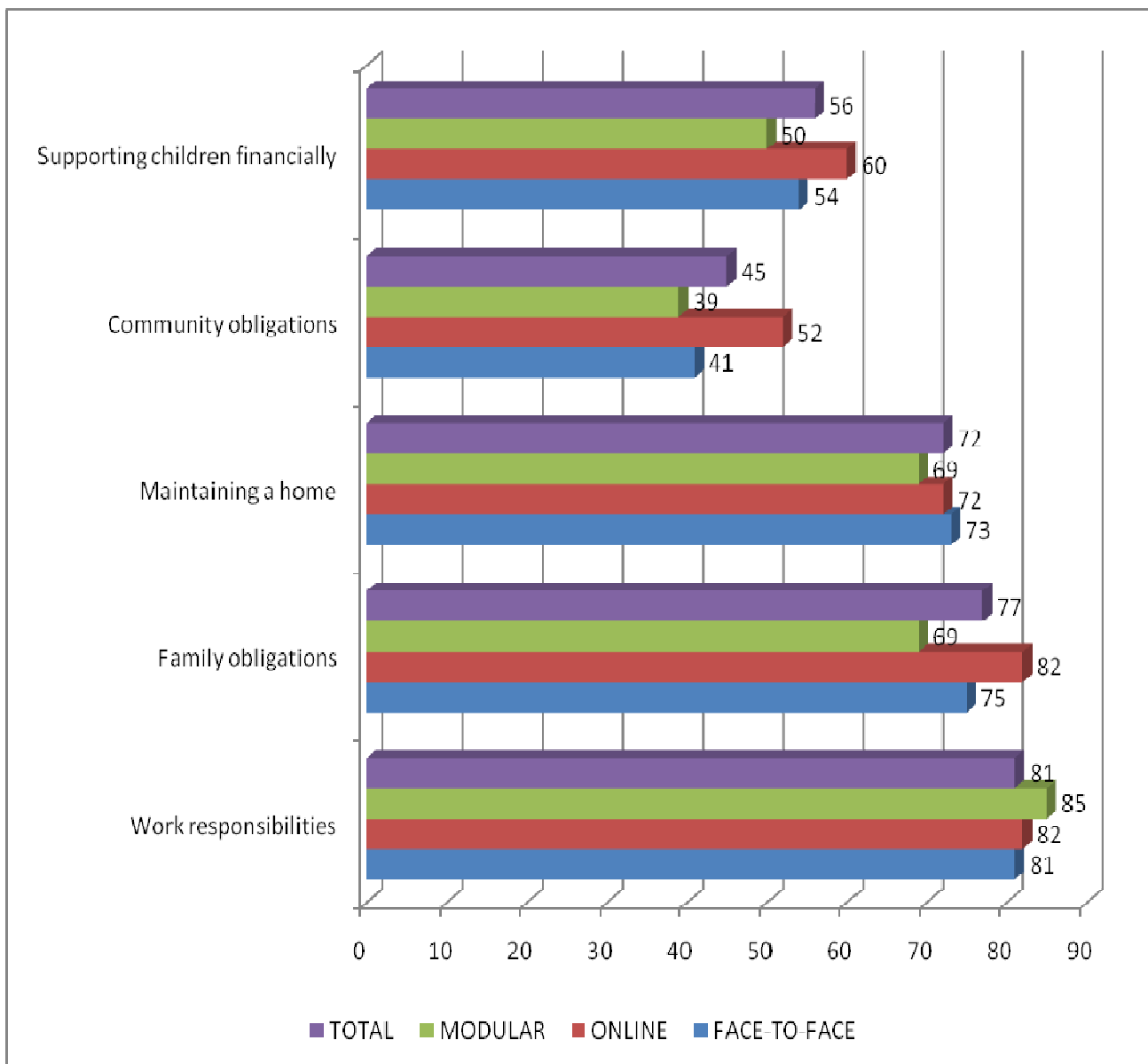
Figure 6.2: Age distribution according to mode of delivery

From an adult development perspective, especially the developmental perspective (see section 4.3.1) most of the respondents (97.2%) are in Erikson’s middle adulthood stage and Levinson’s middle adulthood stage (71.8%) where these respondents will be concerned with creating a new life structure (according to Levinson) and would like to leave a legacy (Erikson).

(c) Responsibilities related to mode of delivery

Respondents were asked to mark the responsibilities they have as adults (question 8.2). These responsibilities are depicted in Figure 6.3. From this figure, it can be seen that, apart from their

studies, these respondents have a wide variety of other obligations. Therefore, it can be assumed according to the definition of adults (see section 4.2) that the respondents qualify as adult learners (Figure 6.2 and 6.3). Furthermore, no real differences existed between the percentages for each responsibility amongst the various delivery modes. Thus, the responsibilities did not differ substantially whether the respondents were enrolled in the face-to-face, online or modular mode.

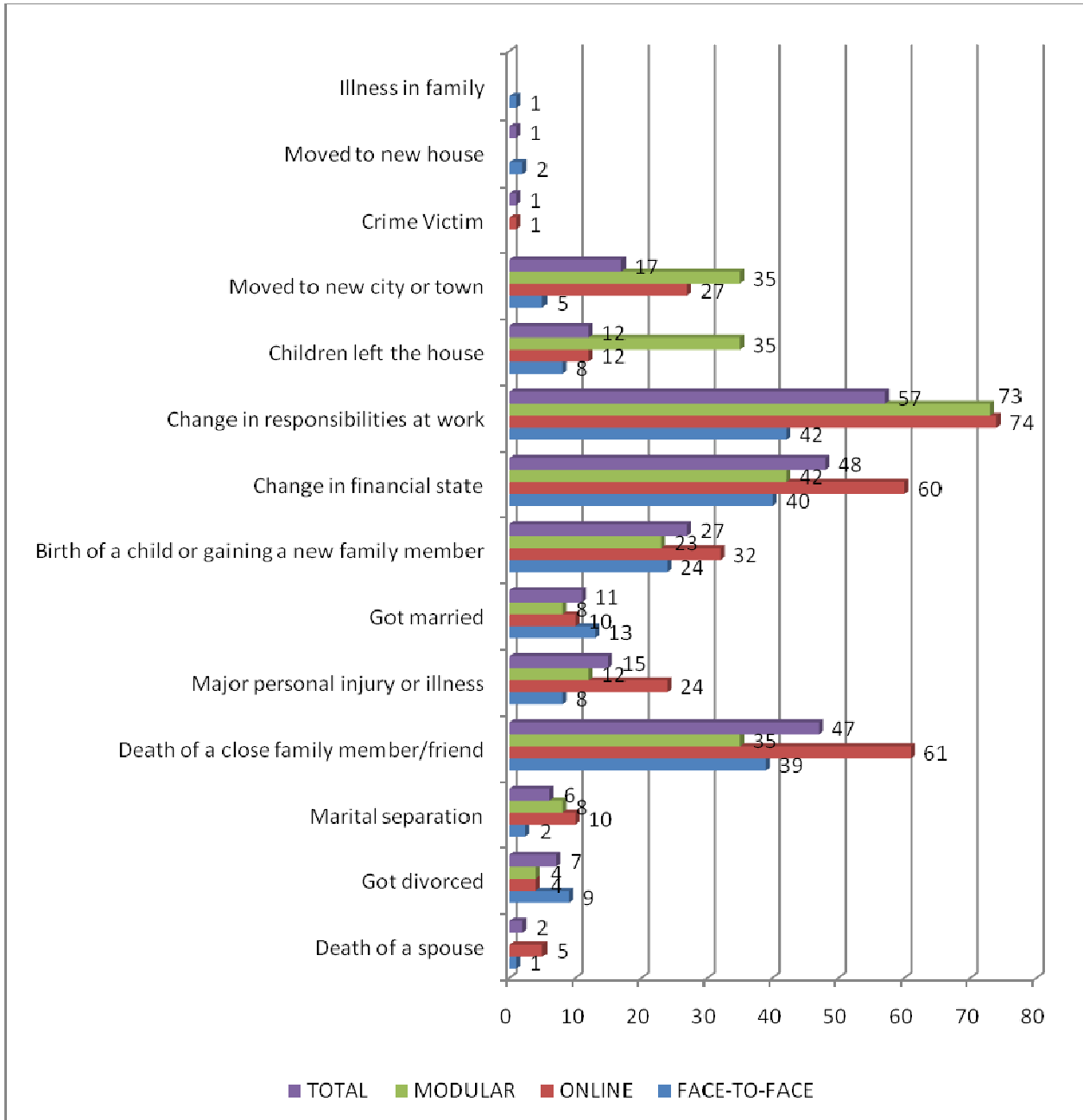


*All values in the graph are presented as percentages. Values add up to more than 100% because respondents could choose more than one option.

Figure 6.3: Responsibilities according to mode of delivery

(d) Life events respondents are confronted with related to mode of delivery

In terms of the transition perspective of adult development (see 4.3.3) respondents were asked to list the experiences they had gone through during the last five years (question 8.3). These experiences are illustrated in Figure 6.4.



*All values in the graph are presented as percentages. Values add up to more than 100% because respondents could choose more than one option.

Figure 6.4: Life events respondents are confronted with according to mode of delivery

From the figure it appears that the respondents have been experiencing life changing events that can lead to stress and influence their development as adults (See section 4.3.3). Table 6.3 shows the most common life events amongst all the respondents, together with their ranking and mean stressor value from Homes and Rahe’s Social Stressful Life Events List (see Table 4.4):

Table 6.3: Most common life events with stress ratings

Life Event	%	Rank	Mean value
Change in responsibilities at work	57%	22	29
Change in financial state	48%	16	38
Death of a close family member or friend	47%	5	63
Birth of a child or gaining a new family member	27%	14	39
Moved to a new town or city	17%	32	20
Major personal injury or illness	15%	6	53

Two of these life events (death of a close family member or friend and major personal injury or illness) are amongst the top stressors according to the major stressors identified by Homes and Rahe (see Table 4.4). According to Homes and Rahe (in Smith 2009:¶27) this can lead to stress which influences the transition of adults to their new circumstances and can also influence the development of the adult.

In fact, these most common stressors (life events) alone give a combined stressor rating of 315, that is over the 300 limit identified by Holmes and Rahe in Doty (n.d.:¶1)(Figure 6.5). To obtain a better picture, the Holmes and Rahe stressor ratings for all the circumstances mentioned by each respondent were added. Cumulative stress ratings ranged from 0 to 446, with a median of 50, a mean of 70.6, and a standard deviation of 81.6. It seems that roughly half of the adult learners in the BML course do not experience large amounts of stress, the remaining half appear to function under a lot of stress.

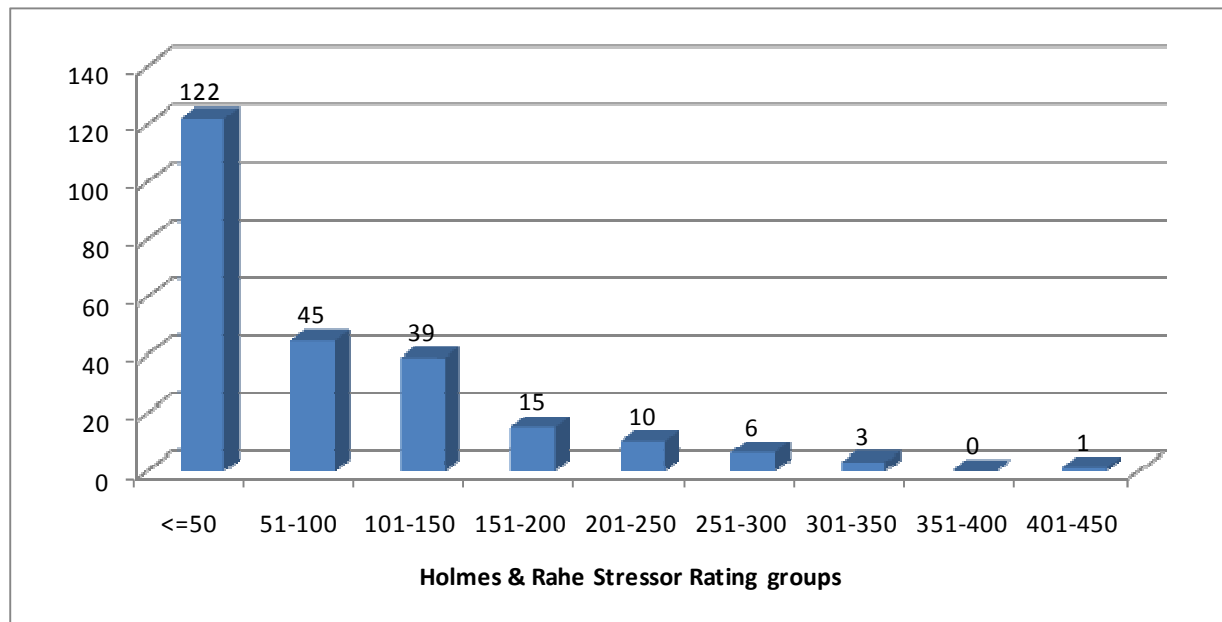
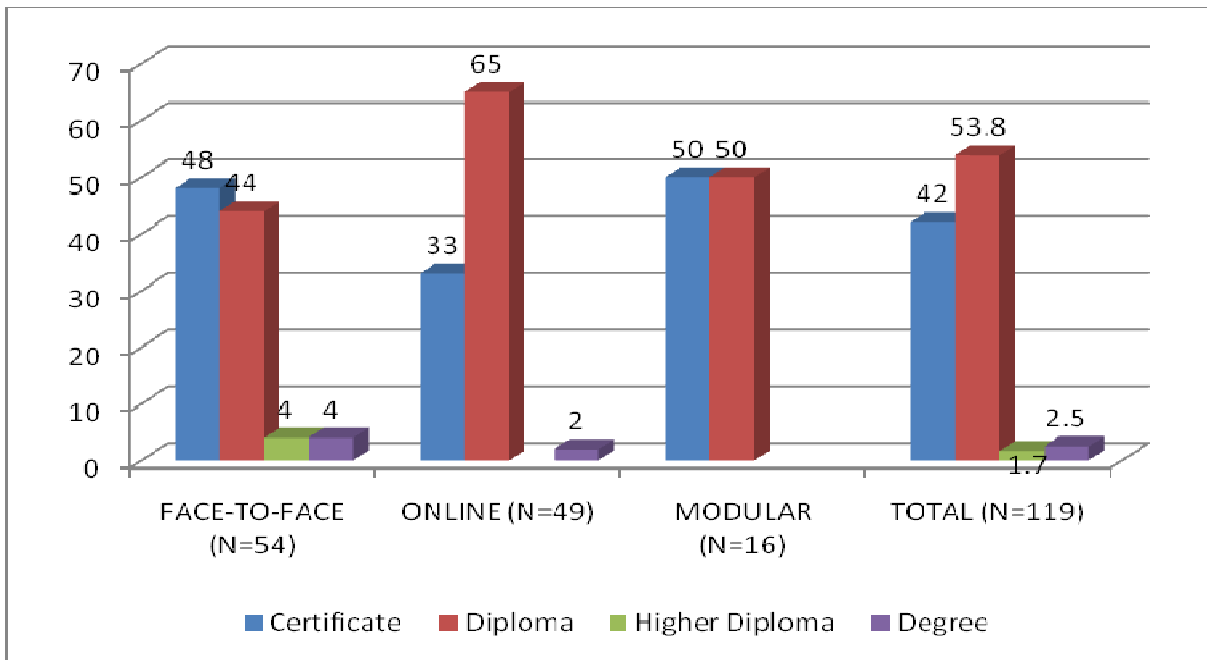


Figure 6.5: Stress levels experienced by BML students

Furthermore, while no major differences could be seen in the responsibilities of the respondents from the different modes of delivery (Figure 6.3), substantial very big differences become apparent when their stressors are examined. While very few of the face-to-face students had moved to a new city or town, large proportions of both the online and modular students had. A similar disparity could be noted for changes in work responsibilities. In general, it would appear as if the online students in particular experienced high levels of stress (they showed the highest percentage of exposure in eight of the fourteen stressors). This, combined with their lower contact time, did not bode well for their studying.

(e) Qualifications of respondents related to mode of delivery

The current qualifications of the respondents (question 2.8) are illustrated in Figure 6.6.



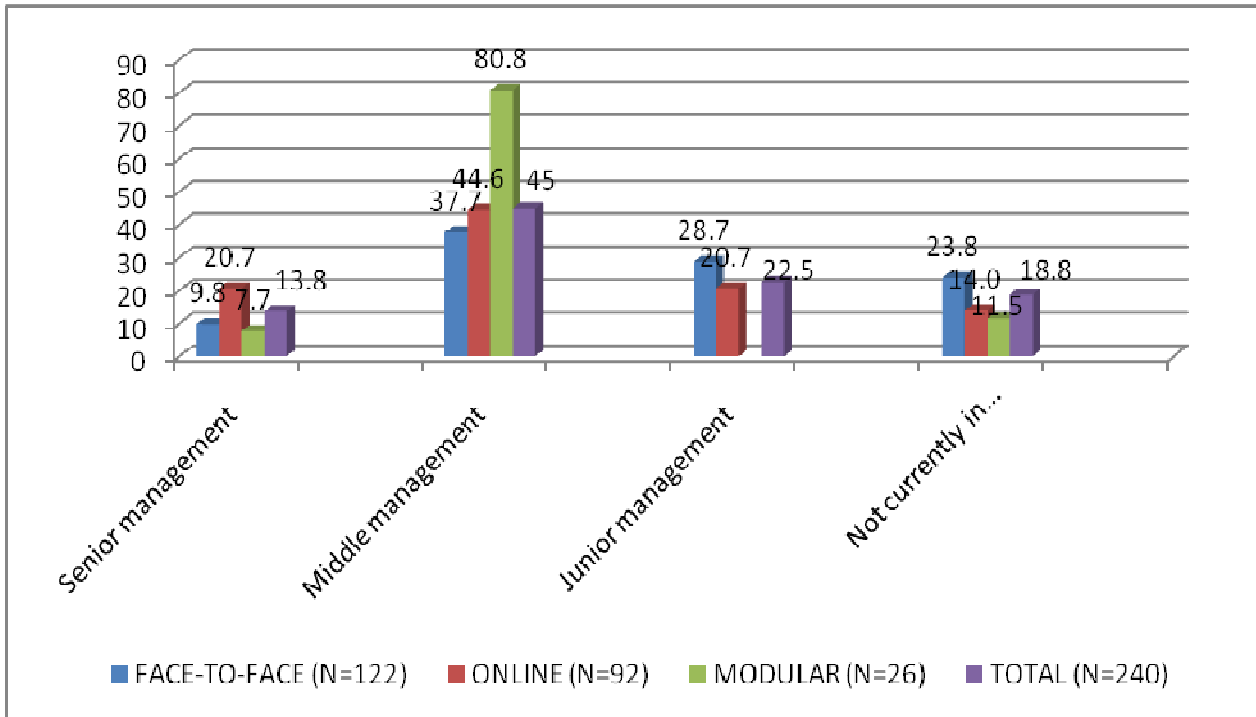
*All values in the graph are presented as percentages. Values add up to more than 100% because respondents could choose more than one option.

Figure 6.6: Respondents with qualifications according to mode of delivery

Almost half (49%) of the respondents that completed the questionnaire do have qualifications. Of the 49% that have qualifications, the majority of the qualifications (96%) are on a lower National Qualifications Framework (NQF) level than the BML programme (SAQA NQF level 6), while only 3% of all respondents have a qualification on a similar level as the BML programme.

(f) Management positions related to mode of delivery

Figure 6.7 provides a summary of the management level that the respondents employ (question 2.14).



*All values in the graph are presented as percentages.

Figure 6.7: Management positions of respondents according to mode of delivery

Eighty-two percent (81%) of the respondents are in a management position. More specifically 14% are in senior management positions, 45% are in a middle management position and 23% in a junior management position. This is also reflected at each of the modes of delivery, except with the online mode, where the percentages of respondents in junior and senior management are equal (21% each). Almost a fifth (19%) of the respondents is not currently in management. The majority of respondents in all the different delivery modes are in middle management (38% of the face-to-face respondents, 45% of the online respondents and 81% of the modular group respondents).

Concise summary of response rate and profile of the respondents

- The overall response rate for the survey is 61% that is regarded as a good rate for analysis and reporting.
- In terms of the profile of the respondents, half (54%) of the respondents are from the Free State followed by Gauteng (19%).

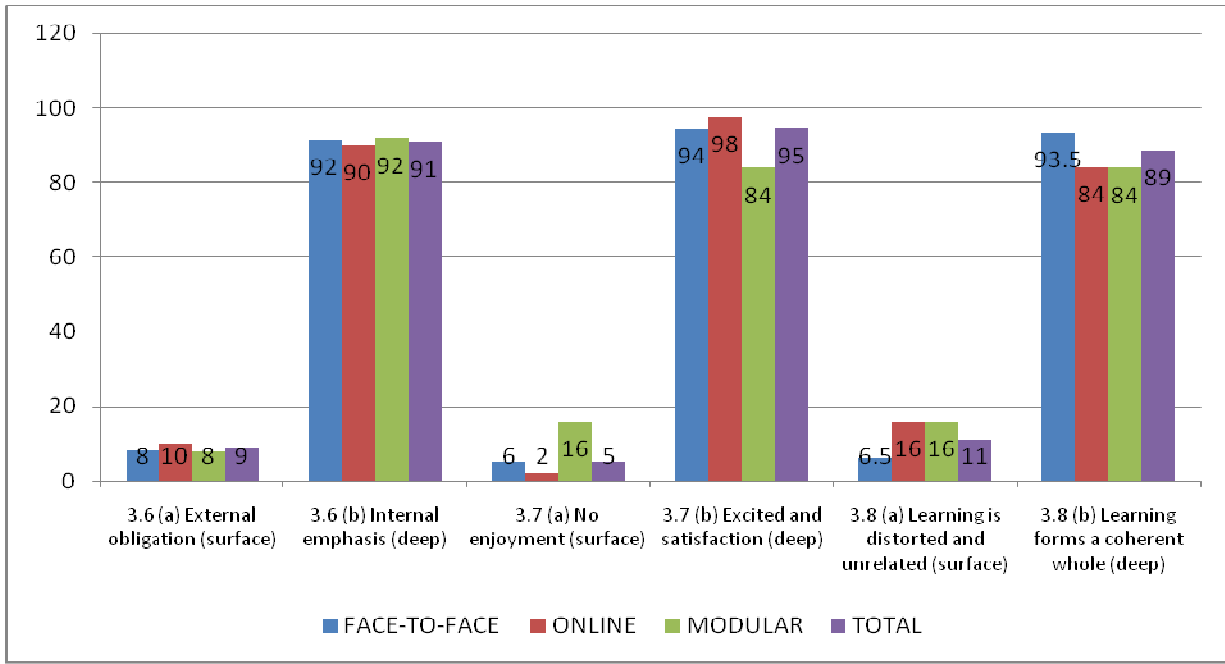
- The students can be classified as adult learners because the majority of respondents (99%) are older than 23 years and reported various other responsibilities apart from studying.
- The respondents are confronted with life events that can lead to stress and further complicate their development as adults.
- Furthermore, half of the respondents (49%) do have qualifications, but the majority of the qualifications (96%) are below the NQF level of the BML programme.
- Eighty-one percent (81%) of respondents are in a management position, with most of the respondents (45%) in middle management positions.

6.3.1.3 Principles related to effective learning design in the BML programme

This section contains questions related to the learning design. The directives from Table 3.4 regarding the guiding principles for designing effective teaching and learning (see section 3.5) as well as Table 4.9 that focus more on guiding principles in designing learning for adults (see section 4.6) are used to guide the discussion. The discussion will commence with the more general guidelines related to deep and surface learning.

(c) Deep and surface learning

In order to determine respondents' approach to learning, they had to select between opposing questions reflecting either a deep or surface approach (see section 3.3.1) as shown in Figure 6.8. (See Appendix B, question 3 for the specific wording of the questions.).

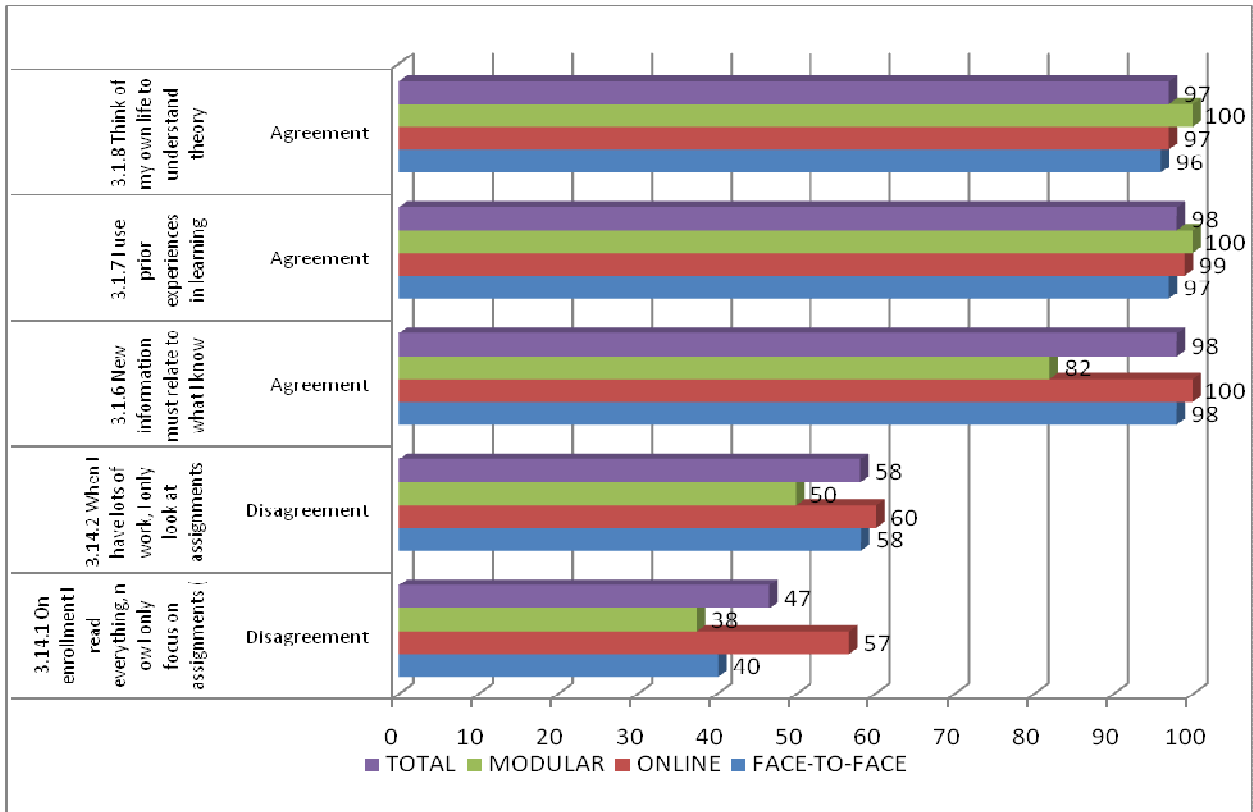


*All values in the graph are presented as percentages.

#Total population not included due to various questions summarised in one figure.

Figure 6.8: Inclination to deep and surface approaches to learning

In Figure 6.8 the selection of the (b) part of the statement indicates a tendency to adhere to a deep approach to learning. In all three statements depicted in Figure 6.8 the majority of all the respondents (92% on average) selected the (b) option that points to tendency to adhere to a deep approach to learning. It should be noted that no significant statistical differences could be found between the responses of respondents from the three delivery modes.



*All values in the graph are presented as percentages.

#Total population not included due to various questions summarised in one figure.

Figure 6.9: Deep and surface approaches to learning according to mode of delivery

Respondents were also asked to indicate their agreement with five indicators of deep learning (Figure 6.9). Their agreement had to be indicated on a four-point Likert scale, from strongly disagree to strongly agree. To simplify the comparison between the three delivery modes, the two disagreement and agreement categories were collapsed (e.g., disagree and strongly disagree were combined in an overarching disagree category). Given their responses to the previous questions, it would be expected that they would respond to all of these items with a tendency towards a deep learning approach (selecting the disagree option at 3.14.1 and 3.14.2 and the agree option at questions 3.1.6-3.1.8).

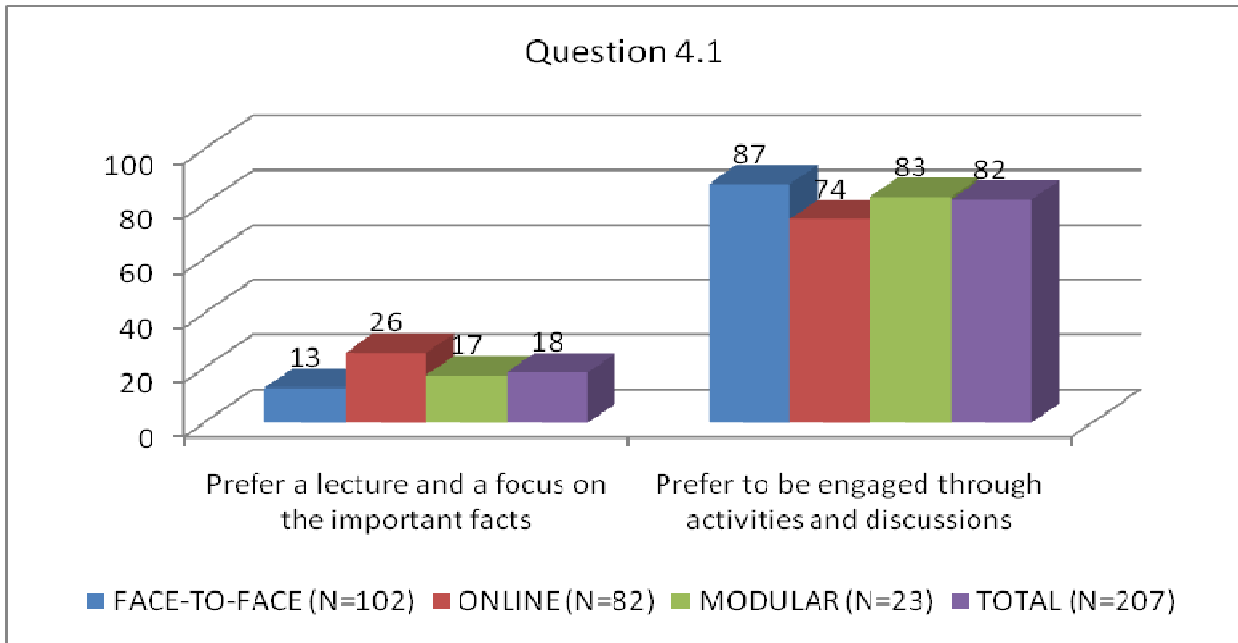
However, Figure 6.9 reveals inconsistent results. The results of questions 3.1.6-3.1.8 concur that respondents have a tendency to adopt a deep approach to learning but the results of questions 3.14.1 and 3.14.2 provided mixed results (with a lower level of disagreement). These questions requested respondents to indicate if they agreed with the following two statements:

- When I enrolled in the BML I read every piece of information and did all activities. Now I only focus on what the lecturer says is important for assignments. (question 3.14.1)
- If I have a lot of work to do, I only try to complete the assignments without looking at other activities in the study guide. (question 3.14.2)

This corresponds with the observation by Biggs (in Toohey 1999:12-13) that students are more likely to adopt surface approaches as they progress through their studies. The results of the question could have been influenced by the fact that not all respondents that completed the questionnaire were in their last year of study. Almost a third of the respondents had just enrolled (12.86% indicated that they were busy with the PDC), while 15.8% were enrolled in their first year and 29.05% were busy with their second year of study (This information is not graphically displayed) (question 2.10).

To further test this statement, a comparison was made between the responses to the two items 3.14.1 and 3.14.2. However, when a Chi-square value was calculated, it did not approach significance for either of the comparisons ($\chi^2=12.52$, $df=12$, $p>0.05$ for question 3.14.1 and $\chi^2=13.61$, $df=12$, $p>0.05$ for question 3.14.2). Thus, no proof could be found that the year of study in any way influences the students' tendency to adopt a deep learning approach. A possible explanation for the results in Figure 6.9 could be that the BML students did indeed show a tendency towards a deep learning approach. However, the practical reality of being adult learners, that they had to fit in their studies together with work and family responsibilities, probably meant that they had to compromise in how they actually completed their studies, and take the most expedient approach. Unfortunately, no questions in the questionnaire could provide data with which to test this explanation, and this then needs to be examined further at a later stage.

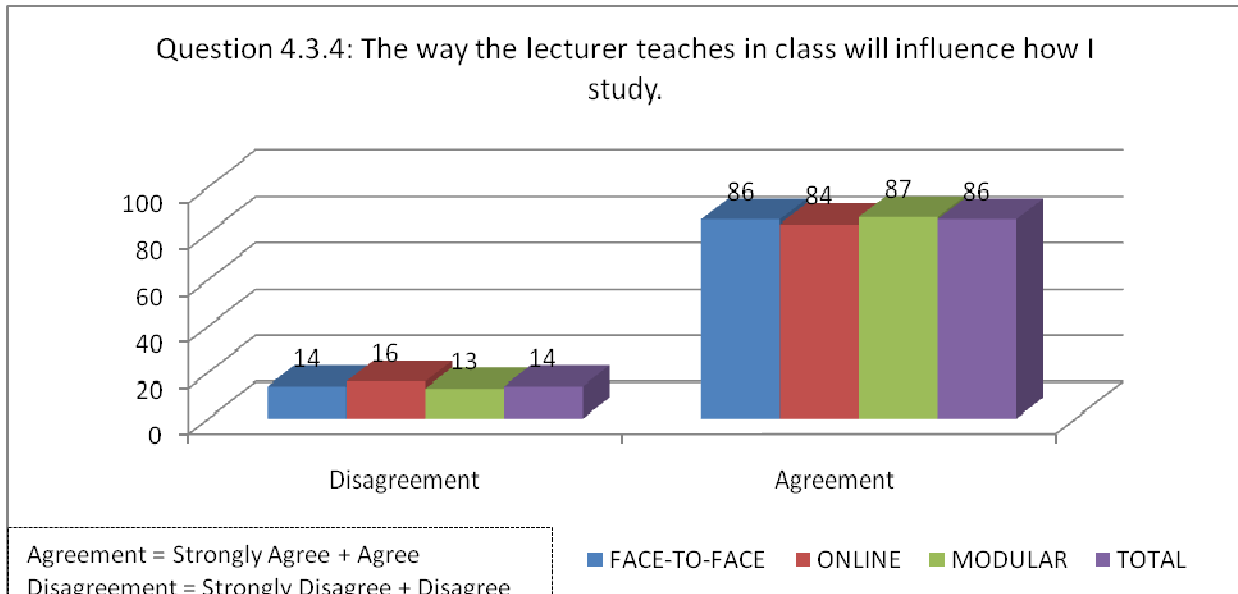
Another factor related to the adoption of a deep approach to learning by students is the approach that the lecturers adopt to the learning through their teaching. The questions that follow provide an indication of respondents' preferences regarding a student-centred or teacher-centred approach (see section 3.3.2). Figure 6.10 and Figure 6.11 provide a summary of the findings.



*All values in the graph are presented as percentages.

Figure 6.10: Approach to learning according to mode of delivery

Figure 6.10 shows that on average 82% of the respondents preferred to be engaged through activities and discussions rather than listening to a lecture, therefore, indicating a student-centred approach.



*All values in the graph are presented as percentages.

Figure 6.11: Influence of teaching on student learning

Figure 6.11 indicates that 86% on average of the respondents will adapt the way they study according to the way the lecturer teaches, with the implication that the adoption of a student

or teacher-centred approach depends on the way the lecturer teaches. The result confirms the observation by Biggs (2003:25) and Kaartinen-Koutaniemi and Katajavuori (2006:199) that students taught by teachers using a teacher-centred approach will be inclined to adopt a surface approach, while lecturers with a student-centred approach will foster deep learning. It is therefore not the student that must change, but the learning environment that must be altered to create conditions that foster a deep learning approach (Kaartinen-Koutaniemi & Katajavuori 2006:200). From the results indicated in Figure 6.10 and Figures 6.8 and 6.9 it can therefore be deduced that if students have a tendency to adopt a deep learning approach, it could have been the result of the facilitators in the BML programme encouraging a student-centred approach to teaching.

Concise summary of findings related to deep and surface learning

- Although it seems that respondents have an inclination to a deep learning approach there were inconsistent results related to situations where students are confronted with a heavy academic workload or as they progress through their studies.
- Further analysis delivered no proof that the year of study in any way influences the respondent's tendency to adopt a deep learning approach.
- Respondents preferred a student-centred approach to learning and from the findings it can be deduced that lecturers are possibly cultivating a deep learning approach.

(d) Guiding principles for the design of learning

The guiding principles for designing effective teaching and learning are divided into three main categories namely teacher presence, social presence and cognitive presence (see Table 3.4). These results of questions related to these guidelines will be discussed in terms of the relevant principles under each of the three categories.

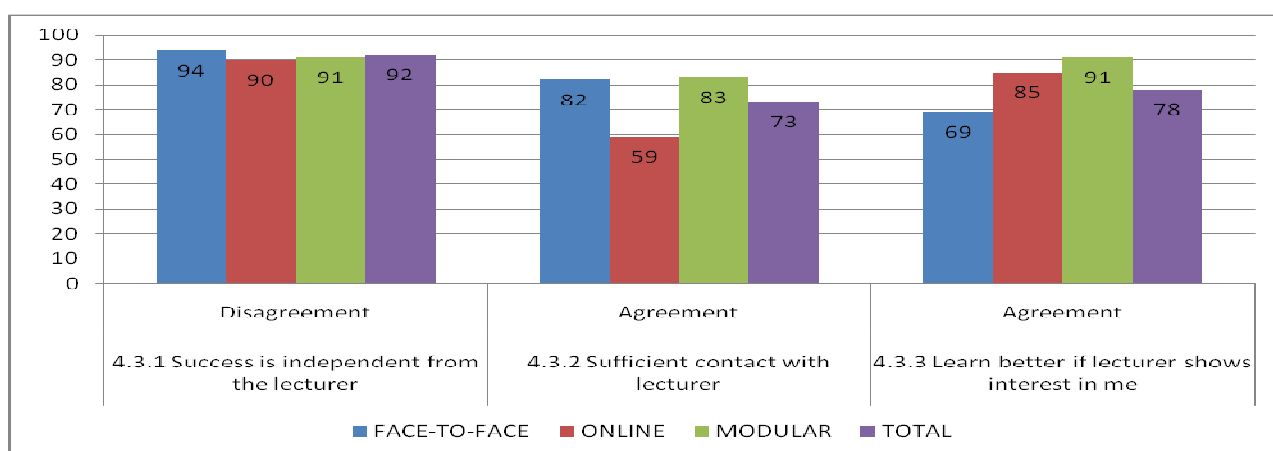
Teacher presence

The teacher presence category consists of three guiding principles according to Table 3.4 (see section 3.5), namely to encourage lecturer contact between students and lecturers; acknowledge the characteristics that students bring to the learning situation and their different ways of learning; and acknowledge the changing role of the teacher in the learning process.

With regard to a teacher presence the focus in the discussion was on the contact between the lecturer and student. The second principle, the characteristics that students bring to the learning situation has received attention under the profile of the students (section 6.3.1.2), while the third principle was addressed in the discussion of the qualitative responses (section 6.3.2.3).

Encourage lecturer contact between students and lecturers

The results of respondents' perceptions regarding the importance of contact with the lecturers are summarised in Figure 6.12.



*All values in the graph are presented as percentages.

#Total population not included due to various questions summarised in one figure.

Figure 6.12: Teacher presence: Contact between lecturer and student

If respondents regarded a teacher presence important they would disagree with question 4.3.1 and if they felt that there was a sufficient teacher presence they would agree with question 4.3.2 and 4.3.3. Respondents from all three modes of delivery disagreed (92% on average) with the statement that their success is independent to the lecturer (4.3.1), confirming that they regarded the role of the lecturer important in the learning process. Respondents in both the face-to-face (82%) and modular groups (83%) reported sufficient contact with the BML lecturers (4.3.2), but the online respondents (59%) reported a much lower agreement with this statement. This comparison was tested with a Chi-square test, and produced a significant result ($\chi^2=11.19$, $df=2$, $p<0.01$), indicating that the online students differed significantly from the face-

to-face and modular students in this regard. The implication is that a greater attempt has to be made to increase lecturer contact in the online delivery mode.

In terms of question 4.3.3 as depicted in Figure 6.12, respondents agreed (78%) that they learned better when the lecturer showed an interest in them. The percentage agreement was much higher for the online group (85%) and the modular group (91%) than the face-to-face group (69%) and again the difference was statistically significant ($\chi^2=10.07$, $df=2$, $p<0.01$). This could be due to the fact that face-to-face respondents have much more regular contact (once a week) with the lecturers than the other two groups (see Table 6.1).

The relationship between teacher presence and a tendency to adopt a deep approach to learning was examined further.

When asked to indicate whether they felt they were having sufficient contact with the lecturer the results showed a difference between the respondents who adopted a tendency for a deep learning approach when asked to indicate whether they felt they had had sufficient contact with the lecturer. This difference proved to be a significant result when tested with a Chi-square test ($\chi^2=11.16$, $df=3$, $p<0.05$). In short therefore, deep learners are more likely to feel that contact time with the lecturer is sufficient than surface learners (Figure 6.13).

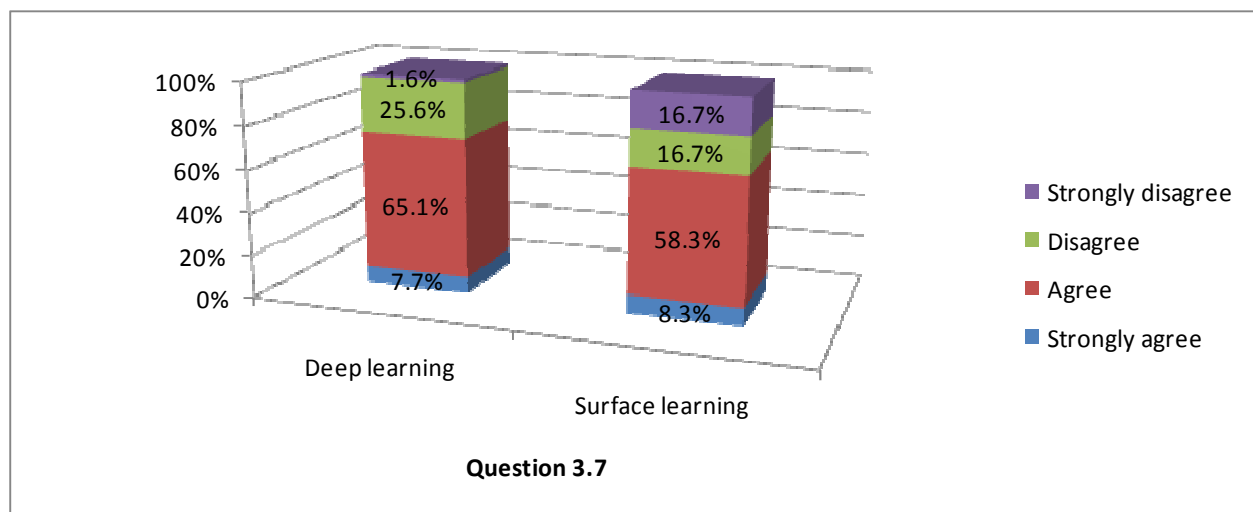
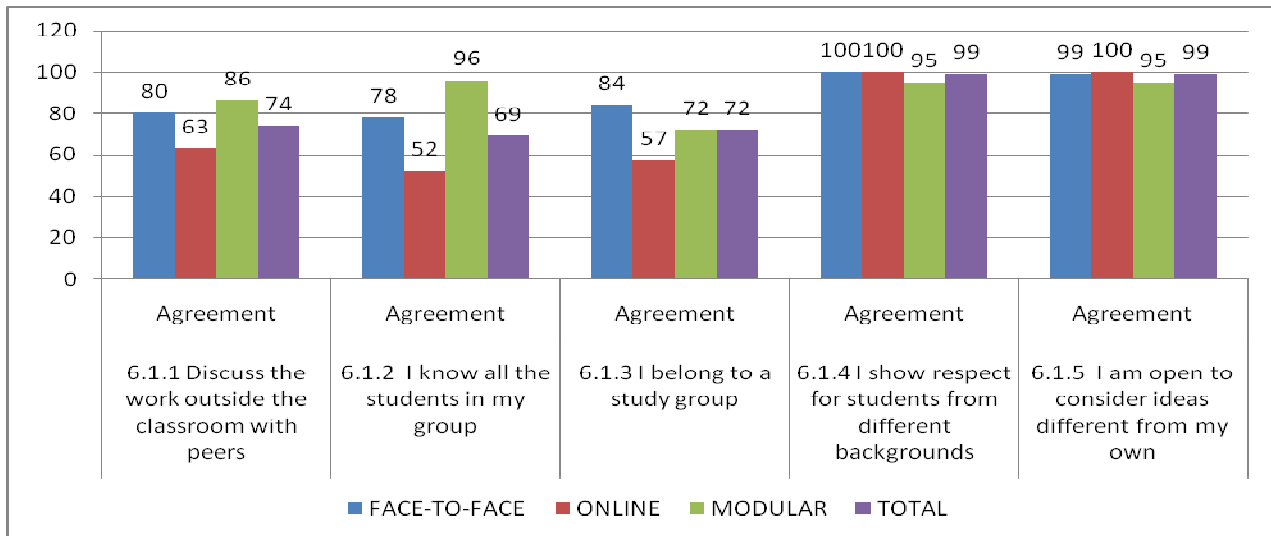


Figure 6.13 Teacher presence compared to deep or surface learning

Social presence

One important principle is associated with social presence, namely *encouraging cooperation and collaboration among students*. Five items in the questionnaire tested this cooperation and collaboration, as seen in Figure 6.14.



*All values in the graph are presented as percentages.

#Total population not included due to various questions summarised in one figure.

Figure 6.14: Cooperation and collaboration according to modes of delivery

If respondents felt that there was a strong social presence they would have indicated agreement with all of the questions. Respondents from all groups indicated that they discuss the work with other students outside the classroom (74%), but a larger percentage of respondents in the face-to-face (80%) and modular group (86%) reported this (6.1.1). Only 63% of the online group reported these kinds of discussions. The majority of respondents (99%) indicated that they had respect for other students and that they were open for new ideas (6.1.4).

Two aspects that could be enhanced in the programme are reflected in the responses to questions 6.1.2 and 6.1.3. According to question 6.1.2, 69% of the overall group reported that they knew all the students in their cohort group. Almost half of the online respondents (49%) indicated that they did not know all the students who were studying with them. In the online environment this is especially important due to the absence of physical contact. However, given the fact that the face-to-face and modular groups have almost exactly the same amount of

contact time (Table 6.1), the modular group far exceeded the face-to-face group in the percentage of respondents who indicated that they knew all the members of their group (96% vs 78%). This can possibly be explained by the fact that most of the students in the modular group are from the same financial institution and are colleagues in the workplace.

In terms of question 6.1.3, 72% of respondents overall indicated that they belonged to a study group. While 72% of the modular group agreed with this statement and 84% of the face-to-face group, only 57% of the online group indicated that they belonged to a study group. Enhancing study groups and supporting students so that they get to know each other better, may lead to an increase in the social presence experienced in the online group. Again, while the online mode of delivery makes the course accessible to students from a wide variety of locations, it is simultaneously not that effective at reducing the isolation these students experience. It was also interesting to note that, while the modular students seemed to know each other better (question 6.1.2), they were less likely to belong to a study group than the face-to-face students. This is in all likelihood again a geographical reality at play. Students from the face-to-face group came almost exclusively from the Free State and the close by Northern Cape or Lesotho (Figure 6.1), making it geographically easier for them to form and belong to study groups. Enhancing study groups and supporting students so that they get to know each other better, can lead to an increase in the social presence experienced in the online group.

One further item occurring later in the questionnaire was whether lecturers encouraged students to work together (question 4.3.9). (Not graphically displayed.) The majority of all the groups agreed (93%) that lecturers encouraged them to work together. (A high percentage was reported for all three groups: face-to-face (98.7%), online (86.6%) and modular (91.3%).). As was pointed out, though, the geographic realities presenting the students in the various delivery modes were such that this was not always possible.

Cognitive presence

The following principles are related to the design of effective teaching and learning in this category (see Table 3.4):

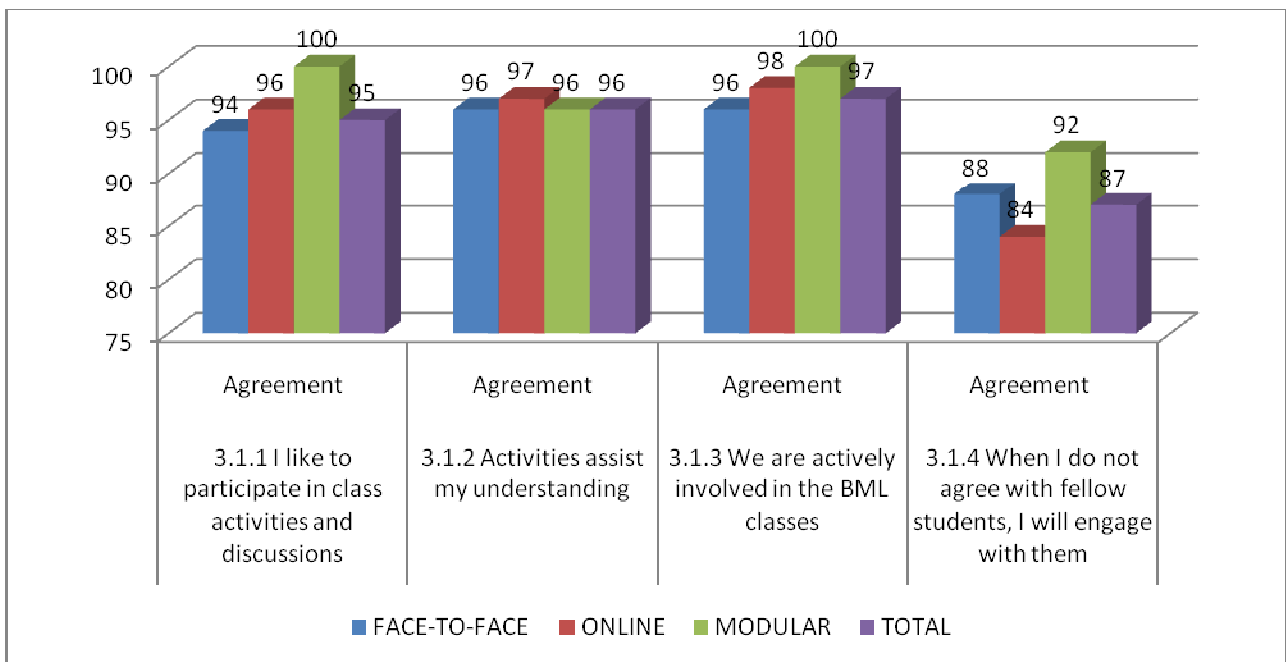
- Implement active learning strategies in the learning process

- Set high expectations and focus on activities that facilitate higher order learning and thinking
- Provide opportunities for reflection
- Ensure appropriate assessment and feedback to students
- Provide independence and control to the learners in the learning process
- Analyse and align the learning elements (including the learning environment and resources)

Reaction of respondents to aspects of these principles is discussed in this section.

Active learning strategies

Four items that tested the respondents' views on the use of active learning strategies are illustrated in Figure 6.15.



*All values in the graph are presented as percentages.

#Total population not included due to various questions summarised in one figure.

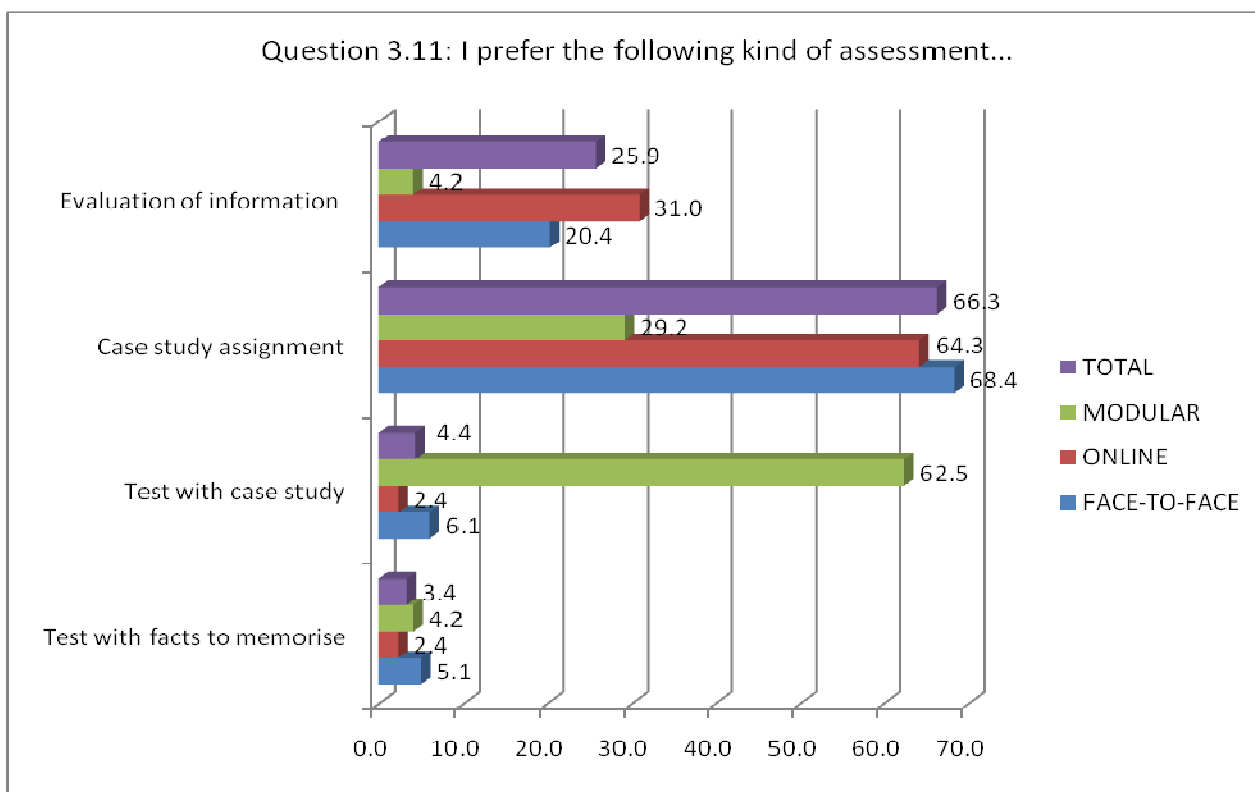
Figure 6.15: Active learning strategies used by different modes of delivery

The majority of respondents (95%) indicated that they liked to participate in class activities and discussions (question 3.1.1) and 96% reported that activities assisted in their understanding (question 3.1.2). Respondents were also asked to report if they felt that they were actively

involved in the BML classes and the majority (97%) agreed that they felt involved in the classes or chat sessions (question 3.1.3). Furthermore, respondents would engage with fellow students if they did not agree with them (87%) (question 3.1.4). Notably, there were no big differences discernable between the respondents involved in the different delivery modes – all of the respondents tended to use active learning strategies.

Activities that facilitate higher order learning and thinking and set high expectations

The items represented in Figure 6.16 reflected the results on a request to respondents to select the type of assessment that they preferred. By indicating their preference for the type of assessment activities it could be deduced if respondents preferred higher-order learning activities.



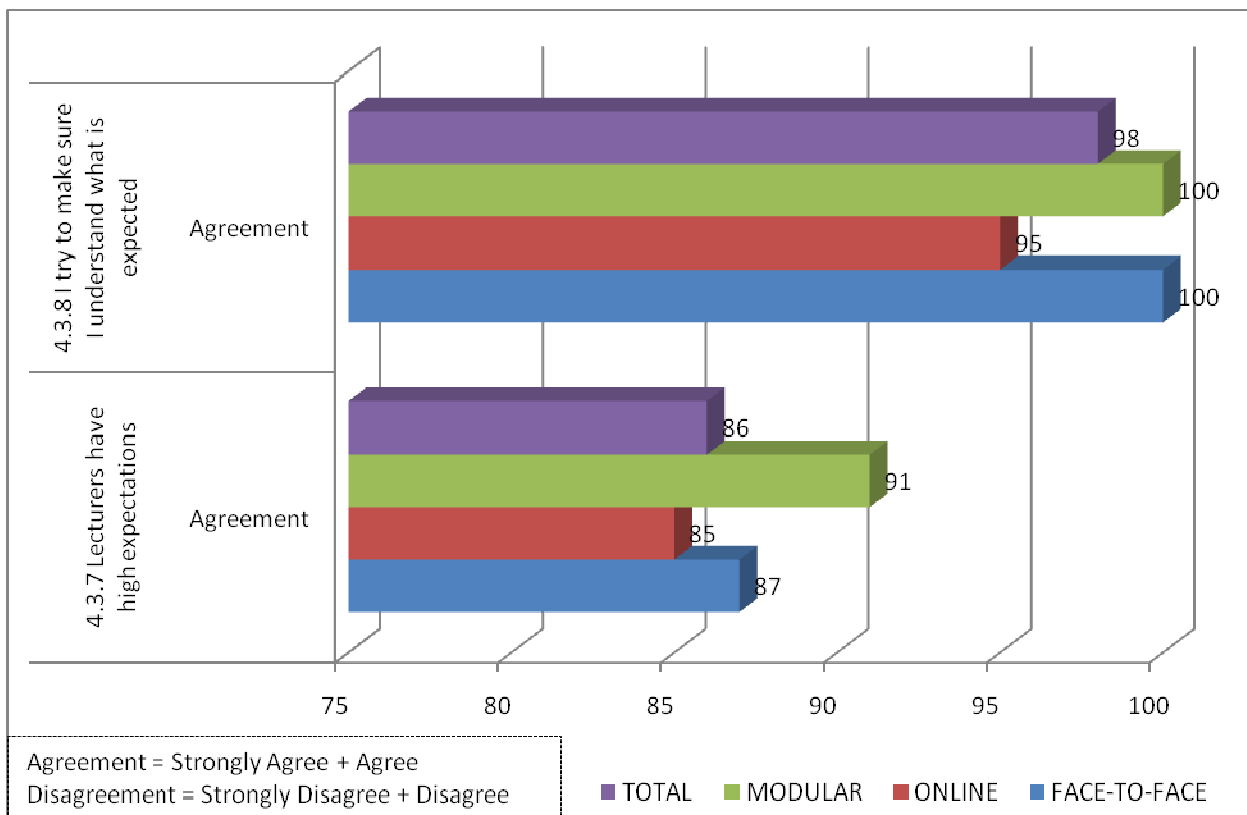
*All values in the graph are presented as percentages.

Figure 6.16: Higher order assessment according to mode of delivery

Figure 6.16 provides evidence that respondents preferred higher-order assessment. While none of the groups preferred tests that assess memorisation, the majority of the respondents indicated a preference for case study assignments (66%).

It is interesting to note that the preferred assessment option with the face-to-face respondents (67%) and online respondents (62%) was the case study assignments, while the modular group preferred a test with a case study (63%). McMahon (2005:39) points out that assessment should test and reward higher-order learning in order to encourage deep learning, therefore the preference for higher-order activities could possibly confirm the tendency to adopt a deep learning approach.

Figure 6.17 illustrates the responses related to the setting of high expectations (questions 4.3.7 and 4.3.8).



*All values in the graph are presented as percentages.

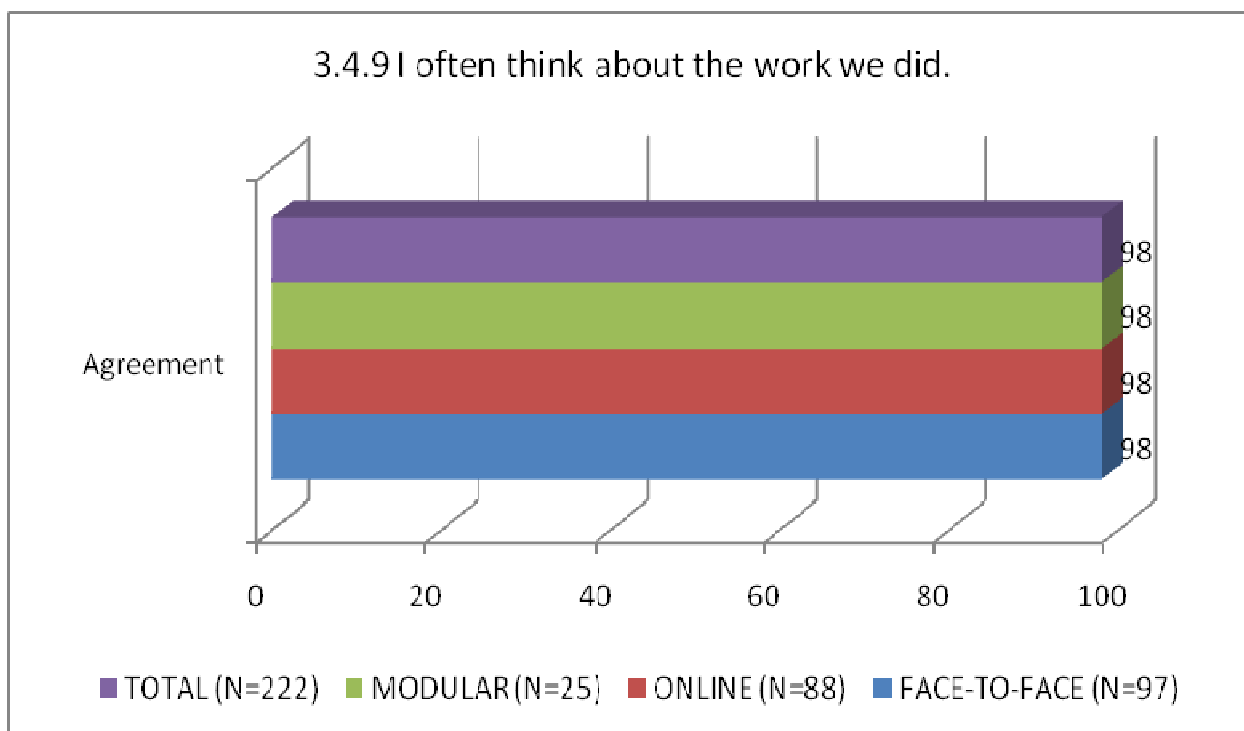
#Total population not included due to various questions summarised in one figure.

Figure 6.17: High expectations according to mode of delivery

The majority of the respondents (86%) pointed out that lecturers have high expectations of students (question 4.3.7). Respondents from all the delivery modes also agreed (98%) to the statement that they tried to understand what the lecturer expected from them (question 4.3.8). According to Chickering and Gamson (1987:5) having high expectations of students develops their metacognitive skills. This forces them to measure themselves and reflect on their own learning. Ramsden (1992:99-100) indicates that high expectations produce higher student performance. Setting high expectations therefore enhances a tendency to adopt a deep learning approach.

Provide opportunities for reflection

Reflection was addressed in questions 3.1.8 (Figure 6.9 – already discussed) and 3.4.9 (Figure 6.18).



*All values in the graph are presented as percentages.

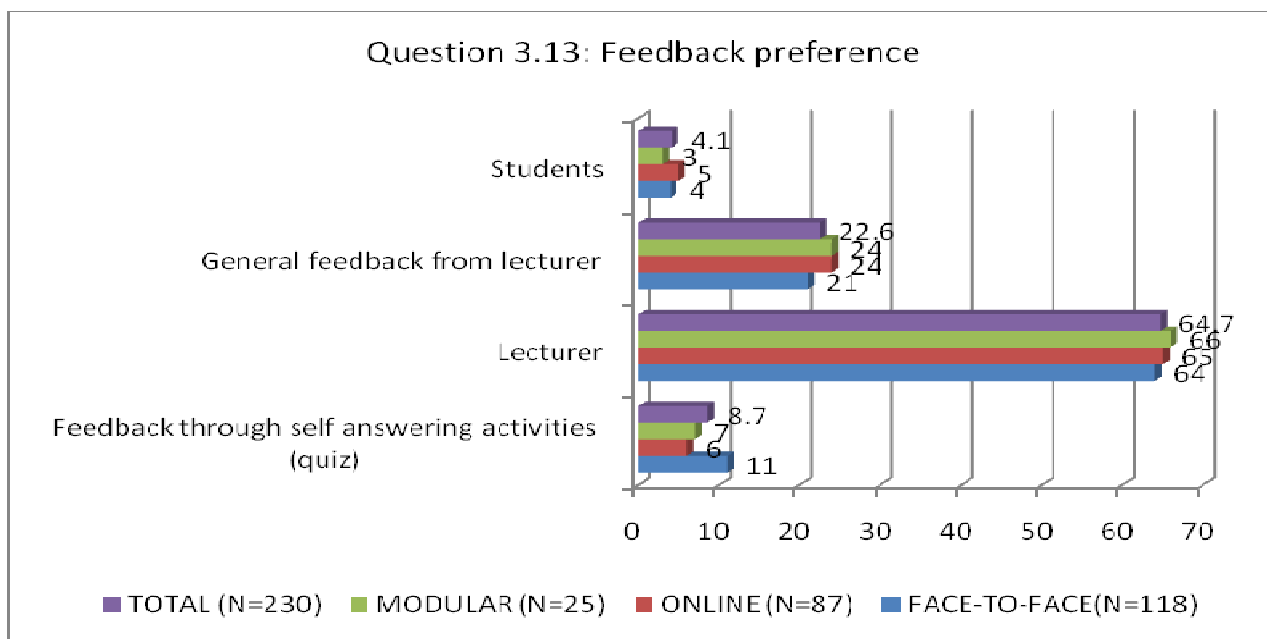
Figure 6.18: Reflection

According to the responses on question 3.1.8 (see Figure 6.9) the majority of respondents (97%) indicated that they reflected on their own life to understand the theory (Figure 6.9). Figure 6.18 also confirms this with the majority of respondents (98%) indicating that they often think about

the work – which is an indication of some reflection on the work. In the discussion of various perspectives of effective learning (Chickering & Gamson 1987, Laurillard 1993, 2002, Marchese 1997), the importance of reflection was indicated. Garrison *et al.* (2000:89) point out that one of the key aspects in creating a cognitive presence where meaning is constructed is reflection. Reflection is seen as an activity that supports higher order thinking and therefore a deep learning approach.

Ensure appropriate assessment and feedback to respondents

Figure 6.16 (already discussed) points to the fact that the majority of respondents prefer assessments that focus on higher order thinking and assessments that focus on the application of knowledge and real-life situations. The results of the questions focusing on feedback are depicted in Figure 6.19 and Figure 6.20. While Figure 6.19 focuses on respondents’ preferences regarding receiving feedback, Figure 6.20 focuses more on an evaluation of the feedback that they receive in the programme and on whether they use the feedback.



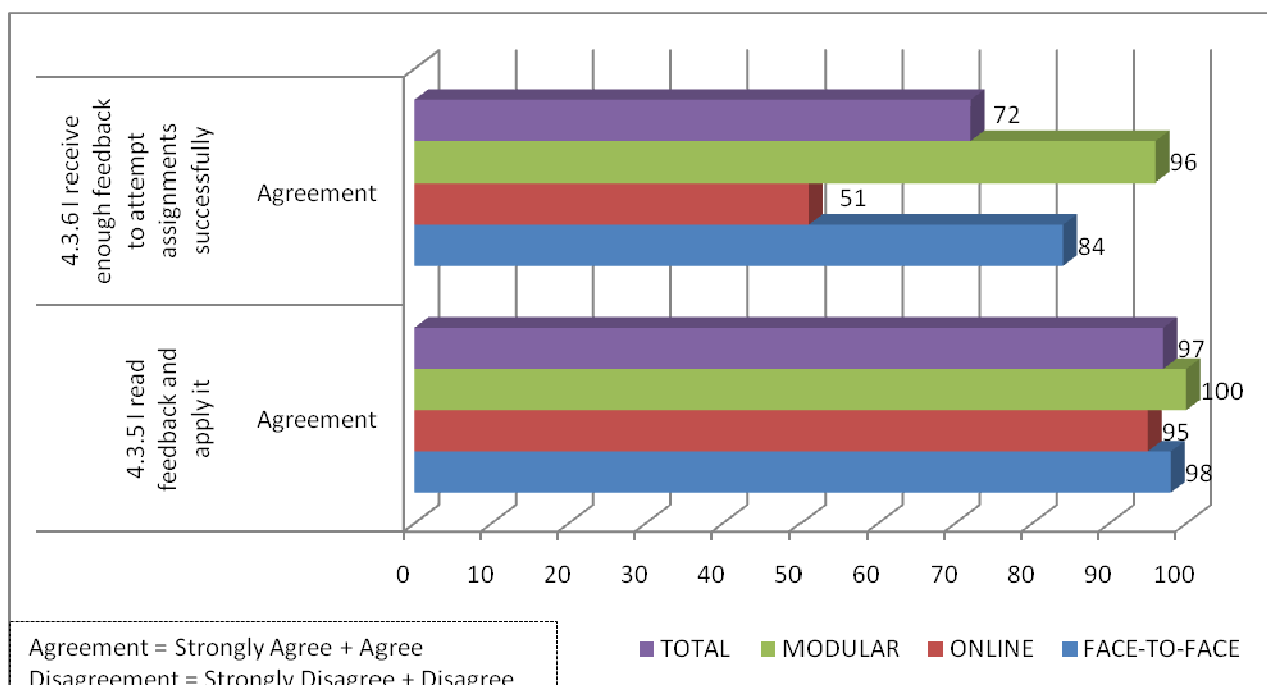
*All values in the graph are presented as percentages.

Figure 6.19: Preference for feedback according to mode of delivery

In terms of feedback, Figure 6.19 indicates that respondents prefer to receive feedback from the lecturer (87%), even if it is general feedback (23%) and not specifically related to one

students' work (65%)—together these two forms of lecturer feedback accounted for 88% of the total responses. Respondents did not report a preference receiving feedback from fellow students (4%). However in a related question (3.14.4) (results not graphically displayed) respondents reacted differently. The statement read: *I find the feedback from fellow students irrelevant in completing assignments*. In this regard 83% of the respondents disagreed with this statement. In question 3.13 (see Figure 6.19) respondents had to select the statement that best indicated their preference. This points to the fact that respondents do value feedback from peers, but prefer feedback from the lecturer. It could also indicate that respondents viewed the feedback received from their peers and from their lecturers as being qualitatively different. Interestingly, no real differences were indicated between respondents from the different modes of delivery in terms of the feedback they preferred.

The items shown in Figure 6.20 illustrate the responses on an evaluation of questions related to the feedback that the respondents received as well as the usage of the feedback.



*All values in the graph are presented as percentages.

#Total population not included due to various questions summarised in one figure.

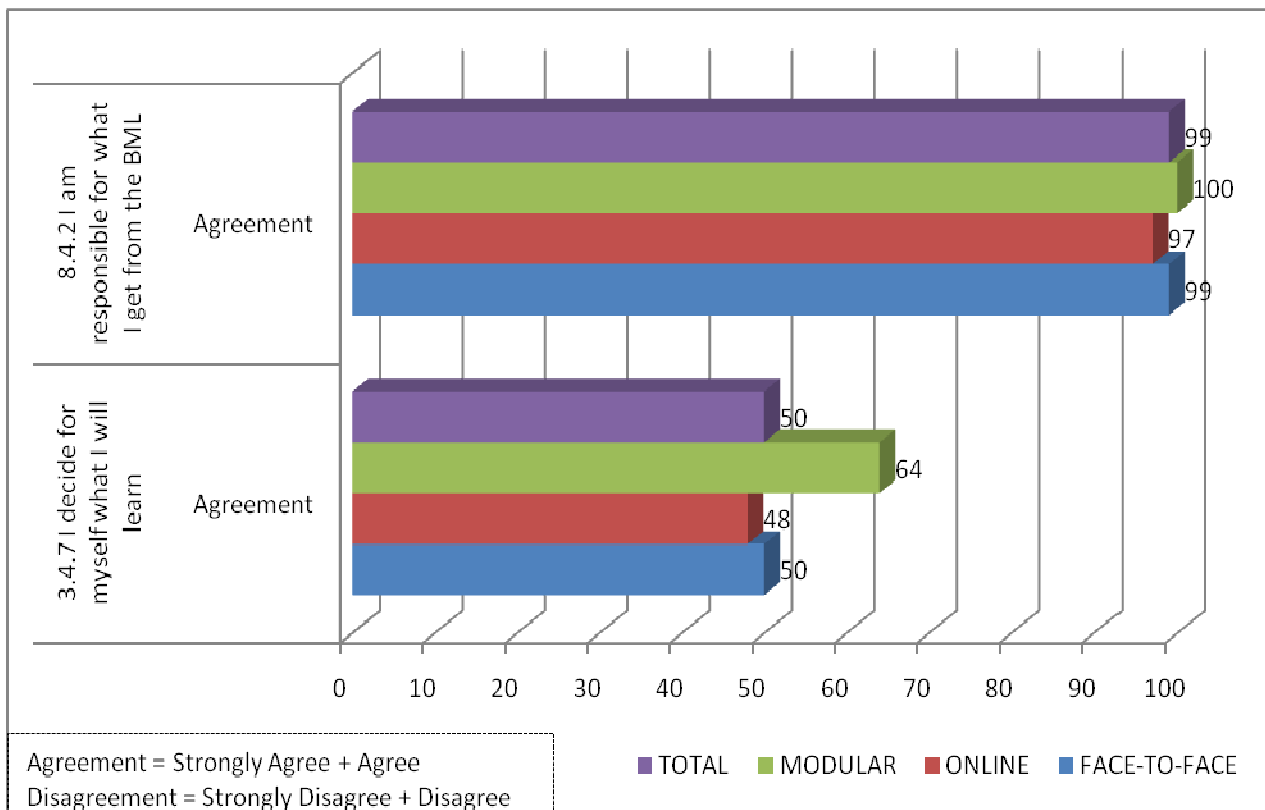
Figure 6.20: Evaluation and usage of feedback

The majority of respondents (97%) indicated that they applied and used the feedback that they received from the lecturer (4.3.5). In question 4.3.6 respondents had to indicate if they felt that

they received enough feedback. The group most satisfied was the modular group (96%), followed by the face-to-face group with 84%, and the online group with 51%. This difference was also highly significant, when tested with a Chi-square statistic ($\chi^2=24.35$, $df=2$, $p<0.01$). This aspect was also highlighted at the qualitative responses of respondents in terms of what they expect from lecturers (see section 6.3.2.3). The online respondents felt that they were not given enough feedback.

Provide independence and control to the learners in the learning process

This aspect is addressed to a certain extent in section 6.3.1.3 under deep learning where it is indicated that a student-centred approach to learning is preferred. However this independence is also addressed under self-directed learning (see section 6.3.1.4 (c)). Figure 6.21 illustrates responses to two further questions related to independence.



*All values in the graph are presented as percentages.

#Total population not included due to various questions summarised in one figure.

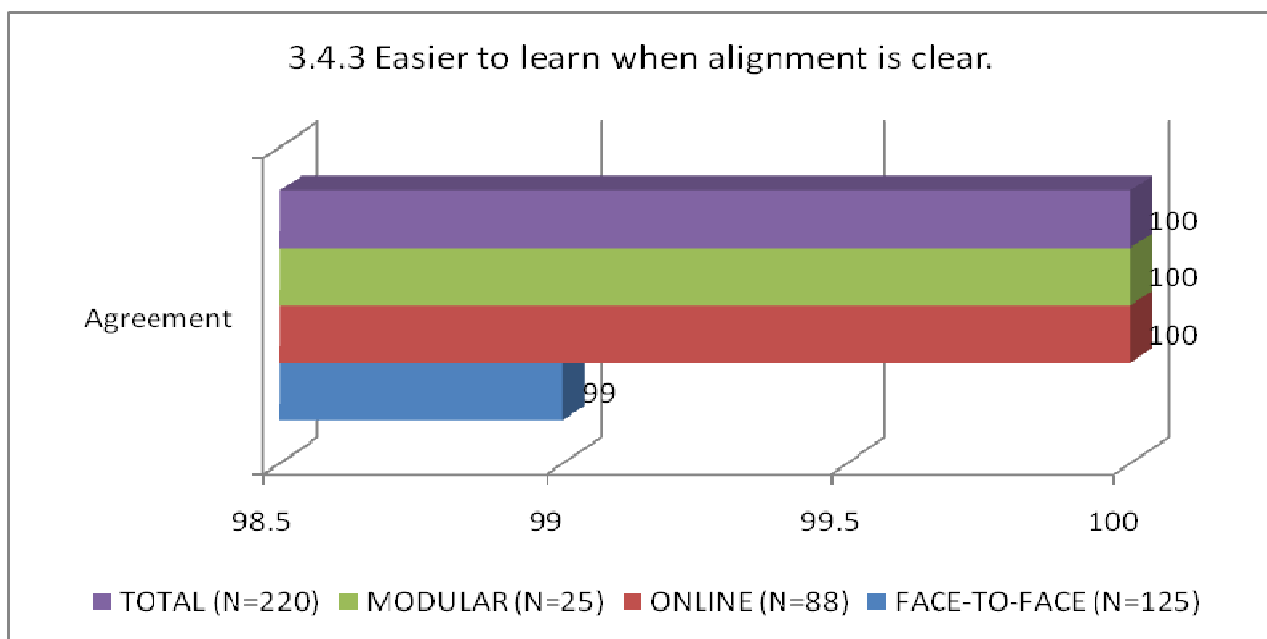
Table 6.21: Independence and control to students

In question 3.4.7 (Figure 6.21) 50% of all respondents indicated that they would decide for themselves what they learn. One can understand the inconsistent results in this regard,

because the assessment would usually guide the learning that students would engage in. In response to question 8.4.2, the majority of the respondents (99%) indicated that they were responsible for what they get from the BML programme, indicating that respondents realise that they do have some control over the learning situation.

Analyse and align the learning elements (including the learning environment and resources)

The questions in the questionnaire related to this principle did not address the learning environment and resources, but focused more specifically on constructive alignment. Figure 6.22 depicts the views on the importance of alignment.



*All values in the graph are presented as percentages. (The 100% in the total column is a result of rounding.)

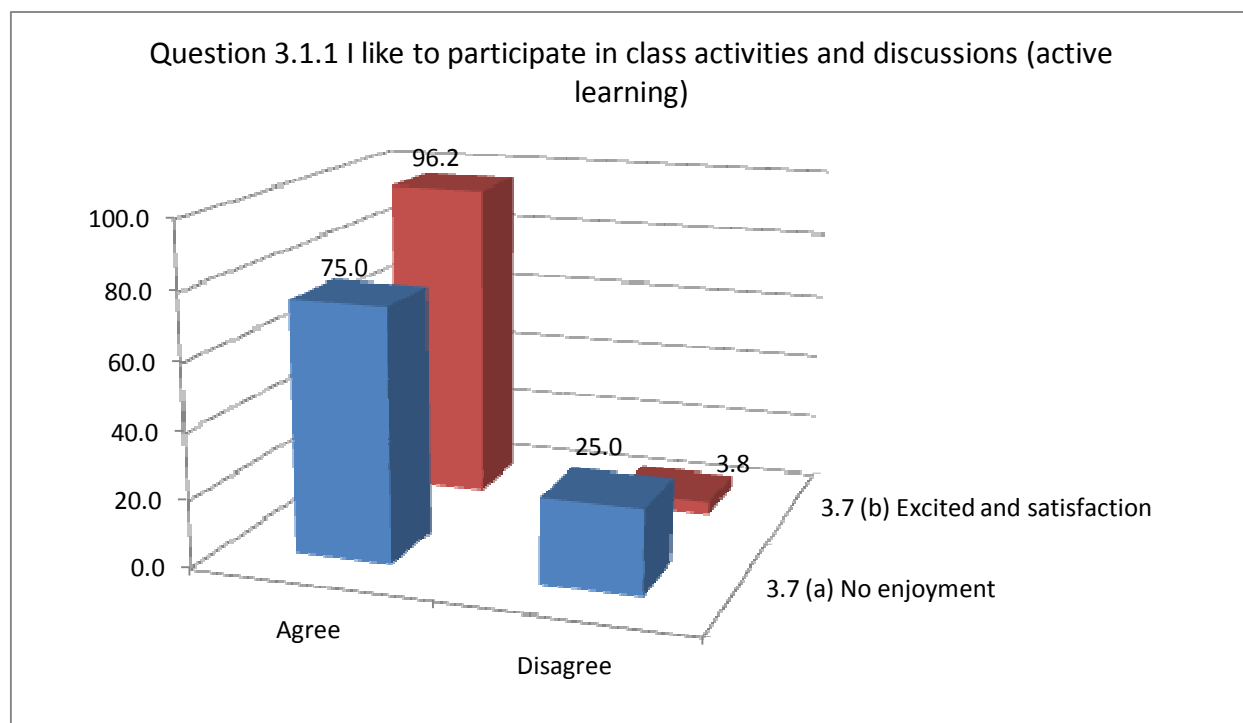
Figure 6.22: Importance of alignment

Respondents agreed (100%) that constructive alignment supported them in their learning. This finding supports Kaartinen-Koutaniemi and Katajavuori (2006:202) and Biggs’s model (2003) that constructive alignment is an important aspect in effective teaching and learning and supports a deep approach to learning.

In order to determine whether a relationship exists between cognitive presence and a tendency to adopt a deep approach to learning further statistical analysis was done. Figure 6.23 shows a

comparison between deep and surface learning item (3.7) and item 3.1.1, measuring active learning.

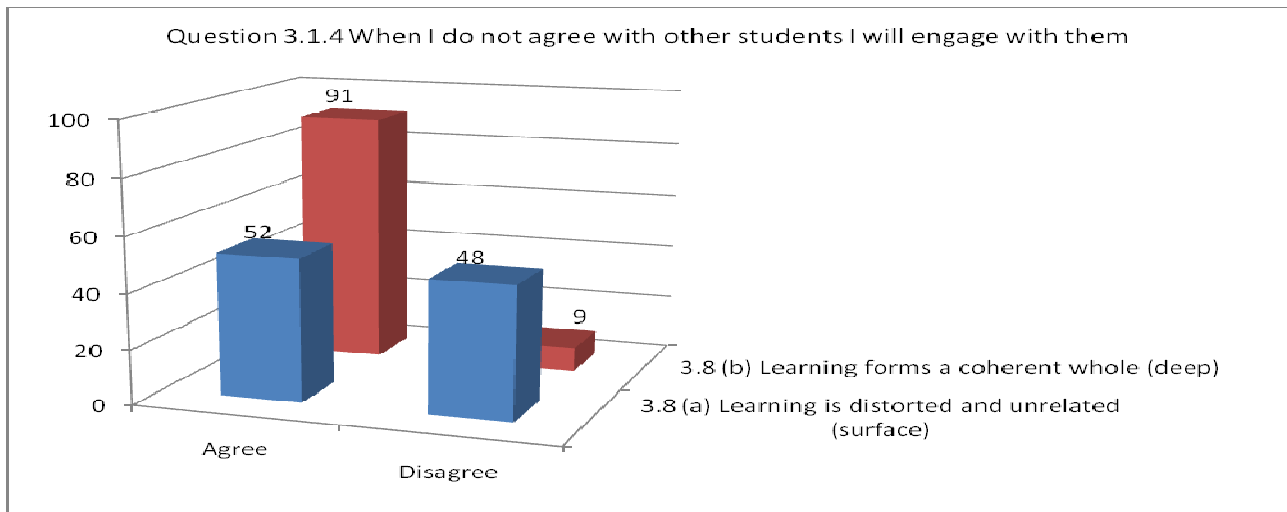
The comparison was tested with the Chi-square test, and delivered a highly significant result ($\chi^2=10.76$, $df=1$, $p<0.01$), indicating that there is a relationship between a deep approach to learning and a cognitive presence in terms of active participation and discussions in the classroom. Specifically, almost all the deep learners among the respondents seemed to like taking an active part in the learning process, but a full quarter of the respondents who rather subscribed to a surface learning approach, tended not to like taking an active part in the learning process.



*All values in the graph are presented as percentages.

Figure 6.23: Relationship between cognitive presence and deep learning (1)

Active engagement (question 3.1.4) was also compared with a deep or surface learning approach (question 3.8), as is shown in Figure 6.24.

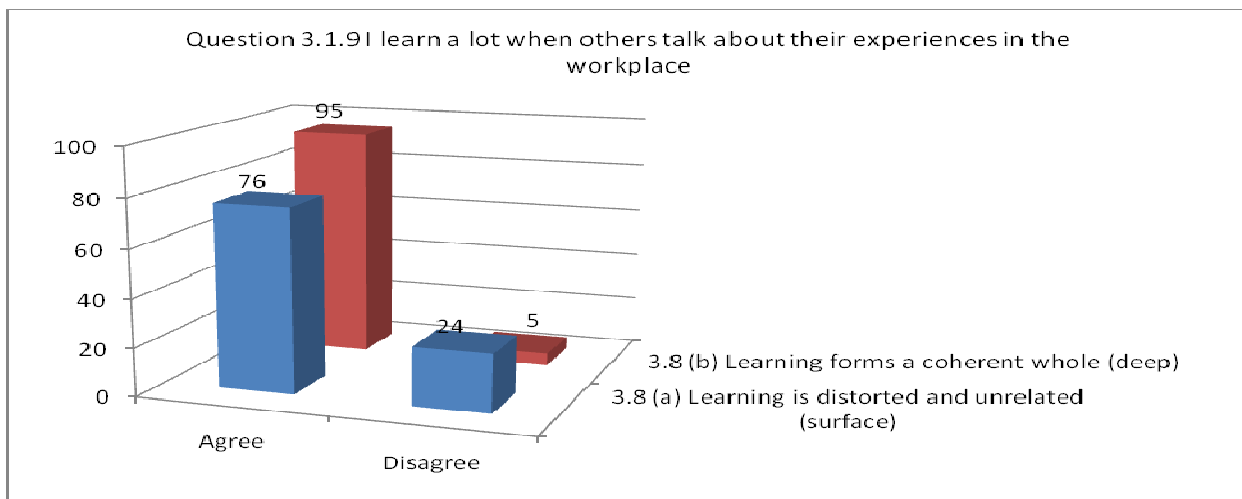


*All values in the graph are presented as percentages.

Figure 6.24: Relationship between cognitive presence and deep learning (2)

This comparison also delivered a statistically significant result ($\chi^2=29.88$, $df=1$, $p<0.01$). This result indicates that there is a relationship between respondents indicating a deep approach to learning and agreeing with statements that indicated a cognitive presence.

A final comparison which proved statistically significant ($\chi^2=11.61$, $df=1$, $p<0.01$) was between whether people learned from life experiences (question 3.1.9) and how they approached deep learning (question 3.8) (Figure 6.25). It became evident that students who tended to integrate information with their life experiences were also those who have a tendency towards a deep learning approach.



*All values in the graph are presented as percentages.

Figure 6.25: Relationship between learning from life experiences and deep learning

Concise summary of results related to guiding principles for the design of learning

Teacher presence

- Respondents from both the face-to-face and modular group felt that there was sufficient teacher presence, but the online group reported an insufficient amount of contact with the lecturer.
- Further analysis indicated a significant difference between the responses of respondents with a tendency for deep and surface learning respectively with regard to sufficient contact with the lecturer.

Social presence

- Although the majority of the respondents seemed to respect each other, they were open to consider ideas different from their own and indicated that lecturers encouraged them to work together, the online group differed from the face-to-face and modular group in terms of certain dimensions regarding social presence.
- A large percentage of the online respondents indicated that they did not know the other students in their class and a lower percentage of them compared to the other two groups, made use of study groups as a support mechanism.

Cognitive presence

- Respondents indicated preference for higher-order assessment and prefer to be actively involved in learning.
- Most of them felt that the lecturers had high expectations and that the alignment of the learning elements enhances the learning experience.
- Although the majority reported that they were responsible for what they got from the BML only half of the respondents reported that they decided what to learn.
- Most respondents felt that they reflected on their learning. In terms of assessment, they showed preference for assessment that focused on higher-order activities but in terms of feedback, online respondents indicated a high level of dissatisfaction with the feedback that they received.
- Further analysis points to a possible relationship between cognitive presence (specifically active learning) and a tendency to adopt a deep approach to learning.

In the next section results on questions related to designing effective learning for adults are discussed.

6.3.1.4 Consideration of principles related to adult learning in the BML programme

In chapter 4 guiding principles for designing learning for adults were identified (see section 4.6, Table 4.9). The compliance of the BML programme to these principles will be discussed using an adaptation of the Four-lens framework by Kiely *et al.* (2004) as an organising mechanism.

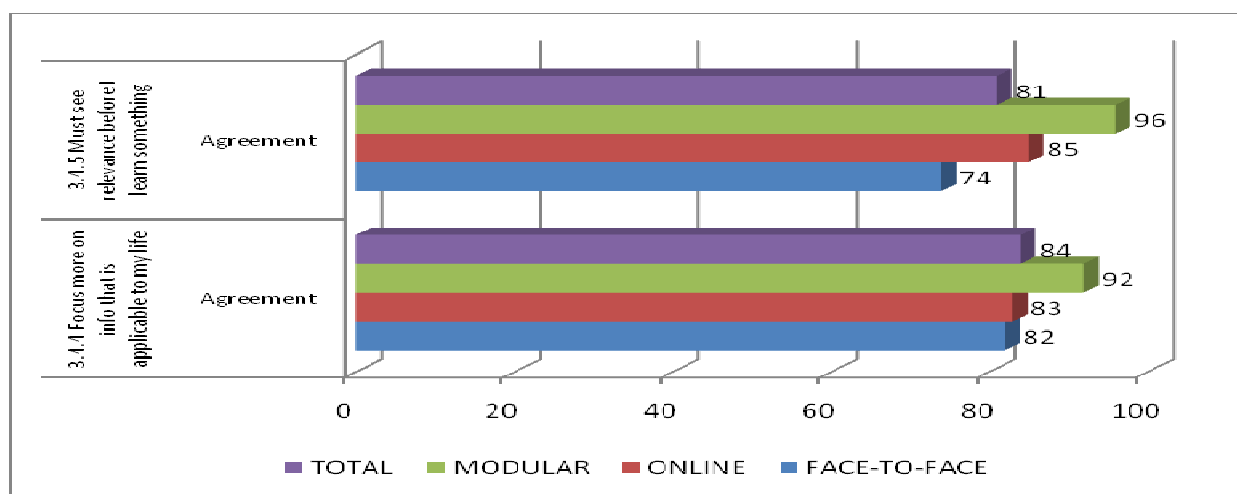
(a) Adult learner lens

From an adult learner lens, three principles were identified, namely:

- Learning design for adults must make provision for the characteristics of adult learners as described in andragogy.
- Adults' life stages and life events should be considered in the design of learning for adults.
- In designing learning for adults the overall goal is development.

Andragogy

Andragogy as a theory was discussed in chapter 4 (see section 4.4.2). Figure 6.26 illustrates results on questions related to the application of andragogical principles in the BML programme (Reference will also be made to items already shown in previous figures.).

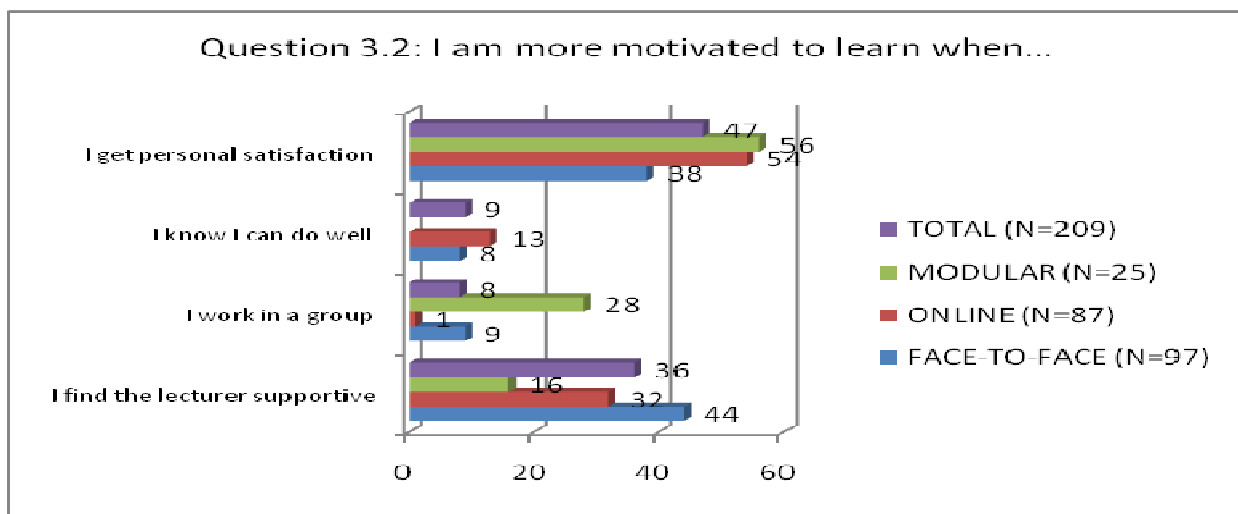


*All values in the graph are presented as percentages. #Total population not included due to various questions summarised in one figure.

Figure 6.26: Andragogical principles in the BML according to mode of delivery

In terms of *orientation to learning*, (question 3.4.4) 84% of all respondents showed a life orientation to learning, while 81% agreed that they had to see the *relevance* of learning before they would engage in a learning situation (question 3.4.5). Interestingly, the modular students clearly showed a higher percentage agreement than the other two groups on both of these items. On the first item (3.4.4), however, when tested, no significant result was found, but for the second item related to the relevance of the learning (3.4.5) a moderately significant relationship existed with the delivery mode to which the respondents belonged ($\chi^2=8.18$, $df=2$, $p<0.05$).

The other assumptions regarding andragogy have received attention in some of the previous discussions (see Figures 6.9 and 6.15). Regarding the assumption on *prior experiences* the majority of respondents (98%) indicated that they incorporated prior experiences in the learning experience (already discussed in question 3.1.7 in Figure 6.9). In terms of the assumption that respondents' *self-concept* should be developed during the learning process, Lieb (1991:¶12) indicate that learners should be actively involved in the learning process. Figure 6.15 (already discussed) provides evidence that the majority of respondents felt that they were actively involved in the learning process. In terms of the assumption that respondents should be *motivated* to learn, Figure 6.9 (question 3.7)(already discussed) illustrates that most respondents found learning exciting, while Figure 6.27 points to the elements that respondents find motivating in the learning situation.



*All values in the graph are presented as percentages.

Figure 6.27: Elements that motivate respondents to learn

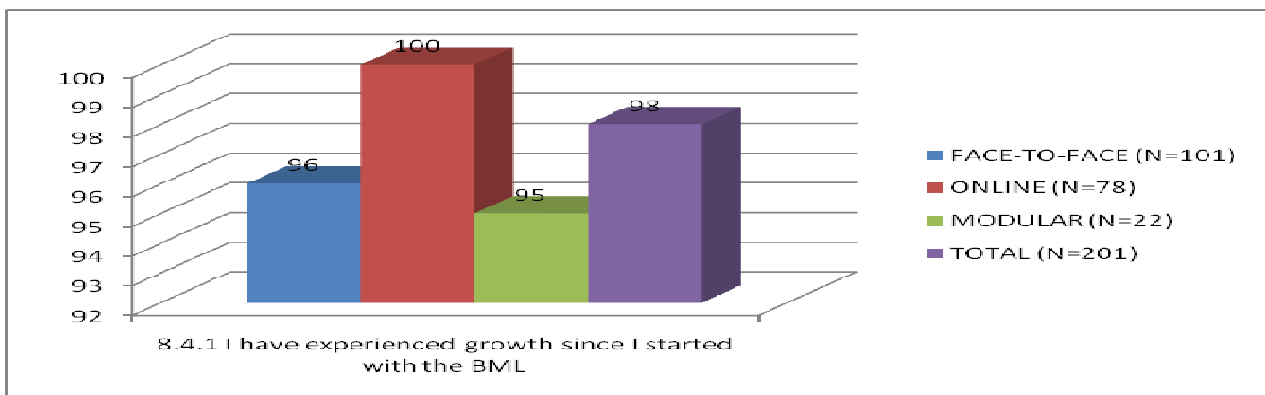
Two elements seem to motivate respondents to learn, namely personal satisfaction (47% of respondents) and support from the lecturer (indicated by 36% of all respondents). It is interesting to note that the face-to-face respondents almost regard the two aspects of equal importance (with 44% indicating the support of the lecturer and 38% to personal satisfaction), while with the other two groups (online and modular) preference is given to personal satisfaction (54% and 56% respectively) rather than support from the lecturer. This difference between the different modes of delivery was highly statistically significant ($\chi^2=29.04$, $df=6$, $p<0.01$).

Adults' life stages and life events should be considered in the design of learning for adults

The second principle regarding the life stages and life events was discussed in section 6.3.1.2 (d). As already indicated, from an adult development perspective, most of the respondents (97.2%) were in Erikson's middle adulthood stage and Levinson's middle adulthood stage (71.8%) where these respondents would be concerned with creating a new life structure (according to Levinson) and would like to leave a legacy (Erikson). In terms of the life events that respondents reported, the adult learners in the programme are confronted with life events that can lead to stress and further complicate their development as adults. The design of the learning should therefore be relevant to adult learners in their middle adulthood that are confronted with many potentially stressful life events.

In designing learning for adults the overall goal is development

Responses to the question related to this aspect are illustrated in Figure 6.28.



*All values in the graph are presented as percentages.

Figure 6.28: Agreement with growth experienced in the BML programme

The majority of respondents (98%) indicated that they have grown since their enrolment in the BML confirming that the main goal with adult learning is development and growth (see Table 4.9).

In the next section the principles resorting under the context lens are discussed.

(b) Context lens

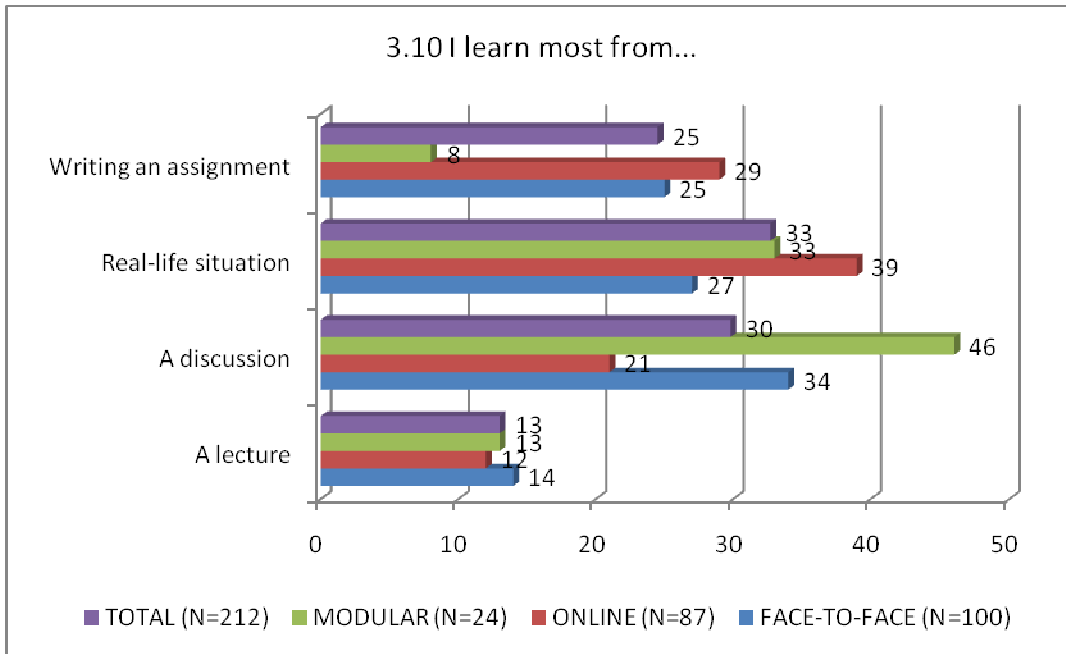
The context lens includes two principles, namely:

- The learning environment should reflect the physical (if applicable), affective-social and intellectual dimensions needed to create an optimal learning climate.
- The learning environment must include the ideas related to situated cognition.

The first principle has been dealt with in section 6.3.1.3 (b) under social and cognitive presence and therefore the importance of addressing the aspects identified under social presence (e.g. discrepancy between online and other delivery modes) should receive attention. From a social presence perspective the social presence in the online group needs to be enhanced. From a cognitive presence perspective, students could be further developed to gain independence.

The learning environment must include the ideas related to situated cognition

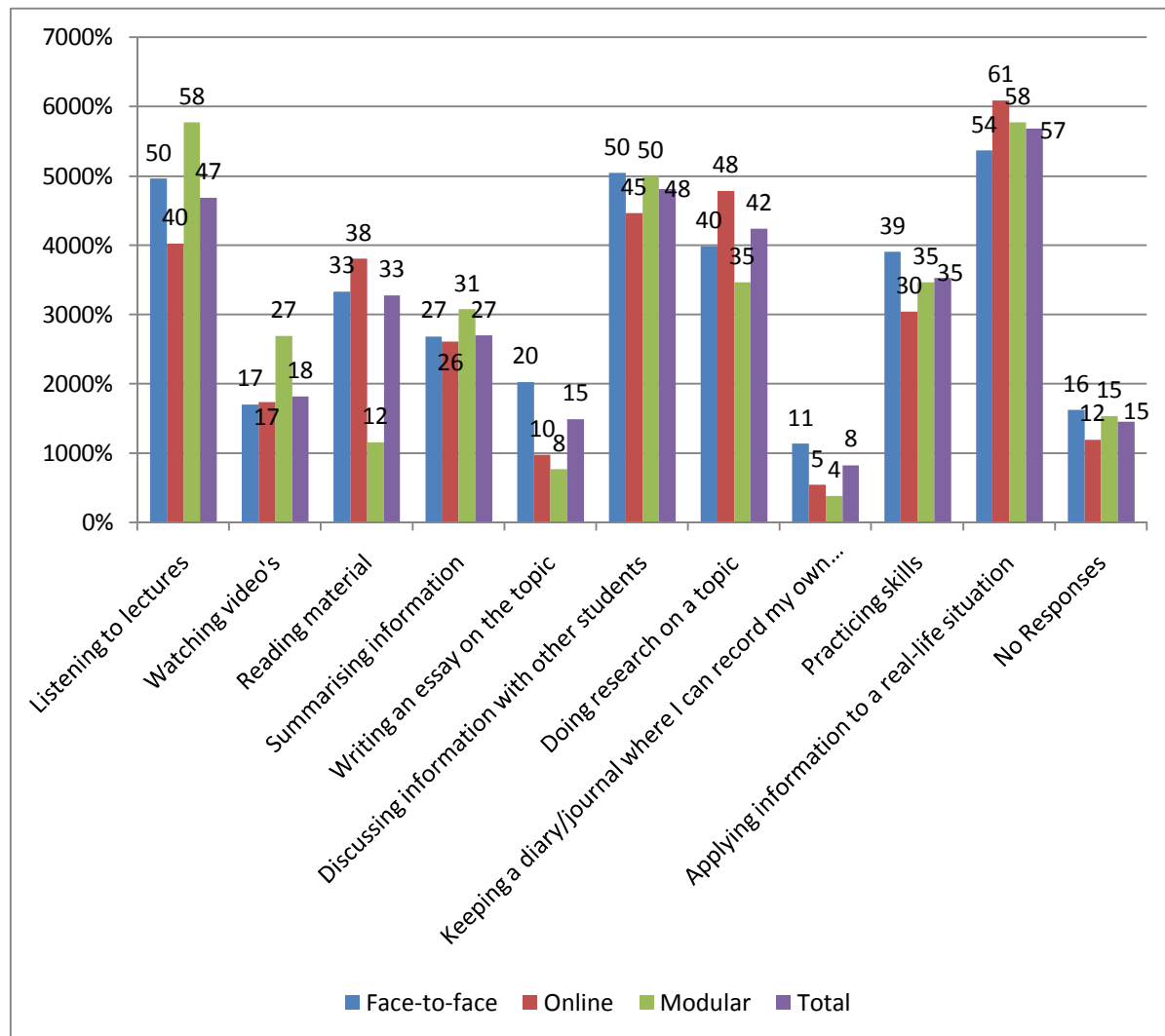
Respondents' preference for certain learning activities are indicated in Figures 6.29 and 6.30.



*All values in the graph are presented as percentages.

Figure 6.29: Preferred learning activities associated with situated cognition

Figure 6.29 indicates that overall respondents preferred activities embedded in real life situations (33%), followed by discussions (30%) and then writing assignments (25%). It is interesting to note that the groups receiving more face-to-face contact (face-to-face and modular groups) showed a preference for discussion activities, while the online group showed a preference for activities related to real life situations. This also confirms respondents preference for activities that they are actively involved in (see section 6.3.1.3 (b) under cognitive presence, active learning).

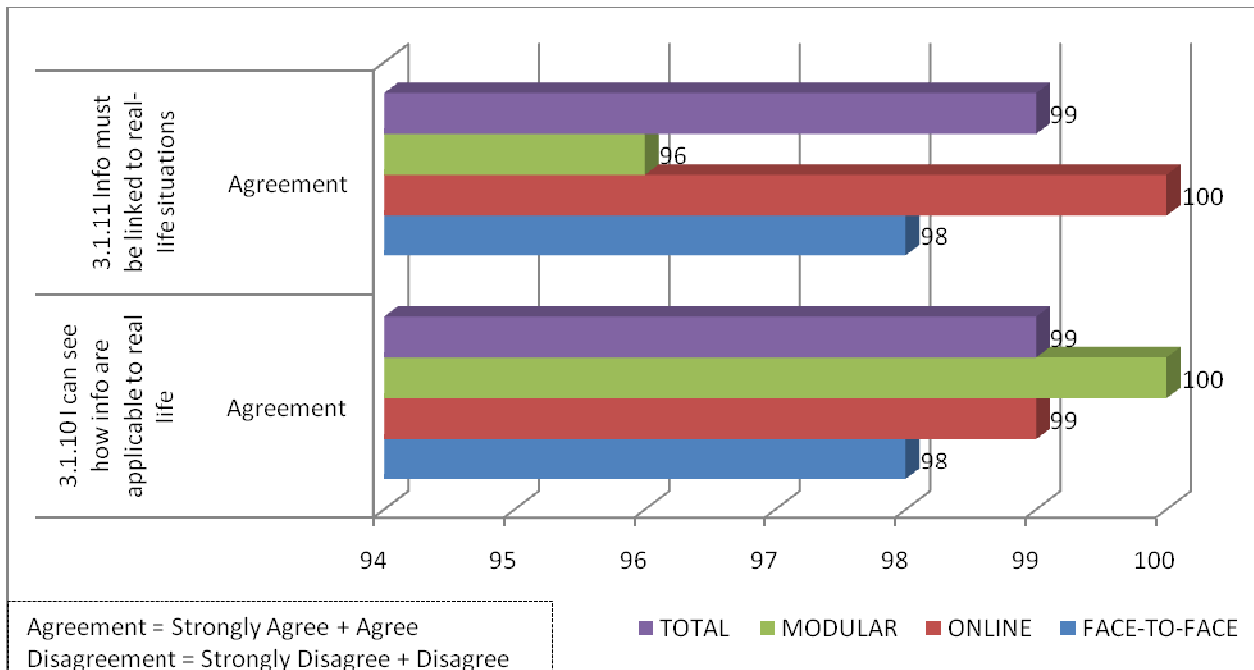


*A

All values in the graph are presented as percentages. Values add up to more than 100% because respondents could choose more than one option.

Figure 6.30: Preference for learning activities

In Figure 6.30 activities that involve real-life situations are mostly preferred by the sample as a whole (57%), followed by the discussion of information with fellow students (48%). While the online group indicated that they preferred activities that were applied to real-life (61%) the modular group preferred listening to lectures (58%) equally as much as the application of information to real life (58%). The face-to-face group preferred applying information to real-life (54%) followed by listening to lectures (50%) and discussing information (50%). From the two figures it can be deduced that respondents wanted to be actively involved and indicated a slight preference for activities related to real-life. This is further analysed in Figure 6.31.



*All values in the graph are presented as percentages.

#Total population not included due to various questions summarised in one figure.

Figure 6.31: Preference for situated cognition according to modes of delivery

The two statements in Figure 6.31 confirm respondents' preference for activities that relate to real-life. The majority of respondents (99% for question 3.1.10 and question 3.1.11) were in agreement with these statements. This confirms the need of adult learners to be involved in activities that reflect real-life activities as suggested by situated cognition (see section 4.4.6).

The following section depicts the results related to the principles for designing learning for adults that resort under the process lens.

(c) Process lens

Two principles under the process lens have been derived from the literature on designing learning for adults (see Table 4.9):

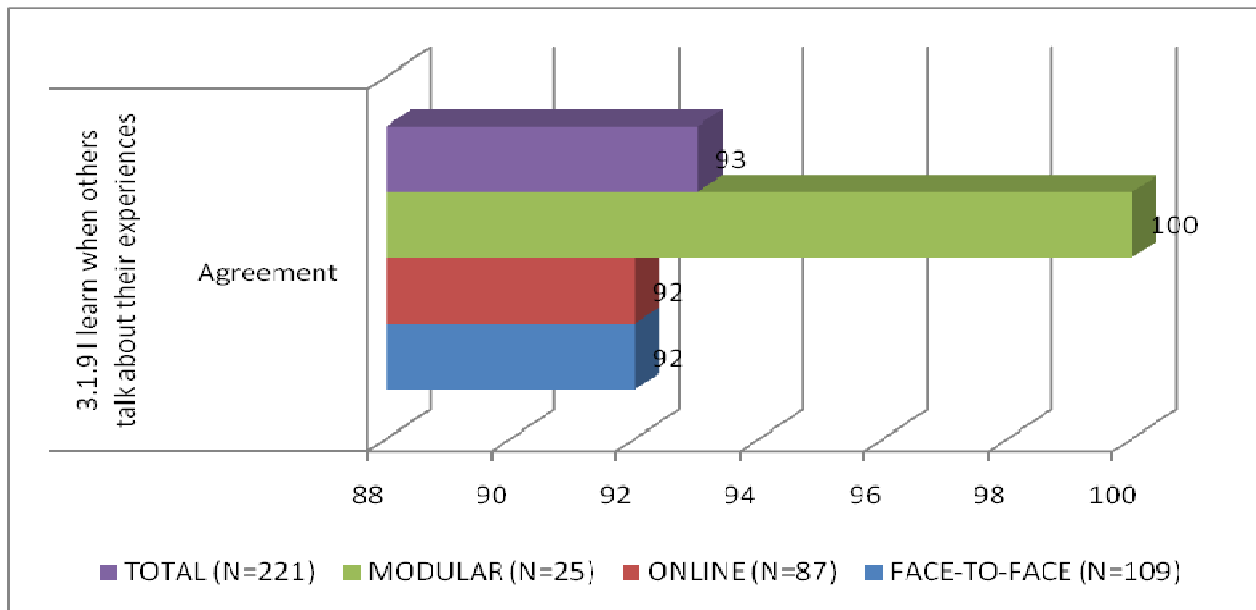
- Self-directed learning advocates active participation.
- Experiential learning and transformation learning advocate the inclusion of prior experiences and reflection in the learning design for adults.

Self-directed learning advocates active participation.

Self-directed learning is concerned with the responsibility that students take in the learning situation. The questions related to self-directed learning has already been discussed in Figure 6.21 (question 3.4.7) and 6.26. According to question 3.4.7 (Figure 6.21) half of the respondents (50%) indicated that they would decide for themselves what to learn. The level of inconsistency in the responses can be understood if one considers that students cannot determine the nature of assignments. This is determined by the lecturers. Responses to questions 3.4.4 and 3.4.5 in Figure 6.26 also indicate that respondents want to take direction in their learning with 84% and 81% of respondents indicating this preference.

Experiential learning and transformation learning advocate the inclusion of prior experiences and reflection in the learning design for adults

Experiential learning (see section 4.4.7) points to the importance of using prior experiences and reflection in the learning process, while transformation learning (see section 4.4.4.1) also emphasise the use of experiences and reflection that will lead to discourse in action to transform learning. Figures 6.9 and 6.32 reflect responses on questions related to these principles (Figure 6.9 has already been discussed).

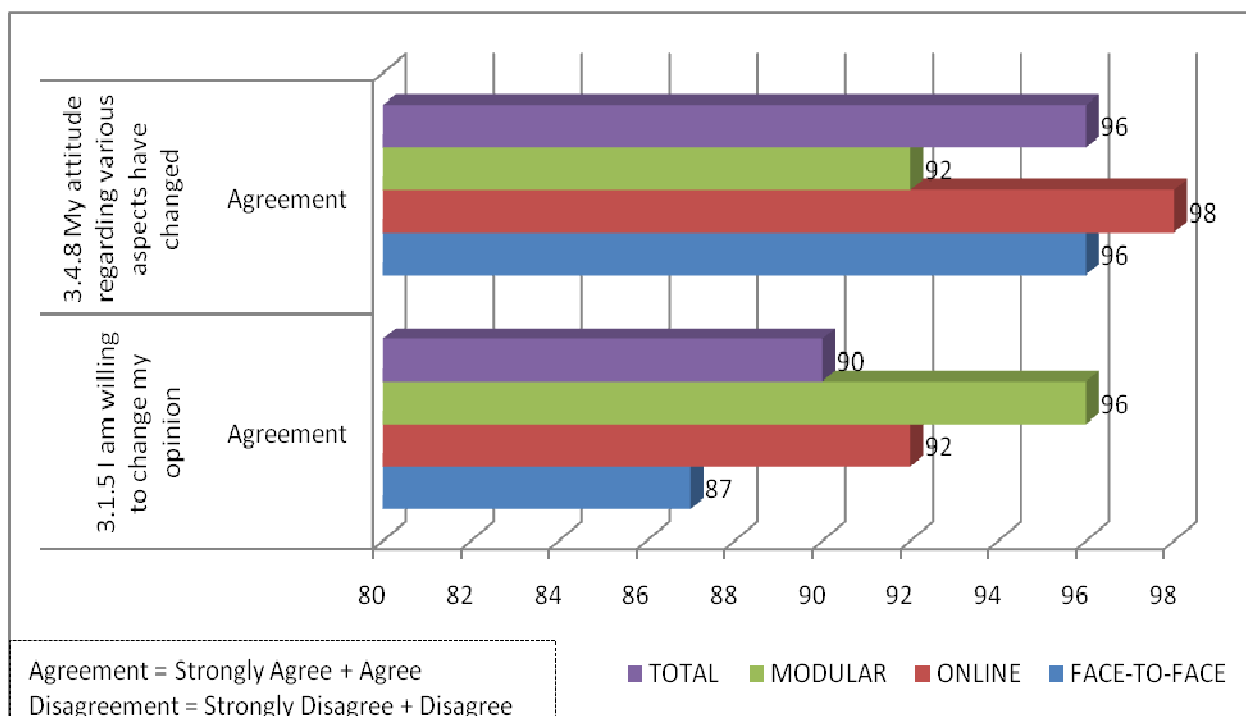


*All values in the graph are presented as percentages.

Figure 6.32: Learning from other students' experiences

Respondents indicated that they did not only learn from their own prior experiences but 93% indicated that they also learned from other students' experiences (Figure. 6.32). Questions 3.1.6-3.1.8 in Figure 6.9 relates to the use of prior experiences and one's own life in the construction of new knowledge. The majority of respondents (98% on average for the three questions) agreed with these statements on the importance of using prior experiences in the learning situation.

The goal of transformation learning is to reach a new level of understanding through discourse and reflection (see section 4.4.4.1). Although it would be difficult to determine whether respondents have reached a new level of learning, Figure 6.33 provides an indication of respondents' openness to discourse and their willingness to transform their current thinking.



*All values in the graph are presented as percentages.

#Total population not included due to various questions summarised in one figure.

Table 6.33: Openness to discourse

The majority of respondents indicated that they were open to new ideas that were different from their own (90%) (3.1.5) and that that their attitudes regarding various aspects had changed (96%)(3.4.8) confirming the ideas of transformation learning as suggested by Mezirow (see section 4.4.4.1).

The last principles are organised under the teacher lens.

(d) Teacher lens

The teacher lens focuses on the type of environment that should be created as well as the role of the lecturer (see section 4.6, Table 4.9):

- The learning environment should reflect a student-centred self-directed learning environment.
- The roles of the teacher in the learning design for adults are flexible and change continuously to accommodate the growth of the individual from dependent to self-directed.

A student-centred learning environment received attention in section 6.3.1.3 (a) while being self-directed was addressed in section 6.3.1.3 (b). It was indicated that a student-centred approach to teaching supports the tendency to adopt a deep approach to learning (Kaartinen-Koutaniemi & Katajavuori 2006:200). A large percentage of respondents did feel a student-centred approach is encouraged but in terms of the development of self-directed learning the results indicated that there is room for improvement.

The roles of the teacher in the learning design for adults are discussed as part of the responses to the questions on the qualitative data of what respondents expect from the lecturers (see section 6.3.2.3).

Concise summary of results related to adult learning in the BML programme

The adult learner lens

- The respondents felt that the assumptions relating to andragogy were incorporated, while they also indicated that they had developed through the BML programme.
- The design of the learning should therefore, be relevant to adult learners in their middle adulthood who are confronted with many potentially stressful life events.

The context lens

- The context lens is related to social presence and cognitive presence. It was indicated that both aspects related to the social presence in the online mode of delivery could be improved while respondents confirmed the principles associated with the intellectual or

cognitive presence but also indicated some shortcomings especially in the online mode of delivery.

- Respondents indicated a preference for activities that incorporate real-life situations thereby confirming situated cognition in adult learning.

The process lens

- The majority of respondents preferred real-life situations as advocated by situated cognition. They felt that their prior experiences were incorporated in the learning and that they had a chance to reflect on learning. These aspects probably confirm the ideas related to self-directed learning, experiential learning and transformation learning, where the emphasis is on reflection, discourse and development.

The teacher lens

- The results related to the one principle already addressed (student-centred self-directed learning) indicated that students felt that the BML did promote a student-centred self-directed learning environment but more could be done to develop self-directed learners.

6.3.1.5 Consideration of the study material used in the BML programme

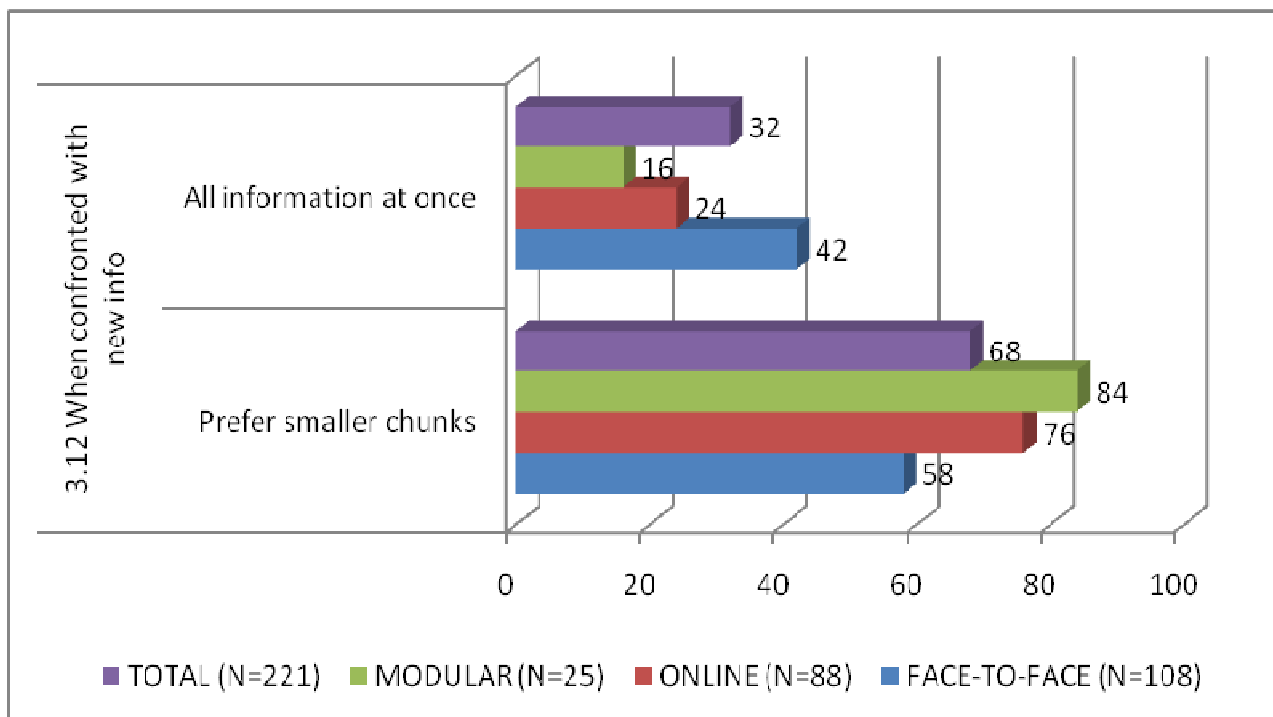
From the Facilitator's guide developed by Sharp (2002:3) the learning material *unpacks* the content using an outcomes-based method and consists of an introduction to the topic, the learning outcomes and activities, and a conclusion. Usually in the BML various resources in the form of activities and chapters from books are used to support the activities in the learning guide. According to the learning material continuum that Mason (2001) suggests, the BML is currently utilising a wrap-around model, where the materials are tailor-made for the purposes of the BML programme to provide more responsibility and control to the respondents. According to Mason the wrap-around model has a teacher-focus where the lecturer determines the activities and material that respondents will need. The lecturer unpacks the learning for the respondents. When one considers the philosophy of the BML programme the current way of presenting the learning material is not in line with the student-centred approach that the BML programme advocates.

When the online mode of delivery was introduced very few expertise existed in developing material and teaching specifically aimed at an online audience. At that stage no quality criteria were available for the online delivery mode and lecturers in the programme followed a trial-and-error road in finding the most suitable way of conducting online education. However, initially the amount of interaction with respondents was limited and the learning guides developed for the face-to-face mode was used as is for the online respondents.

At present, all the modes of delivery are using the same study guides. In the online mode, students do receive additional asynchronous communication topics that they mainly complete individually and post for a continuous assessment mark, although the collaboration between students in the asynchronous communication is limited. Students are also not really encouraged to collaborate on each other's work in this mode. The idea that learning is not confined to the classroom (Oblinger, 2005) and that learners construct their own knowledge through the materials that they want to use and activities that they want to engage with, challenge the current way in which learning materials is presented.

Figures 6.32 to 6.34 provide an indication of what respondents use in terms of the study material and will provide some guidance for future use. Aspects addressed are how respondents prefer to receive information, preference for organisers, and the usage of various sources.

Figure 6.34 provides an overview of how respondents prefer to receive new material.

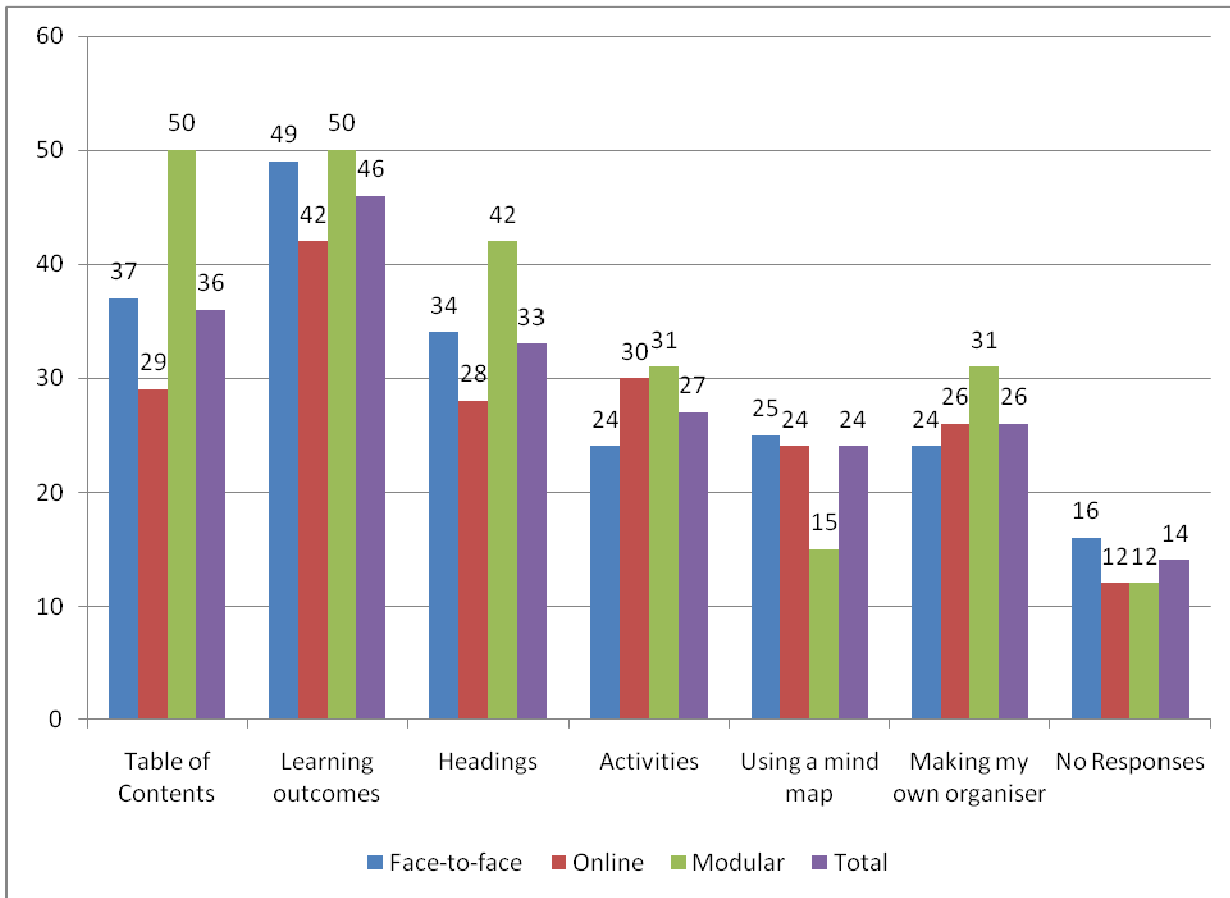


*All values in the graph are presented as percentages.

Figure 6.34: Preference regarding receiving new material

According to Figure 6.34, 68% of respondents prefer study material organised in smaller chunks instead of receiving huge pieces of information that they have to organise themselves. When comparing the different groups, the modular (84%) and online group (76%) felt stronger about receiving information in smaller chunks than the face-to-face group (58%) and this difference was statistically significant ($\chi^2=10.30$, $df=2$, $p<0.01$). This could be due to the fact that the face-to-face group receives more regular support in the contact sessions than the other two groups. This confirms Siemens and Tittenberger’s (2009:2) observation that people prefer small bits of information to build their own picture.

Furthermore, respondents’ preference was sought in terms of the types of organisers that they preferred. Figure 6.35 provides a summary of the different types of organisers used in study material.

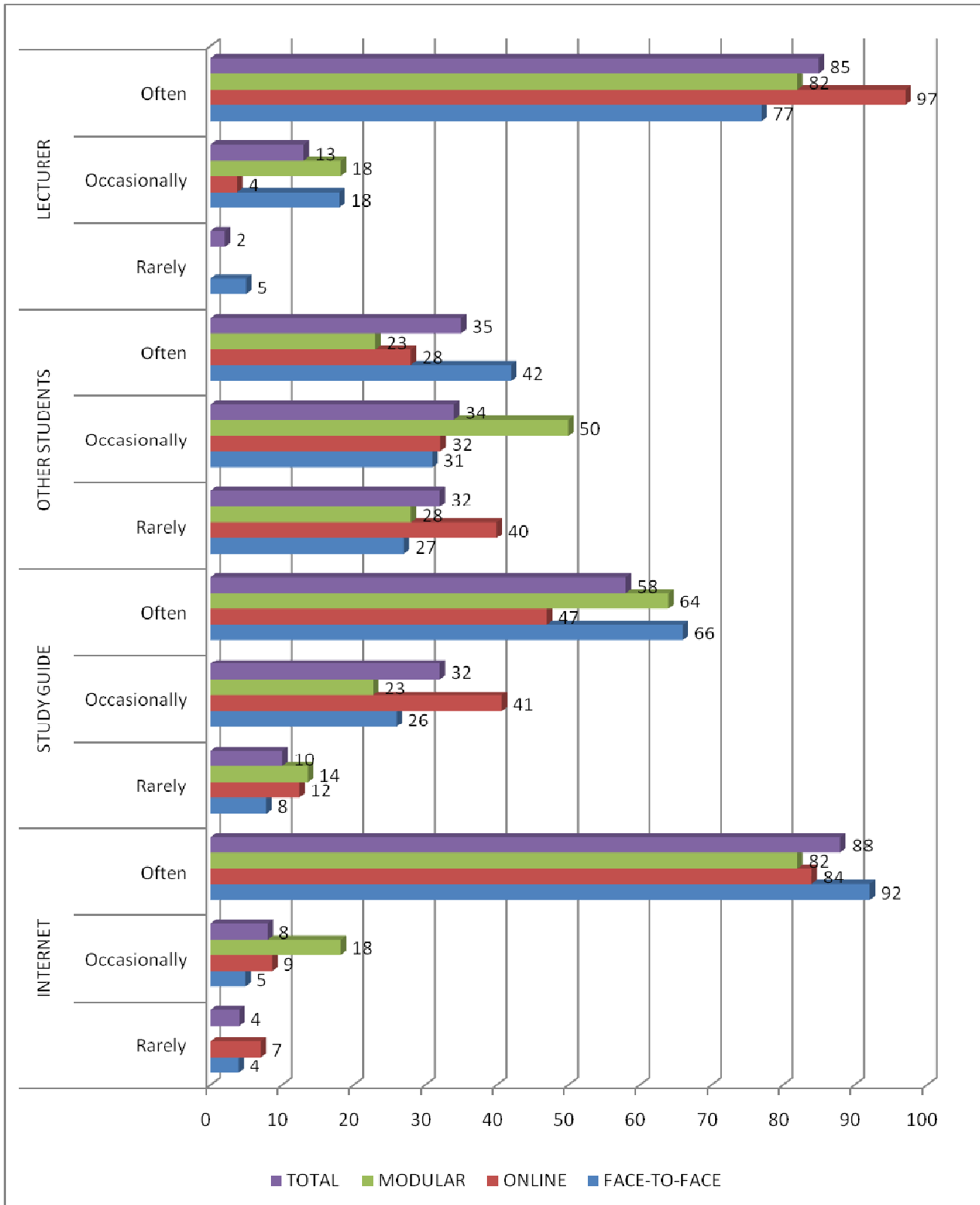


*All values in the graph are presented as percentages. Values add up to more than 100% because respondents could choose more than one option.

Figure 6.35: Preference for advance organisers used in study material

Although respondents used a variety of organisers, they felt that the most useful organisers were the learning outcomes (46%), the table of contents (36%) the headings (33%) and activities (27%). Twenty six percent of respondents used their own organisers, and 24% used mind maps (the least popular organiser). The usage of organisers was more or less the same for the different modes of delivery.

Respondents were also asked to indicate which resources they use mostly. Table 6.36 indicates the usage of the internet, study guide, fellow students and the lecturer.



*All values in the graph are presented as percentages.

#Total population not included due to various questions summarised in one figure.

Figure 6.36: Usage of different resources

The resources most often used by the respondents in the BML programme is the lecturer (85%) and the internet (88%) followed by the study guide (58%) and lastly other students (35%).

Concise summary of results related to study material

- In terms of respondents' preference regarding study material, the majority prefers to receive smaller chunks of materials and most often use the learning outcomes and table of contents as advance organisers.
- Respondents indicated that they used a variety of resources in preparing for assessments and working through the material, but most often used the internet and lecturers as a resource.

The last section of the quantitative analysis contains an evaluation of the use of technology.

6.3.1.6 Evaluation of the technology used in the BML programme

Four of the nine exit level (overall) outcomes of the BML programme indicate the importance of understanding and utilising technology as indicated in the BML Learning Guide (2007:2):

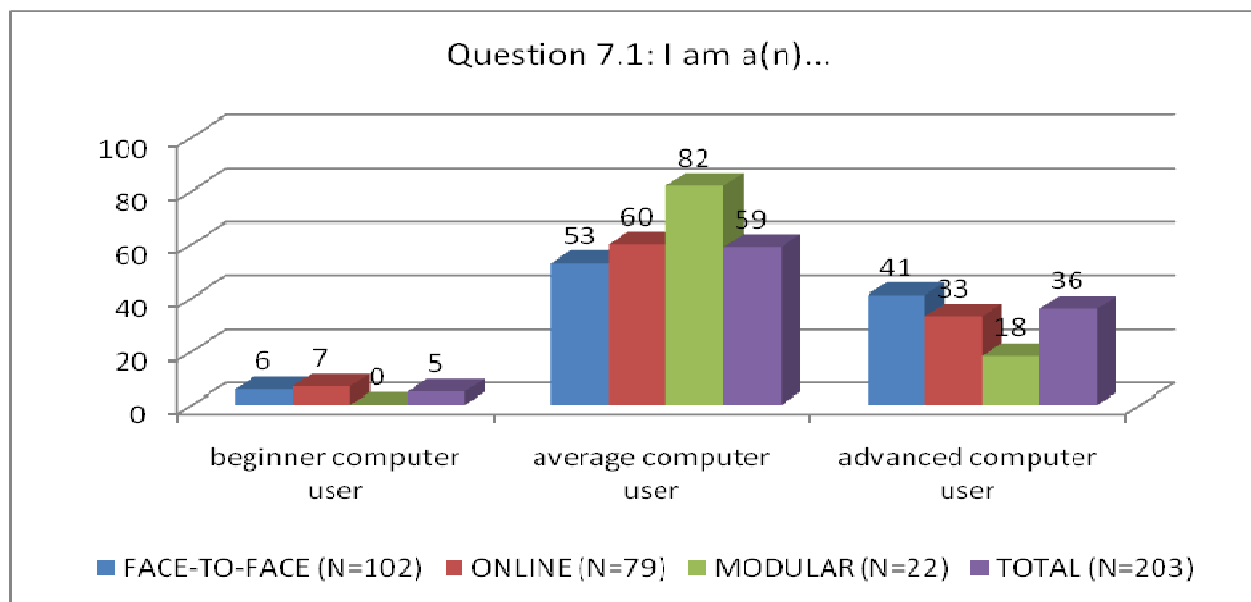
- Learners should be able to communicate effectively using appropriate language and media.
- Learners should be able to competently handle the instrumentation and data manipulation relevant to the management leadership field.
- Learners should be able to synthesise and critically evaluate management leadership information.
- Learners should be able to prepare illustrative and interpretative analytical reports.

These exit level outcomes do not exclusively refer to technology, but due to the impact of technology in the workplace, few students will be able to effectively perform their jobs without these skills. At this stage, all students are expected to hand in typed assignments using computer technology (no hand-written assignments are accepted). In some of the modules students are also encouraged to use the Internet to find additional information. Except for the online group that has an online environment the rest of the students in the face-to-face and

modular groups have limited exposure to technology in their learning environment despite the emphasis on technology in the exit level outcomes.

Respondents were asked to rate their own computer literacy ability, confidence to work with computers and attitude towards technology as well as their access to technology. Lastly respondents were also asked to indicate where technology can be used in the BML programme.

Respondents' rating of their own computer literacy is shown in Figure 6.37.

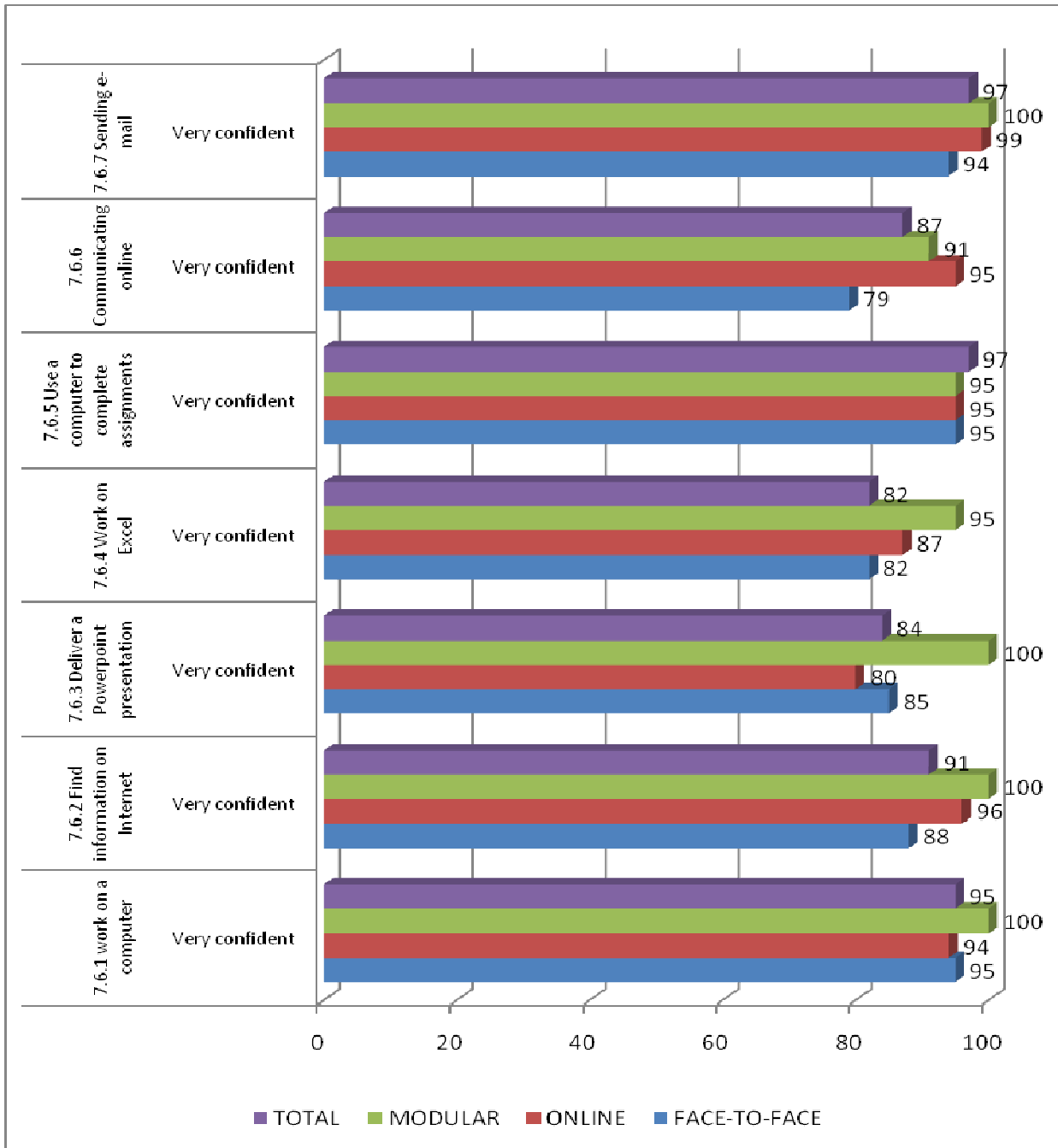


*All values in the graph are presented as percentages.

Figure 6.37: Computer literacy

In terms of the respondents' *computer literacy* (Figure 6.37) the majority of the respondents (59%) felt that they were average computer users, with a further (36%) classifying themselves as advanced computer users. Together, these two groups accounted for 95% of the respondents. Interestingly, although the online students obviously had to make extensive use of computers in the BML programme, they accounted for the largest within-group proportion (7%) who classified themselves as beginner computer users.

Figure 6.38 illustrates the results when respondents were requested to report on their confidence levels in working with computers on various aspects.



*All values in the graph are presented as percentages.

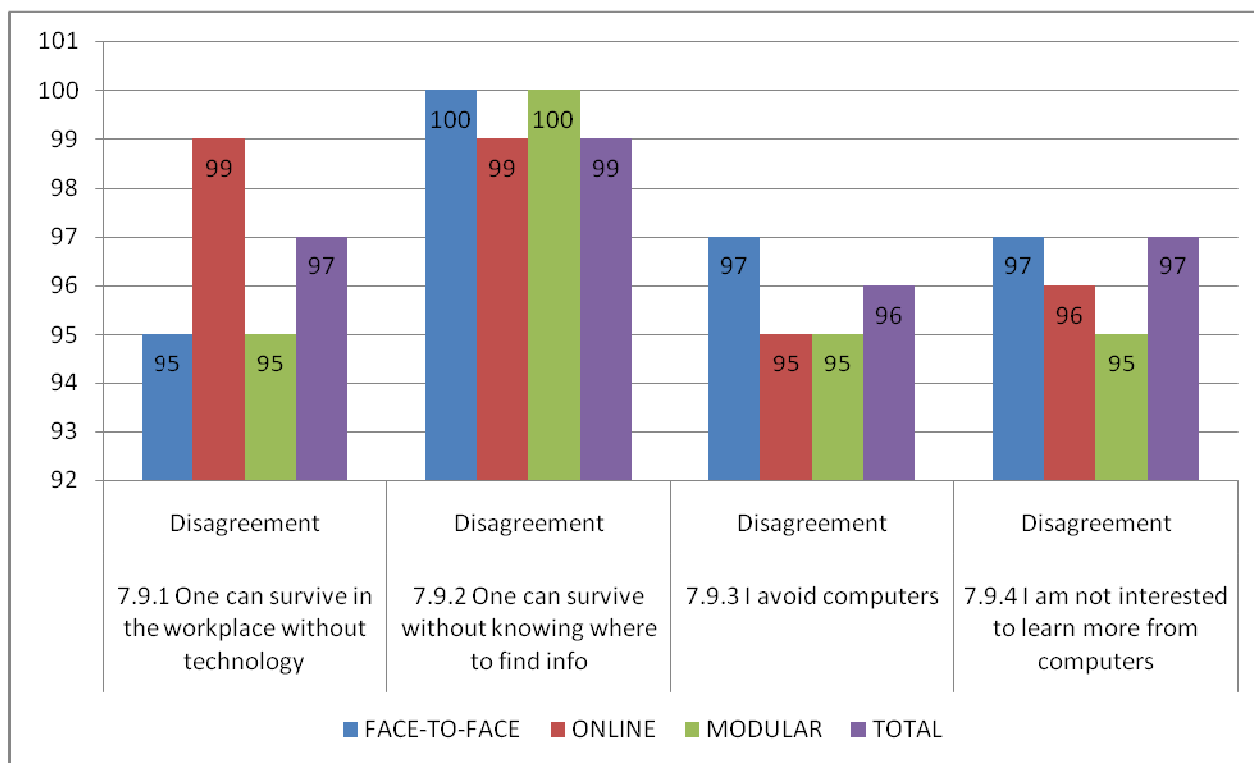
#Total population not included due to various questions summarised in one figure.

Figure 6.38: Computer confidence

Respondents reported that they felt confident on various issues: working on a computer (95%), finding information on the Internet (91%), using PowerPoint to deliver a presentation (84%), working on Excel (82%), using a computer to complete assignments (97%), communicating online (87%) and sending e-mail (97%). Despite the fact that the online group of students did

not generally rate themselves highly as computer users, the one facet which was prerequisite of their mode of delivery—being able to communicate online, was also the one area where they rated themselves as being more confident (95%) than any of the other two groups.

The results on questions depicted in Figure 6.39 provide an indication of respondents’ attitudes towards computers.

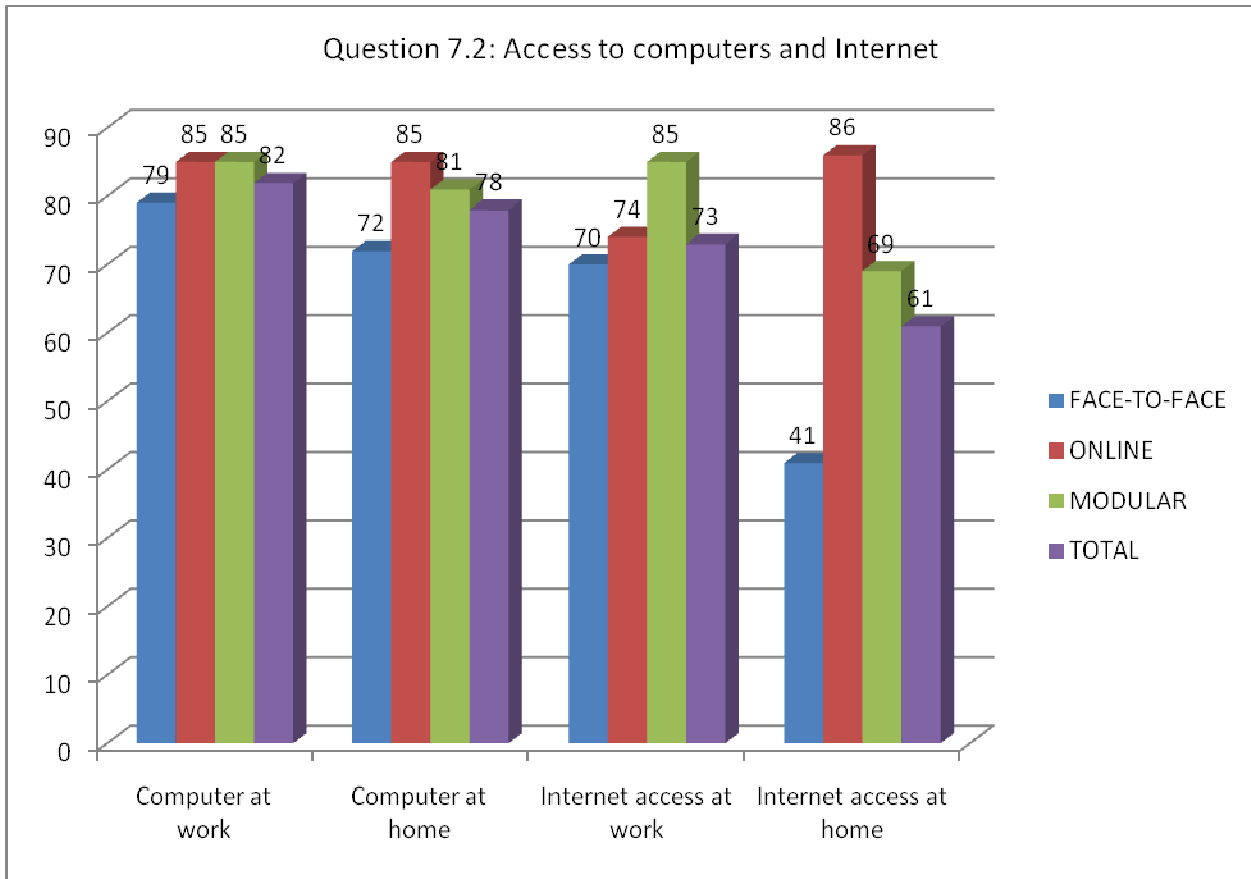


*All values in the graph are presented as percentages. . Values add up to more than 100% because respondents could choose more than one option.

Figure 6.39: Attitude towards technology

Respondents felt that one cannot survive without technology in the workplace (97%)(question 7.9.1) and emphasised the importance of knowing where to find the right information (99%)(question 7.9.2). Respondents seemingly do not avoid computers (96%)(7.9.3) and indicated an interest to learn more about computers (97%)(7.9.4). Overall respondents appear to have a positive attitude towards technology and computers in general.

Figure 6.40 illustrates respondents’ access to technology.

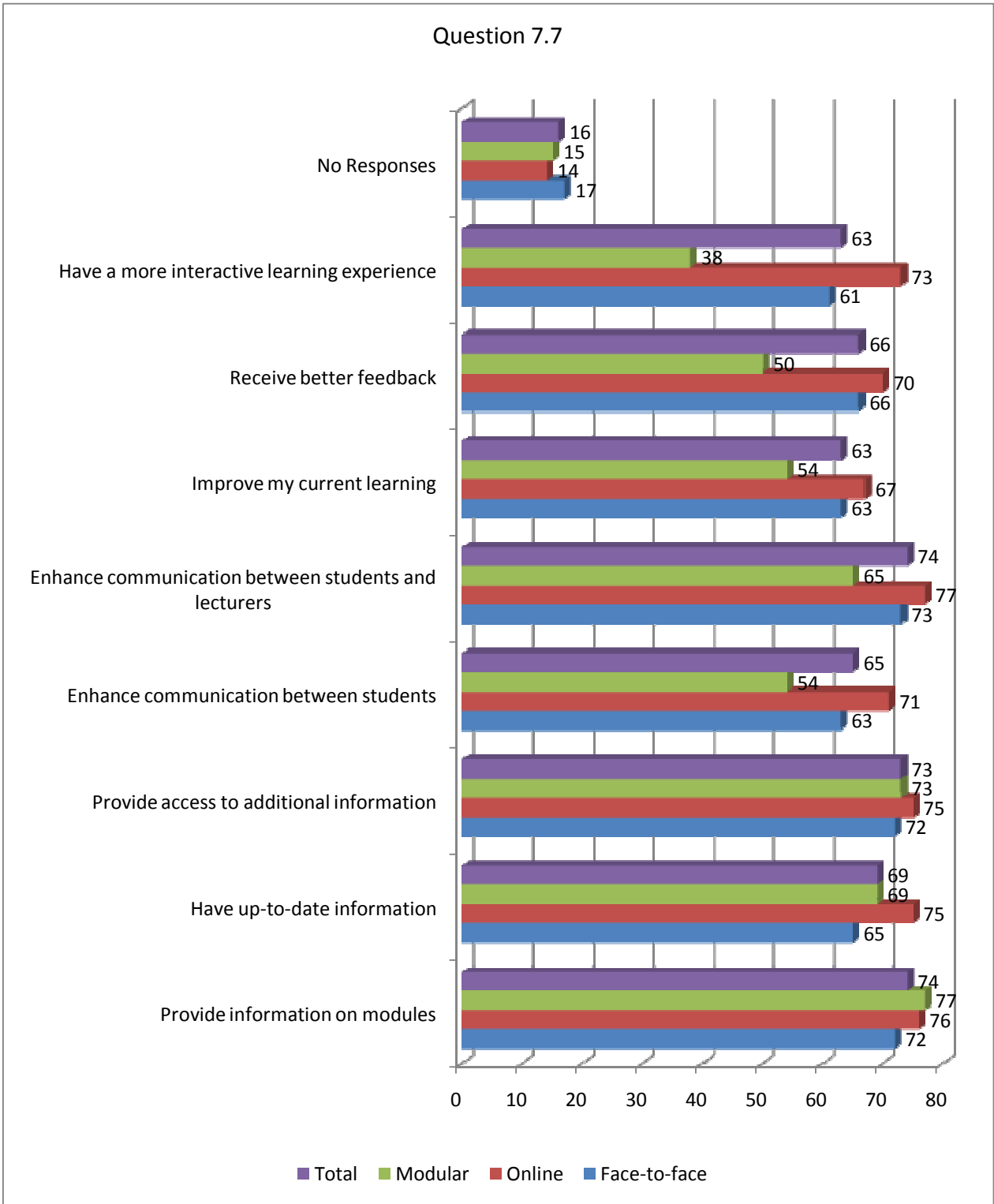


*All values in the graph are presented as percentages.

Figure 6.40: Access to technology

While 82% of respondents do have access to computers at work, 78% do have a computer at home, irrespective of the mode of delivery. Overall, 73% reported access to Internet at work, while a lower percentage (61%) have access to Internet at home. The face-to-face group reported less access than the rest of the groups. (However a computer lab is available for all students, but this will only be a practical solution to the face-to-face group.) Surprisingly, only 86% of the online students reported having internet access at home, and 74% at work.

Respondents were also asked to indicate whether they felt that *technology could be used* in a number of instances in the BML. These responses are illustrated in Figure 6.41.



*All values in the graph are presented as percentages. Values add up to more than 100% because respondents could choose more than one option.

Figure 6.41: Possible utilisation of technology in the BML programme

Respondents were requested to mark as many options as they felt were applicable. From Figure 6.41 it is clear that respondents felt that technology could assist with all the tasks listed in Figure 6.41. These include, amongst others, updating information, communication and more interactivity.

Concise summary of technology utilisation

Although the exit level outcomes emphasise the use of technology, only the online respondents reported exposure to technology on a regular basis. Respondents showed a positive attitude towards technology and were confident in terms of their computer skills. More than two-thirds (70%) of the respondents indicated access to a computer and internet. Most of the respondents felt that technology could be integrated and be useful in fulfilling some of the important tasks in learning, namely providing information, communication and providing interactivity.

6.3.2 Analysis of the qualitative data

In this section findings related to the qualitative questions in the questionnaire are discussed. The aim of these questions was to obtain more in depth information regarding respondents' opinions and experiences with regard to certain aspects important to the design of learning in the different modes of delivery. An exploratory perspective was used to obtain insight and to obtain a better understanding of the respondents' needs.

Five questions are discussed in this section, namely:

- The reasons why respondents enrolled in the BML programme
- The reasons why they chose a specific mode of delivery
- Perceptions and opinions regarding the role of the lecturer in the learning situation
- Opinions regarding the most useful aspects of the study material
- The overall shortcomings of the programme and suggestions to improve the programme

6.3.2.1 The reasons why respondents enrolled in the BML programme

The majority of respondents, irrespective of their mode of delivery, indicated that they wanted to develop their management and leadership skills (question 2.9). However this was not mentioned by any of the respondents in the modular group.

Another reason for enrollment pointed out by the many of the respondents was a need for personal growth. This was also indicated as one of the main reasons for enrollment in both the face-to-face group and the online group. This need for personal growth confirms the need for development as the ultimate goal of learning in adulthood (see Table 4.9). The following quote reflects the various roles adults are confronted with that lead to a need to develop and grow further: *After having my family and going back to work, I needed to develop myself as I felt that I was in a rut. All that I did was work and take care of my family and I was becoming like an empty barrel.*

Another quote in this regard also reflects the developmental needs of adults as it is indicated in the theories of Levinson and Erikson (see section 4.3.1.1 and 4.3.1.2): *I wanted to do something with my life, I wanted to improve myself and my qualifications in order to be in a better position to provide for my family.*

Another common reason given for enrolling in the BML programme was to increase career opportunities. Some respondents mentioned that they wanted to start their own businesses and that they were using the BML programme to obtain the necessary skills and knowledge, while some respondents saw it as a stepping stone to enrol in the MBA programme.

Another reason pointed out by many respondents was the need to obtain a qualification. Although this need was identified by respondents from all three delivery modes, the *reasons* for obtaining a qualification differed. While the majority of the face-to-face and online respondents mentioned that they always dreamt of having a qualification or realised that they needed a degree or that it was an opportunity created by their employer, the modular group respondents indicated that they had to obtain the qualification to ensure compliance and that it was part of new requirements at their workplace. Other responses from the modular group just stated *to obtain a qualification*. The differences in enrollment between the face-to-face and online group and the modular group could be explained by the fact that most of the modular group respondents are in the banking sector and are forced through legislation to obtain a formal degree by the end of 2009. This could explain why the modular group did not indicate a need to be more effective or personal growth as reasons but that the majority of them indicated that they had to obtain a qualification.

6.3.2.2 The reasons why they chose a specific mode of delivery

The aim of this question (2.7) was to determine if there were any reasons why respondents selected a specific mode of delivery above another. The reasons for choosing a specific mode of delivery could influence the design of effective learning in different modes of delivery. Respondents were asked: *Why did you select this specific mode of attendance?*

The majority of the face-to-face respondents and some of the modular group respondents identified the interaction in class with peers and lecturers as the main reason for choosing the specific mode. As indicated by one respondent: *The communication is much better and I can place more focus on classroom activities and ask questions in face-to-face contact session and also hear what other respondents are asking.*

Some respondents listed the personal contact with the lecturer as a separate reason for choosing a specific mode, especially in the face-to-face and modular groups. The following statement reflect this: *I am a person who needs to interact with the specific lecturer. It makes learning easier for me.* Except for making learning easier respondents also indicated that it saves time because your questions are answered immediately, there is a perception that you have more time with the lecturer and that the work is explained and that you obtain information due to the interaction with the lecturer. The contact with the lecturer was not pointed out by the online group as a reason for enrolling in the online mode.

Another reason indicated by all groups of respondents was that the specific mode suited their learning style. This was pointed out by the majority of face-to-face respondents, but was not indicated by the majority of respondents in the other modes of attendance. It is interesting to note the reasons why respondents felt their learning style suited the specific mode. The following comments are from face-to-face respondents:

- *I need to see the person presenting the class.*
- *I learn best when I am doing, digesting ideas and watching*
- *I am in a position to understand the lecturer because some of them, their pace is fast, so for me it's best to listen during the lecture*

- *I learn better by listening and doing. Studies by correspondence is a challenge I prefer lectures*

The following responses are from online respondents:

- *Online, prefer working on my own at my own pace*
- *It meant I could study without being committed to classroom style learning.*
- *I also like doing things online I don't really like face to face.*

Some of the other reasons mentioned by the face-to-face respondents were that the face-to-face mode saved time, some respondents perceived that you completed the qualification quicker through face-to-face classes and that *classes also negate a lot of time needed for studying*. One of the modular respondents in this regard commented: *You can set aside a specific week, focuses on the study material, and return to a normal lifestyle*. Furthermore, a face-to-face respondent listed learning from other cultures as a reason for selecting this specific mode: *I selected this mode as a learning tool, to practice meeting with different people, background, culture and demography [and to] better relationships with other races and gender*.

Although some of the online respondents did list that the specific mode suited their learning style the majority of online respondents listed convenience related to balancing the various roles as an adult. (Convenience was also listed by some respondents in the face-to-face group, but convenience for them had to do with the fact that they live in Bloemfontein). While most of the online respondents listed that this mode fitted better with a busy work schedule, family life and their lifestyle, one respondent summarised the reasons that make the online mode more convenient: *With a busy schedule, with safety issues of driving in the evenings, online classes make it simpler to access information from professors/facilitators from the comfort of my home. This eradicates concerns of transport to and from the institutes, concerns regarding child-minding during the evenings and also the problem of crime that exists in our every day*.

Except for convenience, the majority of respondents in the online group pointed out that they are not geographically near Bloemfontein as a major reason for selecting the online mode, as illustrated by the following quote: *My decision was based purely on geography. I'm 400km away from the campus and online study was the best option*. A few of the respondents also

indicated that they had to relocate and that they switched from the face-to-face to online mode.

Some of the online respondents as well as most of the modular respondents indicated that their employer selected the specific mode for them. The following is a typical response: *[It is the] best option and [the] company is paying for my studies and it is their preference.* The majority of respondents that listed this as a reason were satisfied with the choice as illustrated by the following comment: *We were advised by our employer to attend, however I enjoy the contact sessions and interaction.*

One online respondent pointed to the importance of selecting the best mode of attendance: *I think it is really important for people to take up the right option for them. Attending classes throughout the year may initially seem challenging...(once a quarter) but it can also enrich your life and save time in the long run.*

The next two questions focused more specifically on the teaching and learning situation. Respondents' expectations from the lecturer are discussed, followed by their opinions regarding the study material.

6.3.2.3 Perceptions and opinions regarding the role of the lecturer in the learning situation

The qualitative question in this regard requested respondents to indicate: *What can the lecturer do to assist you in your learning?* (See question 3.9).

The majority of respondents from all the modes of delivery mentioned that the lecturer should provide real-life examples in the class and make the information practical to them. The following statements reflect this:

- *I think it is very important that the lecturer assist with the integration of the theory into working environments rather than just focus on the theory. This assists the student to easier understand the theory which they can apply in the workplace*

Furthermore, the majority of respondents indicated that the lecturer should be supportive, provide guidance and clarify and explain information. These opinions are illustrated with the following quotes:

- *Be willing to explain again if I do not clearly understand*
- *Lecturer must be able to give insight to a situation in order for the student to proceed with his/her own investigation.*

Respondents also wanted to be engaged in the learning experience as reflected in the following comments: *Ensure that the interaction sessions are kept exciting and provide interactive classes with open discussions.*

It is also important for respondents that lecturers should be available. While this was only indicated by one of the face-to-face respondents, it was indicated by more online respondents. Online respondents not only wanted lecturers to reply to their e-mails but their responses also indicated a lack of feedback from the lecturers, as illustrated by the following comment: *Answer discussions that we post, because we don't know if we are right or wrong.*

6.3.2.4 Opinions regarding the most useful aspects of the study material

One of the questions in the questionnaire requested respondents to indicate: *What do you feel is the most useful aspect of the study guide?* (See question 5.4)

The majority of respondents from all three modes of delivery indicated that the study guide provided guidance. Two comments in this regard confirm this: *[It] is a "simple" guide (sometimes more detailed) which gives me a base when doing research on the topics.*

Related to the guidance provided in the study guide, respondents indicated that the study guide provided them with *a bigger picture* and provided additional information. Furthermore some of the respondents felt that the study guide explained the work and found the learning outcomes and activities useful.

However, some of the respondents remarked that the quality of the study material was not on standard. In this regard some respondents referred to the quality of the copies of the reading

material, as illustrated in the following comment: *The layout and print quality is very important for me. If I cannot read or have difficulty in reading the attachments or study material at the back of the study guide, I get really upset and frustrated. I would rather pay more but at least make us proper copies.*

Respondents also pointed out some other aspects related to the quality of the study material: *Study material is not uniform, fonts don't provide a professional feel...and contains grammatical and spelling errors.* One respondent from the modular group requested that the programme should move away from paper-based material and that the study material is made available electronically.

The last qualitative question focused on the overall shortcomings of the programme as perceived by the respondents.

6.3.2.5 Overall shortcomings of the BML programme and suggestions for improvement

In response to this question, various aspects regarding the BML programme were mentioned. Only those answers related to the learning design of the programme are discussed in this section.

(a) Duration of the programme

Some respondents from the online and modular group felt that the programme could be completed in a shorter time frame than the average three and a half years. This is illustrated by the following comment by one respondent from the modular group: *If there is one shortcoming it is in my view the duration of the programme which could be easily cut down to two and a half years as it becomes frustrating to learners to have completion of the programme hanging over their heads for as much as three and a half years.*

But on the other hand some of the online respondents felt that the workload was quite heavy as mentioned by one of the online respondents. *I can understand that the lecturers need more information to ensure that we know what we've been taught, but it impacts severely on an already hectic schedule. Some of the guys I had classes with this year had up to three classes a week. All you end up doing is work, classes and working on assignments*

(b) Discrepancy on time spent in different modes of delivery

One respondent pointed to the discrepancy between the time spent in the online mode compared with the modular mode: *If I compare the hours that I put in on the online option to the hours that the people who do classes put in (modular mode), it does not quite compare. When attending classes, the guys get their assignments and do most of it during the week that they attend. Some of them say that they go back home, put in some time and have all their assignments in by the second week of attending. On the online option, I have had classes two evenings a week this year. Some of the lecturers request assignments and discussions to be handed in for every class. This really takes up a lot of time.*

Suggestions by the modular group supported the above-mentioned observation that students in the modular group are not “putting in the hours” that students in the online group are:

- *It would help us if we could have more group assignments that can be done while we are at the university for the week.*
- *The programme is intense and requires a lot of time in compiling research which is not easy when one considers the time spend having to work an 11 hour day. It would be very supportive if we were given ample notes to cover the contents (bearing in mind we are covering weeks of tuition in a few hours). Alternatively a list of suitable research data could be provided.*

(c) Contact with lecturer

One of the major shortcomings mentioned by the online group is a need for more contact with the lecturer. *What I was not prepared for was the loss of human contact. ...By not attending classes I feel like I am missing much more than a better opportunity to interact with the lecturer.* Respondents suggested having face-to-face sessions with modules that they struggled with. They also suggested that difficult modules (e.g. Economics) could be better taught in a face-to-face contact session than an online chat or discussion.

(d) Compulsory class/chat attendance

Respondents from both the online and modular groups also pointed out that they did not see the need for the compulsory class/chat attendance as illustrated by the following comments:

- *[One of the shortcomings is] the chats that we have to attend or else we get penalised – What must be remembered is that we are working adults and most of us that are doing this course are managers and if we miss a session we will catch up on our own.*
- *If there is a business reason for not being able to attend a lecture no assistance is forthcoming and we are left to our own device to catch up which often can easily be rectified or accommodated.*

(e) Use of group work for assessment purposes

While respondents in the face-to-face mode and online groups felt that the administration of group work for assessment purposes in the BML programme needed some attention. Respondents felt that the assessment of the group work favoured students who did not participate in the tasks and that they needed more time in class to complete group work assignments because they did not all reside in Bloemfontein. One respondent suggested that the programme must adopt a standardised way of assessing group work. The modular group did not report problems with doing group work but suggested more group work.

(f) Delayed feedback

Some respondents in the online group reported delayed feedback on discussions and assignments and requested more timely feedback in this regard.

(g) Acknowledging respondent characteristics

One respondent from the face-to-face group mentioned the importance of acknowledging the characteristics of the respondents: *Lecturers should check the academic background of respondents on a given topic so that they do not struggle with [the] BML.*

In the next session the quantitative and qualitative data are interpreted together.

6.4 CONCLUSIONS FROM THE QUESTIONNAIRE SURVEY

In this section the quantitative and qualitative data will be interpreted and the shortcomings of the BML programme in terms of the different guiding principles identified in Table 3.4 and 4.9.

According to the responses from the qualitative data the respondents in the face-to-face and modular groups studied to improve their management and leadership skills and would like to develop themselves. If one considers that 82% of all respondents are in a management position (Figure 6.8) the programme appears to be well suited for the needs of managerial leaders. Furthermore the qualitative responses emphasising personal growth support the quantitative data (Figure 6.28).

Respondents from the face-to-face and modular group indicated that they **selected the specific mode of delivery** for the interaction with the lecturer and peers and also reported sufficient contact with lecturers and other students, while the online group selected the online mode of delivery because it afforded them a better opportunity to balance all their different responsibilities.

Since most of the respondents (95%) reside **within the borders of South Africa** (Figure 6.1) it would be possible to arrange for more contact with respondents through contact sessions for example. The collaboration among students could also be enhanced due to the fact that the majority of the respondents (87%) are currently grouped in five provinces.

The respondents can be classified as adult learners (Figure 6.2 and 6.3). In terms of the life events and development that they are confronted with, it can be deduced that most of the respondents are in the middle adulthood stage (Figure 6.2) while almost 80% of the respondents reported a stressful event (Figure 6.4) that could influence their development and also impact on their studies. In acknowledging the background and characteristics of the students only 50% of the respondents do have any formal qualifications, excluding a senior certificate (Figure 6.8), therefore, it cannot be assumed that respondents will be familiar with the higher education environment. The importance of taking students' characteristics in mind in the learning experience was also mentioned by one respondent in the qualitative section (see section 6.3.2.5 (g)).

6.4.1. Interpretation of effective teaching and learning principles

The data indicated that respondents have a tendency to adopt a **deep approach to learning** (Figure 6.7 and 6.8) and prefer a student-centred approach but there were indications that the way the lecturer teach will have an influence on whether the students adopt a student-centred or teacher-centred approach (Figure 6.10 and 6.11).

In terms of the principles related to **teacher presence**, varying results were reported regarding the principle related to sufficient contact between lecturers and students. While the face-to-face and modular groups were satisfied with the amount of interaction the online group felt that they did not have enough interaction or contact with the lecturer (Figure 6.12). This was also identified by the online respondents in the open question regarding the shortcomings of the programme. The other two principles under teacher presence delivered satisfactory results.

In terms of **social presence**, responses of the online group differed once again from the face-to-face and modular group in terms of certain dimensions related to this principle. Online respondents indicated that they did not know the other students in their class and less online respondents made use of study groups as a support mechanism (Figure 6.14).

In terms of the **cognitive presence**, respondents reported that they preferred higher order assessment (Figure 6.16) and to be actively involved in learning (Figure 6.15). Respondents felt that the alignment of the learning elements enhances the learning experience (Figure 6.22). Although respondents reported that they were responsible for what they got from the BML, only half of the respondents reported that they themselves decided what to learn (Figure 6.21).

In the first validation meeting the concern was put on the table that students from the face-to-face and modular group do not have the same opportunity as the online students to reflect on the work. Respondents on the other hand, reported that they felt that they reflected on the learning (Figure 6.18). When one considers the comment regarding the time spent in the modular and online group by one of the respondents (see section 6.3.2.5 (b)) this further point to the concern raised in the first validation meeting.

In terms of assessment, the participants in the first validation meeting pointed out that there was no alignment in the assessment practices between the different modes of delivery. Furthermore, respondents from all three modes of delivery reported that they felt the assessment of group work in the programme was not fair in terms of team members not participating in the assessment activities and that the situation needed some attention (see section 6.3.2.5 (e)).

In terms of feedback, online respondents indicated their dissatisfaction with the feedback that they received (Figure 6.20). This was also reported in the qualitative responses as part of the overall shortcomings of the programme (see section 6.3.2.5 (f)).

In terms of the creation of a student-centred self-directed environment, respondents felt that the compulsory class and chat attendance was not in line with an adult learning environment (see section 6.3.2.5 (d)).

6.4.2 Interpretation of effective adult learning principles

Overall the findings indicated that the BML programme adheres to the principles of adult learning from the perspective of the students.

From an **adult learner lens**, the majority of respondents felt that the assumptions relating to andragogy were incorporated (Figure 6.26), while most indicated that they had developed through the BML programme (Figure 6.28). The middle adulthood stage and potential stressful life events should be taken in account in the design of learning.

Regarding the **context lens** there was an indication that the social presence, especially in the online mode of delivery, could be improved, respondents' opinions confirmed the principles associated with the intellectual or cognitive presence but also identified some shortcomings (see section 6.3.4.2).

Furthermore, the majority of respondents indicated that they preferred real-life situations as advocated by situated cognition (Figure 6.29, 6,30 and 6.31). They felt that their prior experiences were incorporated in the learning (Figure 6.9 and 6.32); and that they were given a chance to reflect on the learning (Figure 6.18). These aspects are related to self-directed

learning, experiential learning and transformation learning and are incorporated under the **process lens**. This data was also further enhanced by the qualitative data where respondents were requested to indicate what they expected from the lecturer (see section 6.2.3.3). Amongst others, respondents reported that the lecturer had to incorporate real life activities and scenario's in the learning situation.

The two principles under the **teacher lens** echo the principle of the changing roles of the lecturer and the development of the learner to become self-directed. The qualitative data also provided support for the principles under the teacher lens, when respondents reported that they expected the lecturer to guide and support them in the learning situation (see section 6.2.3.3).

6.4.3 Interpretation of use of study material in the BML programme

The major critique against the current study material, as deduced from the BML Learning Guide was the teacher-focus. There were also indications that the learning material did not address the needs of the specific learning environment.

In terms of respondents' preference regarding study material, they majority prefer to receive chunks of materials (Figure 6.34); use learning outcomes and table of contents as advance organisers (Figure 6.35). The qualitative data confirms that respondents utilise the study material and they reported that the study material provided them with a holistic picture of the material and with guidance (see section 6.3.2.4).

Respondents indicated that they used a variety of resources, but use the internet and lecturers most often (Figure 6.36).

From the qualitative data it can be deduced that the quality of the study material needs to improve in terms of language editing, the quality of the printing of the reading material and the professional look of the material (see section 6.3.2.4).

The above findings clearly implicate that the current design of the material needs to be considered; it should incorporate a student-centred approach; chunk information together and

ensure that the principles for effective learning design for adults in various modes of delivery are incorporated in the study material.

6.4.4 Interpretation of the use of technology in the BML programme

Although the exit level outcomes in the programme emphasise the use of technology, only the online students are exposed to technology on a regular basis. In terms of the exposure to technology in the different modes of delivery there is a discrepancy.

From the overview on the use of technology it has become clear that technology could be better integrated in the various modes of delivery. Respondents showed a positive attitude towards technology (Figure 6.37) and were confident in terms of their computer skills (Figure 6.36). More than two-thirds (70%) of the respondents have access to a computer and internet (Figure 6.40).

Respondents felt that integration of computer technology could be useful in some of the important aspects in learning, such as providing information, communication and facilitating interactivity (Figure 6.41).

By incorporating technology as part of the learning design students would be able to get more exposure to technology. It is also important to integrate the use of technology in all modules, so that students can understand and learn how to critically use technology in the workplace.

6.4.5 Overview of the shortcomings of the BML programme

An overview of the shortcomings of the BML programme is presented in Table 6.4. The directives for effective teaching and learning (Table 3.4) and adult learning (Table 4.9) as well as the current study material (see section 2.3.2.4) and the use of technology (see section 2.3) were utilised as guidelines for the compliance of the BML programme – and consequently also possible shortcomings.

Table 6.4: Shortcomings of the BML programme

PRINCIPLES	SHORTCOMING
Guiding principles for designing effective teaching and learning	
Teacher presence	
Principle 1: Encourage contact between students and lecturers	<ol style="list-style-type: none"> 1. An uneven amount of contact hours were identified, where the online group has less contact hours than the face-to-face and modular groups. 2. Respondents in the online group felt that they did not have enough contact with lecturers.
Social presence	
Principle 4: Encourage cooperation and collaboration among students	<ol style="list-style-type: none"> 3. While the face-to-face and modular groups reported sufficient interaction, the respondents from the online group did not report a strong social presence.
Cognitive presence	
Principle 7: Provide opportunities for reflection in the learning process	<ol style="list-style-type: none"> 4. The feedback of the first validation meeting showed a perception amongst the lecturers that students in the face-to-face and modular group did not reflect as much on their work as the students of the online group. However this was not reported by the respondents.
Principle 8: Ensure appropriate assessment and feedback to respondents	<ol style="list-style-type: none"> 5. The overall assessment strategies among the different groups are not aligned e.g. the online groups have a 50% formative mark, but this is not formalised with the other two groups. 6. Related to assessment is the feedback that respondents received. The online group in particular requested not only prompt feedback but also receiving feedback in general.
Principle 9: Provide independence and control to the learners in the learning process	<ol style="list-style-type: none"> 7. According to respondents they do not develop independence and control in the teaching and learning situation.
Principle 10: Alignment of learning elements	<ol style="list-style-type: none"> 8. There is not alignment between various aspects in the different modes of delivery, although from a module perspective respondents reported alignment between the learning elements e.g. learning outcomes, with activities and assessment.
Guiding principles for designing effective learning for adults	
Adult learner lens	
Principle 3: In designing learning for adults the overall goal is development	<ol style="list-style-type: none"> 9. The qualitative responses revealed that the primary reason for enrolment for the modular group was not personal growth but merely to obtain a qualification. This could have an impact on the development objective of the programme.

Context lens	
Principle 4: Learning environment should reflect an affective-social and cognitive “presence”	These aspects were addressed under social and cognitive presence.
Process lens	
Principle 6: Self-directed learning should be encouraged	10. Although the responses reflected a positive evaluation, self-directed learning in terms of developing independence (as discussed under shortcoming 7) could be enhanced.
Study material	
Principle 8: The learning environment should reflect a respondent-centered and self-directed learning.	11. From the current structure of the BML Learning Guide the study material does not support student-centred and self-directed learning.
	12. According to respondents felt that the quality of the printing, lay-out and professional look of the study guides needs attention.
Technology	
	13. Only the online respondents are extensively exposed to technology, while the face-to-face and modular groups have very little opportunity to practice developing their computer literacy in the programme.

6.5 CONCLUDING REMARKS

The chapter commenced with an overview of the BML programme in order to contextualise the data analysis and interpretation. The discussion of the quantitative analysis of the questionnaire was followed by the discussion of the qualitative responses. The interpretation of the data leads to the identification of the shortcomings of the BML programme based on the merging of the quantitative and qualitative data.

In chapter 7 a framework will be discussed that addresses the shortcomings of the current programme that adhere to the guiding principles for designing learning for adults in various modes of delivery.

CHAPTER 7

TOWARDS A FRAMEWORK FOR LEARNING DESIGN IN DIFFERENT MODES OF DELIVERY IN AN ADULT LEARNING PROGRAMME

7.1 INTRODUCTION

In Chapter 7, the aim is to answer the overarching research question, namely: *What are the principles (presented as a framework) for effective learning design in different modes of delivery that are also applicable to serving the needs of adult learners?*

In addressing this question, the subsidiary research questions have provided important background information. Chapter 2 gave an overview of the changing higher education environment, with an emphasis on the influence of technology. In Chapters 3 and 4 the various directives for designing effective learning based on a literature review were identified. Chapter 3 focused specifically on the directives for effective teaching and learning (see Table 3.4), while Chapter 4 identified the directives applicable to adults (see Table 4.9). In Chapters 5 and 6, these directives were used to assess the compliance of an existing adult learning programme offered in different modes of delivery and identify possible shortcomings. In this chapter, a framework is proposed that was presented to specialists in the programme to evaluate and provide suggestions to refine the initial framework.

In the section that follows, the shortcomings identified in Chapter 6 (see section 6.4.5) are used to propose an integrated learning design for different modes of delivery that addresses the shortcomings of the current programme and is also aligned with the directives for effective learning design for adults.

7.2 PROPOSING A MORE INTEGRATED FRAMEWORK FOR LEARNING DESIGN FOR THE BML PROGRAMME

In this section, a more integrated framework for the learning design for the BML programme in different modes of deliveries is proposed. The main criticism against the current learning design of the BML programme is its rapid expansion and attempts to accommodate the needs of adult learners by means of the implementation of different delivery modes. This caused differences in the alignment between the various modes of deliveries. Although management has been innovative in adapting the programme to accommodate the needs of a diverse student group, a more comprehensive and integrated design needs to be considered.

The discussion commences with proposals on a programme level, followed by more detailed proposals on a module level.

7.2.1 Learning design on a programme level

In addressing the discrepancies in the different modes of delivery on a programme level, blended learning provides a range of options. This can include a fusion of the traditional face-to-face delivery with contemporary online learning. It can also suggest a rethink of the educational approach and the technologies that are utilised, and the incorporation of informal learning with the more traditional formal learning.

When one considers the continuum of course delivery, the BML programme is currently delivered on the two far ends of the continuum, representing either the traditional course with 0% content delivered online (face-to-face and modular groups), to 90%+ of the content delivered online (online delivery mode) (Table 2.2 section 2.3.2.1). Due to the focus of the exit level outcomes in the BML programme on technology, as well as the high percentage of all students that do have access to technology as well as the positive attitude that students have towards technology (see section 6.3.1.6), a blended approach is proposed. A blended learning approach will bring the various delivery modes closer together, as set out in Table 7.1.

Table 7.1: Current and proposed mode of delivery according to continuum of course delivery modes

	TRADITIONAL (0% ONLINE)	WEB-FACILITATED (1-29% ONLINE)	BLENDED (30-79% ONLINE)	ONLINE (80%+ ONLINE)
CURRENT	Face-to-face Modular			Online
PROPOSED		Face-to-face Modular	Online	

Source: Compiled by the researcher from Allen and Seaman (2003:6)

For the face-to-face and modular modes a web-facilitated course is proposed, where up to 29% of the course content is delivered online, while the rest is facilitated in face-to-face sessions. For the current online mode a blended model is proposed where between 30 and 79% of the course content is delivered online with the remainder presented in a face-to-face format. In the last part of the study, the term blended learning will be used for both web-facilitated and blended learning as proposed by Allen and Seaman (2003:6). It is suggested that moving the delivery modes more to the centre of the continuum may address some of the shortcomings (see Table 6.4) of the current learning design – as illustrated below.

Shortcoming 1: Discrepancy in contact hours between the different modes of delivery

The additional contact hours, as a result of the introduction of online involvement for the face-to-face and modular groups and face-to-face contact for the online group, would equalise the number of contact hours between the various modes of delivery (Shortcoming 1, Table 6.4). It is proposed that the online delivery mode should have an additional one-week contact session, which would increase their contact hours to 75 hours per semester (48 online contact + 27 hours face-to-face contact hours)(64% online), while an additional hour per week online contact for the face-to-face and modular delivery groups is proposed. This will increase contact hours to 75 hours for the face-to-face group (63 hours face-to-face contact hours + 12 online contact) (16% online) and 76 hours for the modular group (64 hours face-to-face contact hours + 12 online contact) (16% online) (see Table 7.2).

Table 7.2: Current and proposed contact session blend for the modes of deliveries

Mode of delivery	Current	Proposed
Face-to-face	5.25 hours per week x 12 weeks per semester = 63 hours contact per semester	63 hours face-to-face contact + 12 hours asynchronous contact = 75 hours (16% online)
Modular	32 hours per week x 2 block sessions per semester = 64 hours contact per semester	48 hours face-to-face contact + 27 hours asynchronous contact = 75 hours (64% online)
Online	2 hours synchronous sessions per week + 2 hours asynchronous sessions per week x 12 weeks = 48 hours synchronous and asynchronous contact per semester	48 hours synchronous and asynchronous + 27 hours face-to-face contact = 75 hours (16% online)

Source: Compiled by the researcher.

Shortcoming 2: Insufficient contact with the lecturer in the online mode of delivery

The proposed blended design could also alleviate the shortcomings experienced with *teacher presence* in the online group. As a result of a compulsory face-to-face contact week per semester, online students would have the opportunity to meet their lecturers. The scheduling of the contact sessions will be important to ensure that the students meet all the lecturers with whom they will be involved over the next semester. Contact sessions could also be presented in modules that students find difficult to understand — Economics and Financial Management.

Shortcoming 3: Weak social presence in the online mode of delivery

The blended design can further enhance the social presence of the online mode of delivery. In shortcoming 3 (Table 6.4) the online respondents reported that they did not know the members in their cohort groups and did not make use of study groups, in contrast with the other two groups. The face-to-face contact week per semester would give students more opportunities to get to know their group members, and they can also be encouraged to form and utilise study groups. By creating the learning space for interaction in the real world, the social presence in both environments (real and virtual) could therefore be enhanced. Graham

(2006:18) points to the fact that a social presence is easier to develop in a face-to-face environment and also assists in the development of trust.

Shortcoming 4: Differences regarding reflection in the different modes of delivery

Garrison *et al.* (2000:90) suggest that the greater part of communication in a traditional face-to-face class should focus on oral communication between the lecturer and students. Although reflection is more difficult to achieve, they mention that students can reflect in an oral communication environment if the learning environment is well-structured. Online communication is mostly text-based and provides a better environment for the development of higher-order cognitive learning, critical thinking and time for reflection. These important advantages of an online environment (see section 2.3.2.2) make it desirable to incorporate an asynchronous online component for the face-to-face and modular groups, as it can enhance the reflection of these groups

Shortcoming 5: Discrepancy in assessment practices among the different modes of delivery

The discrepancy in the assessment practices among the different modes of delivery (Table 6.4, shortcoming 5) is related to the misalignment between the modes of delivery. While formative assessment is encouraged in the face-to-face and modular modes, it is not as formalised as with the online group. According to the assessment guidelines of the BML programme, all modules presented in the online delivery mode must have a 50% formative mark – further broken down to 10-15% for synchronous communication (chats) and 35%-40% for asynchronous communication (discussions) – and a 50% mark for the summative assessment. It is suggested that a similar assessment strategy is specified for all groups. The researcher's suggestions regarding the assessment are summarised in Table 7.3.

Table 7.3: Suggestions for formalising the assessment breakdown for the different modes of delivery

Mode of delivery	Formative assessment	Summative assessment
Online	50% synchronous and asynchronous communication [#]	50% assignment
Face-to-face	50% (30% class assessment and 20% asynchronous communication)	50% assignment
Modular	50% (30% class assessment and 20% asynchronous communication)	50% assignment

[#]Depending on the module, this could also consist of assessments that happen during class time.

Source: Compiled by the researcher

The BML programme encourages a variety in assessment, in terms of the assessors and the assessment methods used. The focus should be on situated cognition and transformation and experiential learning where the students' experiences, reflection, dialogue and real-life situations are incorporated (see sections 4.4.4-4.4.7). Attention also needs to be given to the assessment of group work to ensure that each member participates and learn from this experience.

Shortcoming 6: Provision of feedback in the online mode of delivery

Aligning the assessment practices and emphasising the formative nature of the assessment will force lecturers to provide feedback to students while the modules are presented. It could further be enforced by incorporating the formative mark in the official marking forms. Furthermore, as part of the quality enhancement of the programme, regular monitoring in some of the modules could be undertaken.

Shortcoming 13: Discrepancy in exposure to computers between the different modes of delivery

The introduction of an online course component for the face-to-face and modular groups would enable students to gain more exposure to computers, and this would assist in the development of their computer literacy skills.

A blended learning design would not only promote the current strengths of the BML programme but would also alleviate the identified shortcomings as discussed above. An enhancing blend is thus proposed for the BML, where the focus is on incremental changes to the pedagogy (Graham 2006:13). In the following section the proposed blended learning at module level is discussed.

7.2.2 Blended learning design at module level

At programme level it is proposed that all modules should have an online and face-to-face component. Percentage-wise the current online mode would have a 64% online presence and a 36% face-to-face presence, while the current face-to-face and modular mode would have an 84% face-to-face presence with a 16% online presence (Table 7.4).

Table 7.4: Graphic representation of proposed blend on programme level for various delivery modes

	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Online	Face-to-face				Online					
Face-to-face and modular	Face-to-face								Online	

Source: Compiled by the researcher

To implement the proposed programme blend, the support of lecturers on a module level would be crucial. A participatory process is proposed where lecturers are consulted in terms of the specific blend for their module within the proposed parameters. As indicated by Graham (2006:16), Mouzakis (2008:478) and Reeves (in Kofoed 2004:10), training and support would be needed to assist lecturers in creating a successful blend for their modules and redeveloping the accompanying learning material.

The remaining shortcomings are concerned with the development of independence and control of the learners, the ultimate goal of learning, namely development, and the design of the study material to reflect a more student-centred approach (Table 6.4, Shortcomings 7, 9, 10).

All these aspects are related to the development of the adult learner. The students need to be more involved in the learning process to ensure their development. In their process model, Knowles *et al.* (2005:115) state that with adults one cannot follow a content model where the learning material and activities are determined beforehand, but need to involve the learner in the learning process. They suggest steps to involve the adult learner that incorporate the establishment of a conducive learning climate followed by a mutual planning process and an evaluation (see section 4.5.3).

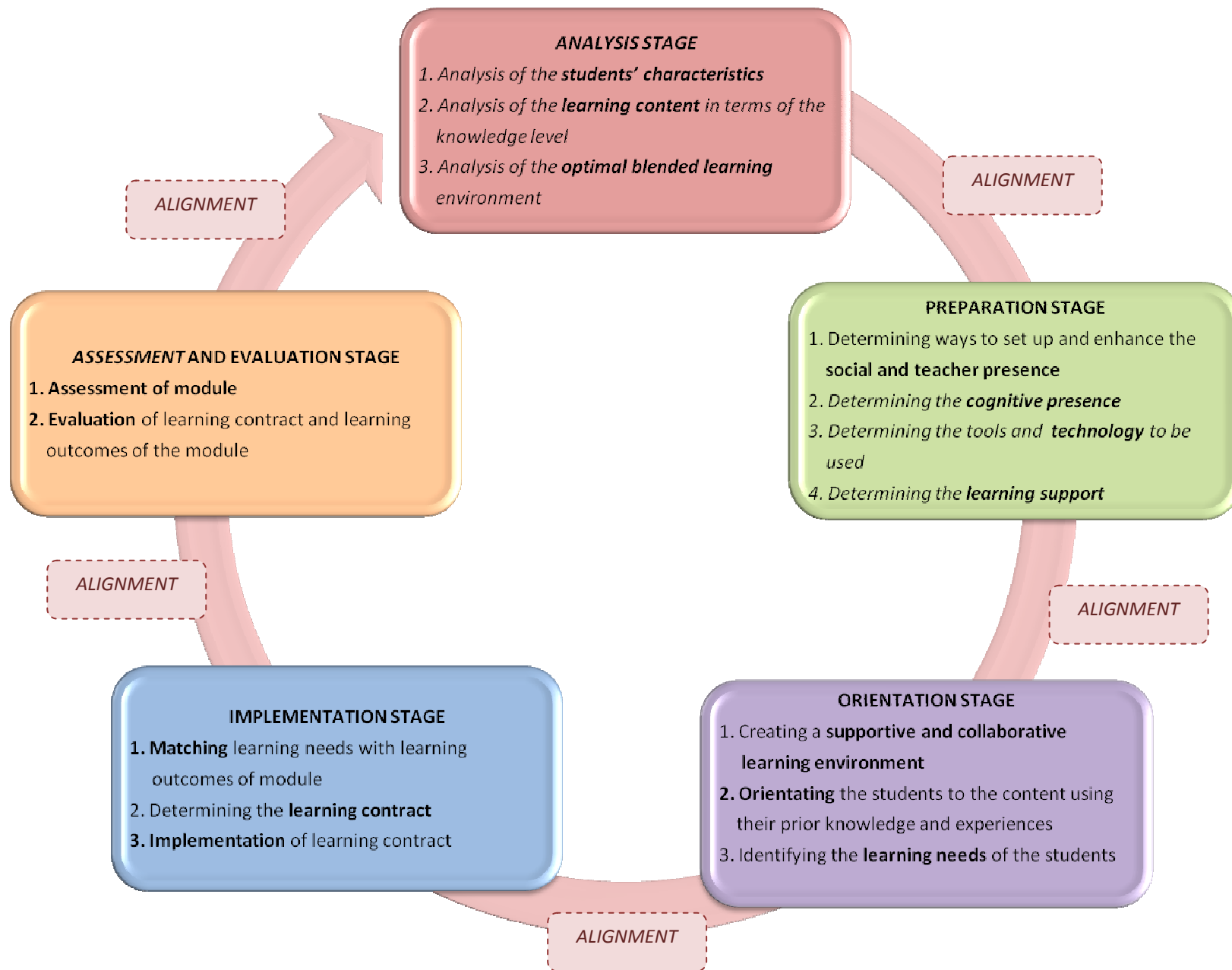
Knowles *et al.* (2005:115) furthermore suggest that the learning outcomes, activities, learning material, assessment and assessment criteria be negotiated, based on the needs of the learners. In the South African situation the learning outcomes have to be predetermined and serve as directives in registering programmes with the South African Qualifications Authority (SAQA). Learning outcomes therefore cannot be determined by the students. However, from a learning design perspective, the learning outcomes could be set very broadly to incorporate the needs of the students. Learners could be more involved in the selection of the type of activities or real-life situations in which they would like to test and apply the knowledge, and also have more input in the way they would be assessed. Although the assessment must focus on higher-order development, other aspects like the type of assessment and submission dates could be negotiated.

In order to create an environment conducive for the “negotiation”, Knowles *et al.* (2005:266) firstly suggests that a learning environment be created in which learners will be prepared by providing them with information, developing realistic expectations, preparing them for participation and introducing the content. This will help create a learning environment characterised by mutual respect, collaboration and support. This environment will then set the stage for the mutual planning in which both the student and lecturer are involved. This mutual planning includes deciding on the learning objectives, deciding on the learning resources and strategies, the assessment and the assessment criteria.

As Grow (Table 4.7) indicated, the role of the teacher will differ based on the stage of self-directed learning in which the student is (see section 4.4.3.2). With the first-year students the

lecturer would be more authoritative, while at a third-year level the role would change to being more consultative to assist in the development of self-directed learners. In order to understand their role, the lecturers must have insight in the characteristics of the students and how the learning content will support the development of the adult. This will determine the blend for the specific module as well as the resources that could be suggested.

The BLC model developed by Huang and Zhou (2006:303) (see also section 3.4.3.3) provides guidance in the design procedure for blended learning. The model touches on various aspects that should be taken in account and also that which are not indicated by other models, e.g. thorough analysis of the student characteristics and the learning environment, which will influence not only the learning activities but also the compilation of learning resources. Due to these unique contributions of the model to the learning design (see the end of section 3.4.3.3 – Contribution to the study) the model is recommended as a starting point for the learning design process. In Figure 7.1 the learning design process is summarised, followed by a discussion of each stage. The aspects indicated in italics are the ideas of Huang and Zhou, and the rest indicate the researcher's contribution based on the literature study, especially Tables 3.4 and 4.9 and the work of Knowles *et al.* (2005:115) in the design of learning for adults (see section 4.5.3).



Source: Compiled by the researcher from Huang and Zhou (2006:303), Knowles *et al.* (2005:115) and Tables 3.4 and 4.9.

Figure 7.1: Proposed learning design process for adults in the BML programme

7.2.2.1 Analysis stage

The analysis of the students' characteristics (Step 1 in the analysis stage in Figure 7.1) includes an understanding of their prior experiences and learning as well as their preferred learning styles (Table 3.4 principle 2). Furthermore, in the case of adult learners, the life events and life stages of the students (Table 4.9 principle 2) should also be considered together with the andragogical assumptions that will motivate students to learn (Table 4.9 principle 1).

In terms of the knowledge level of the learning content (Step 2 in stage 1 in Figure 7.1), Bloom's taxonomy provides a useful guideline. This step is aligned with a focus on activities that facilitate higher-order learning and set high expectations for the students (Table 3.4 principle 6).

Because all the modules are presented in each delivery mode, the lecturer will have to consider the optimal blend based on the characteristics of the students and the knowledge level of the learning content (Step 3 in stage 1 in Figure 7.1). In this regard the broad guidelines for all the different delivery modes have been determined (see section 7.3.1). Within these guidelines the lecturer can determine the specific blend for his/her module.

7.2.2.2 Preparation stage

During this stage the lecturer should consider the various possibilities in presenting the module to the learners. At this point only options are identified, based on the analysis done in the analysis stage. The lecturer will consider how to create and enhance the teacher and social presence, how students can be motivated to work together and how the lecturer will manage and provide contact with the students (Table 3.4 principle 1 and 4). The lecturer will also consider his/her role based on the analysis of the students' characteristics (Table 3.4 principle 3 and Table 4.9 principle 9) (Step 1 in stage 2 in Figure 7.1).

By determining the cognitive presence (Step 2 in stage 2 in Figure 7.1) the lecturer will consider activities and assessment tasks that will promote the following principles:

- Active learning strategies (Table 3.4 principle 5)
- Activities that will facilitate higher-order learning and set high expectations (Table 3.4 principle 6)
- Opportunities for reflection (Table 3.4 principle 7)
- Activities that reflect situated cognition (real life experiences) (Table 4.9 principle 5)
- Activities that use experiential learning and transformation learning (experiences, reflection, discourse) (Table 4.9 principle 7)

It is suggested that the lecturer will design activities that accommodate a wide range of learner needs, from students that do not have any background on the topic to students with an advanced background on the specific topic. This will support the learners in identifying the most appropriate activities and resources for specific student needs.

Furthermore, for these activities to be executed, an appropriate learning space (see sections 2.4.2.1 and 2.5) should be created either in the online or face-to-face environment. Through the use of a learning management system (LMS), the appropriate tools could be identified in the online environment (Step 3 in stage 2 in Figure 7.1).

Lastly, the lecturer should identify the learning support that could be utilised in the learning situation (Step 4 in stage 2 in Figure 7.1). Learning support refers to the resources used in the module. The idea is not to create a study guide with prescribed resources, but that the lecturer should have a range of resources available that could be utilised in the learning situations. (See sections 2.4.2.3 and 2.5).

The goal of the preparation stage is therefore to collect and identify possible learning resources, strategies and assessment that could be utilised in the learning situation. However, the actual selection of the learning resources and strategies will be determined after consultation with the students.

7.2.2.3 Orientation stage

The orientation stage is where the lecturer will have the initial contact with the students. The first priority in this stage will be to create a student-centred self-directed learning environment (Table 4.9 principle 4 and 8) where collaboration and support are encouraged. Through the creation of a teacher and social presence, this kind of environment can be created (see section 2.4.2.2)(Step 1 in stage 3 in Figure 7.1).

Another important goal of the orientation stage is to orientate the students to the learning content to familiarise themselves with the content before they can make informed decisions regarding the learning goals. This is done through the incorporation of students' prior learning and experiences together with discussions and reflection on their knowledge and experience. (Table 4.9 principle 2 and 7 and Table 3.4 principle 2 and 7)(Step 2 in stage 3 in Figure 7.1).

Through familiarising themselves with the content, students should be able to identify the gaps in the knowledge and determine their learning needs (Step 3 in stage 3 in Figure 7.1). For students to identify their strengths and weaknesses regarding certain learning areas, a supportive climate where the learners trust each other and the lecturer is important.

7.2.2.4 Implementation stage

During the implementation stage, students will match their learning needs with the learning outcomes of the modules (Step 1 in stage 4 in Figure 7.1). This could be done through using a learning contract (Table 7.4). A "learning contract provides a vehicle for making the planning of learning experiences a mutual undertaking between a learner and [their]....teacher. By participating in the process ... the learner develops a sense of ownership of (and commitment to) the plan" (Knowles *et al.* 2005:266). This not only individualises the learning for the individual student, but also provides students with greater independence and control (Table 3.4, principle 9). By using a learning contract for the individual students, the focus is on the personal development of the student in the specific learning area (Table 4.9 principle 3).

The use of the learning contract would contribute to the alignment of not only the learning outcomes with the activities and assessment but also that of the learning resources. (Table 3.4 principle 10). The negotiation of the assessment with the students also ensures that students feel that the assessment tasks are appropriate for them and that the assessment is aligned with the learning outcomes (Table 3.4 principle 8).

Table 7.5: Suggested learning contract format of Knowles *et al.* *

LEARNING CONTRACT FOR				
NAME				
MODULE		UNIT		
Learning outcomes	Learning activities or strategies	Learning resources	Evidence of accomplishment (assessment)	Criteria and means for validating evidence (assessment criteria/rubric)

Source: *Knowles *et al.* (2005:268).

Class attendance in all the modes of delivery is compulsory. However, this does not promote adult learning principles. By allocating marks in class, students are more subtly encouraged to attend class, without taking away the development of their independence as adults as suggested by self-directed learning principles.

During the implementation stage the role of the lecturer would be to monitor the learning of the individual students through the provision of formative feedback (Table 3.4 principle 8) as well as the maintenance of the social and teacher presence. The lecturers would also have to adapt their role based on the formative assessment to ensure that there is an alignment between the levels of the students' development in terms of self-directed learning (see section 4.4.3.2) (Step 2 and 3 in stage 4 in Figure 7.1).

7.2.2.5 Assessment and evaluation stage

The evaluation stage would incorporate the final summative assessment to determine if the student has attained the learning outcomes, but it can also incorporate an evaluation of various elements of the module e.g. the facilitation, the reading material etc. This can be used to improve the learning experience of future students in the module (Step 1 and 2 in stage 5 in Figure 7.1).

7.2.2.6 Alignment

The pink arrow that encircles all five stages in Figure 7.1 indicates the alignment of the various elements of the learning design process with one another. The various stages cannot be seen as separate, since the result of the one stage will influence the work method in the following stage. The alignment extends beyond the alignment of the learning itself (learning outcomes-activities-assessment) (Table 3.4 principle 10) and also incorporates the learning design (blend) and the learning resources based on the characteristics of the students.

The implementation of the learning design process (Figure 7.1) with its focus on independence and control and personal development addresses shortcomings 7, 9 and 10 in Table 6.4. The remaining shortcomings deal with the study material. According to Table 6.4, the current study material does not reflect student-centred or self-directed learning.

The discussion in section 2.4.2.3 suggested that the traditional view of learning material is changing. It is proposed that students will decide on the learning material they think would support them best in their learning, and that learning material should be presented in smaller chunks of information that can be reused by the lecturer. The idea of prepackaged learning material is not in line with a student-centred approach, nor does it promote self-directed learning. As suggested in Figure 7.1 the lecturer will identify possible learning resources; through the collaborative process (as suggested in the implementation stage) the learners would then determine the most appropriate learning resources to attain the outcomes. The Internet (or web technology) is an important learning resource that not only provides static

content but allows interactivity that can promote deep learning principles. Siemens and Tittenberger (2009:2) suggest that the creation of information is determined by individuals; learners make use of a variety of resources (including books, reports, Internet) and interpret this information to form a coherent whole, whereas in the past the lecturer compiled a module and this was the only source used to make sense of the information.

Respondents in the survey also indicated that the quality of the printing of the learning material was not up to standard (Table 7.1 shortcoming 12). As a result of the proposal that study material should be tailor-made based on the needs of the students, it is suggested that the programme move away from the traditional paper-based study material and that the LMS be used to retrieve learning material. Furthermore, it is suggested that instead of using bound copies of the study guides, the programme utilises files with only the learning outcomes and a learning contract for each module included. The students can then decide what they would like to print out from the LMS and put in their files, which will lead to more independence and control over the learning material and afford more flexibility. Instead of having sections where the outcomes, activities and reading material are combined, it is suggested that the various sections are changed to group all the learning outcomes together, followed by all the potential learning activities or strategies, as well as an indication of all the possible learning resources. The various parts can be numbered in a logical way to make access to the documents easier. This is then posted on the LMS and, based on students' learning contracts and the guidance by the lecturer, they can access the appropriate learning strategies and learning resources. In the redesign of the study material, attention should also be given to the quality of the scanned material and a more professional appearance.

In this section the shortcomings identified in Chapter 6 were addressed through proposing a blended learning model for aligning various aspects of the different modes of delivery. Furthermore, a learning design process indicated how the additional shortcomings identified in the BML programme could be addressed. Lastly, a new approach to the study material was also proposed to align it with the rest of the suggestions.

In the next section the results of the feedback from the second validation meeting on the proposed framework are discussed.

7.3 EVALUATION OF THE PROPOSED FRAMEWORK

After the proposed framework was developed it was evaluated by the specialists in the BML programme. The evaluation formed part of the triangulation mixed methods design (see section 5.3.1) and was included to enhance the internal validity or credibility through analyst triangulation as well as the external validity or transferability to other similar contexts (see section 5.3.3.4 (b) and (c)).

The purpose of the evaluation was therefore to evaluate the feasibility of the framework, to test the panel's opinions of the framework, to identify possible shortcomings and to obtain further suggestions for improvement. The same panel of specialists involved in the first validation meeting assisted the researcher in the second validation meeting (see section 5.3.3.4 (b)). A meeting was arranged where the shortcomings identified in Chapter 6 were reviewed in conjunction with the proposed framework as a way not only to address the current shortcomings but also to enhance the delivery of the programme in the different modes. The PowerPoint presentation and accompanying documents used during this meeting are attached in Appendix E, F and G.

7.3.1 Results of the evaluation

The feedback from the validation meeting is presented using the two levels of the proposed framework, namely the proposed framework from a programme level and thereafter the suggestions applicable on a module level.

7.3.1.1. Feedback on the proposed framework on a programme level

From the first validation meeting, the panel was aware of the non-alignment of the programme, but was surprised by the extent and influence of the non-alignment on the various

aspects of the learning design. Only those shortcomings that provoked a discussion or where suggestions or refinement was suggested are included in this discussion.

(a) Comments on shortcoming 1: Discrepancy in contact hours between the different modes of delivery

The amount of contact time (Appendix D, slide 11) did provoke a discussion. The discrepancy regarding contact time not only lies in the amount of contact time with the lecturer but also in the number of credits that students complete per semester. In the current programme, it takes the online students longer to complete the programme than the modular and face-to-face groups, owing to the number of credits that are scheduled per semester. From 2009 the office implemented changes to eliminate the discrepancy between the number of credits presented per semester for the different modes of delivery (indicated in bold in the right-hand column in slide 11). Although it addresses the concerns of the online students that it takes them longer to complete the programme, there is still a discrepancy between the amount of credits presented between the online mode on the one hand (54 credits per semester) and the face-to-face and modular group (42 credits per semester) on the other. It was suggested that the management structure of the programme should discuss this aspect further to look at the most suitable time-frame for completing the programme.

(b) Comments on shortcoming 2: Insufficient contact with the lecturer in the online mode of delivery

One of the specialists suggested that the term “contact time” needed further refinement, especially when considering the usage of the term in the online environment. In terms of the framework, contact suggests contact with the lecturer. In a face-to-face situation this will mean the contact sessions that students have with lecturers, while in the online environment it will include structured scheduled communication between the lecturer and students with both asynchronous (discussion forums) and synchronous (chats) communication involved.

The panel felt that the blended learning design would be a solution for increasing the face-to-face contact time with lecturers. It was further suggested that lecturers should also be trained in the creation and maintenance of a teacher presence.

(c) Comments on shortcoming 3: Weak social presence in the online mode of delivery

Although the majority of the panel members agreed with the initial suggestion to increase the social presence of the online group, the discussion focused on how to implement this aspect in the programme. One of the administrative specialists pointed out that although students start in the same group (intake), due to RPL they move between different classes (and therefore groups of students). This complicates the development of relationships among group members. In this regard the suggestion was made that all online groups must visit the campus at the same time and that efforts must be made to create opportunities where students from different cohort groups could get to know each other.

To further enhance a social presence, there needs to be more structured opportunities for online students to get to know each other better when they are on campus for face-to-face contact sessions. It was suggested that the idea of a community manager for the online groups be reintroduced, to create and sustain the social presence. It was suggested that this person should not be an administrative staff member but rather an academic or someone that is more independent, who could solely look after the social-wellbeing of the students in the online environment. Another suggestion was made that the group work that is done with the students as part of the Portfolio Development Course (PDC), should be adapted to reflect an online environment more closely. This can provide online students with the necessary skills to function effectively in online groups as part of the maintenance of a social presence. Again, training for lecturers involved in the programme would also assist in creating learning spaces where the social presence among students could be enhanced.

(d) Comments on shortcoming 4: Differences regarding reflection in the different modes of delivery

One of the panel members pointed out that the initial development of the learning material did not focus very much on the development of activities that included reflection; the specialists, especially those involved in the teaching of the modules, acknowledged the absence of reflective activities in the current learning environment. Although it was agreed that this could be enhanced with asynchronous communication, it was also cautioned that lecturers would have to be trained in developing activities that actually assisted students in reflecting on the learning material.

(e) Comments on shortcoming 5: Discrepancy in assessment practices among the different modes of delivery

Panel members concurred with the reflection strategy of the proposed framework, but felt that initially the weight of the formative assessment in the programme should contribute 60% while the summative assessment contributes 40% to the final mark. This is in line with the current assessment policy of the University and better reflects the developmental nature of the programme.

The shortcomings regarding the assessment of group work were also discussed and various proposals on working together were suggested. Some of the suggestions are beyond the scope of the study and the others were discussed under 7.3.1.1 (b).

(f) Comments on shortcoming 6: Provision of feedback to the online mode of delivery

In the survey regarding the lack of feedback comments were specifically made by the online group of respondents. Panel members felt that a time period of one week from the submission date to provide formative feedback to students was sufficient. It was suggested that this could be monitored by the administrative staff. In addition, it was suggested that the students' evaluations of the lecturers also include a question regarding receiving feedback on formative activities on time to further monitor this aspect (asynchronous communication).

Another suggestion was to use more structured rubrics in the marking of the discussion forums and to allow students to assess one another using the rubrics as a form of formative feedback.

(g) Comments on shortcoming 13: Discrepancy in exposure to computers between the different modes of delivery

Although the panel agreed with the rationale for adapting a blended learning design, there were concerns regarding the resistance of the face-to-face students to using technology as part of their learning experience. However, it was pointed out that the use of technology formed part of the exit level outcomes and that it was a skill necessary in the modern workplace. It was emphasised that care should be taken with the implementation of the online component for students of all modes of delivery to ensure that they have acquire the necessary skills; they should also be supported throughout their learning experience in using the online environment.

7.3.1.2 Feedback regarding the proposed framework on a module level

The rest of the shortcomings were not discussed individually, but were addressed in a more holistic way through the learning design on a module level (Page 2 in Appendix E). In this regard more general comments on the learning design process were made in terms of the two major aspects, namely the development of independence and control of the students (student-centred environment) and the study material.

The panel members agreed with the ideas behind the proposed learning process design and felt that the proposed learning design process could enhance the development of independence and control in the students and assist in creating a more student-centred environment. One member from the administrative side of the programme, although enthusiastic about the idea, was apprehensive about how realistic it would be to implement the proposed process. The lecturers involved in the teaching of the programme felt that the suggestions could be feasible if lecturers received adequate training and support in the new learning design process.

The suggestions regarding the new approach to the study material were welcomed and one of the specialists involved from the conception of the programme acknowledged that the study

material of the programme needed improvement in terms of providing more support to students and a more student-centred approach. The suggestions on incorporating the learning management system for all three modes of delivery and the suggested file system instead of bound study material were also supported.

7.3.1.3 General feedback

Overall, the panel felt that the proposed framework was feasible and could serve as a workable solution for enhancing the current learning design of the programme. Adequate training and committed academic staff members were also emphasised as important factors that would contribute to the successful implementation of the framework. One of the specialists from one of the central units also indicated that the proposed learning design was applicable to the rest of the programmes on campus, indicating the external validity or transferability of the learning design. It was further pointed out by one of the specialists that the proposed learning design reflected the current trends in higher education and that the learning design would be something that the whole university should consider.

The feedback from the validation meeting served as an important directive in refining the current framework and most of the suggestions have been incorporated in the final framework (see Chapter 8).

7.4 CONCLUSION

The aim of the chapter was to address the overarching research question, namely: *What are the principles (presented as a framework) for effective learning design in different modes of delivery that are also applicable to serving the needs of adult learners?*

This chapter proposed a framework for learning design that would address the shortcomings of the current adult learning programme and enhance the learning design of the programme. The proposed framework was evaluated using a panel of specialists involved in the programme. The findings from the validation meeting were discussed in the chapter.

In Chapter 8 the final framework of the learning design is presented together with an overview of the study.

CHAPTER 8:

CONCLUSION AND RECOMMENDATIONS

8.1 INTRODUCTION

The study aimed to provide *a framework for learning design in different modes of delivery in an adult learning programme*. The aim of this chapter is to provide a brief overview of the study and to present the final findings and some concluding thoughts. The chapter commences with an overview of the study by addressing the various research questions, followed by the framework for effective learning design. It concludes by indicating the significance of the study as well as some limitations and directions for further research.

8.2 AN OVERVIEW OF THE STUDY

In Chapter 1 (see section 1.4) an outline of the various research questions was presented that formed the backbone of the study. The research questions guided the study and provided important directives that shaped the final outcome of the study. In section 8.2 the various research questions are reviewed together with the main findings of each research question.

8.2.1 Research question 1

What is the influence of the changing higher education environment, technology in particular, on learning and the design of learning?

This research question aimed to provide the background of the study by investigating the major forces of change that are influencing the contemporary higher education environment. Chapter 2 addressed the changes in the higher education environment that are especially important in the context of this study. **Three forces** driving change were the impact of the **knowledge economy** (section 2.2.1), the **changing target population** (section 2.2.2) and the **influence of technology** (section 2.2.3). The main focus of Chapter 2 was the influence of technology,

especially the advent of online education and the effectiveness of online education (section 2.3.1), as well as **blended learning**, which emerged due to online education (section 2.3.2). The chapter concluded with the influence of these forces on the design of learning (section 2.4). **Learning design** as a new concept was clarified (section 2.4.1) and the **new learning environment** was described in terms of three elements: the idea of learning spaces, the creation of community of inquiry (section 2.4.2) and a rethink of how learning materials is designed (section 2.4.3). The outflow from Chapter 2 are summarised in Table 2.5 (see section 2.5). Table 2.5 points out that the new higher education environment requires a new way of thinking about the design of learning. Another important take-away from this chapter was that **communities of inquiry** were identified as a possible guiding principle in addressing the influence of change on teaching and learning in the higher education environment. An outline of the chapter is included in Figure 2.1 (see section 2.1).

8.2.2 Research question 2

What are the most prominent perspectives on effective teaching and learning that can serve as directives in the design of learning for various modes of delivery?

Chapter 3 aimed to respond to research question 2. The chapter commenced with the **foundational theories on effective learning**, namely behaviourism, cognitivism and constructivism. Connectivism as a potential learning theory was also reviewed due to the focus on the influence of technology on the learning environment (section 3.2). This was followed with a discussion on **deep and surface approaches to learning** (section 3.3).

Due to the impact of technology on teaching and learning, **perspectives** were provided **from three modes of delivery**, namely the traditional **face-to-face mode**, the **online mode of delivery** and a **blended mode of delivery**. For each of these modes an overview of the most prominent perspectives by leaders in the field of teaching and learning was presented (section 3.4). An overview of the perspectives discussed for each mode is given in the outline of the chapter in Figure 3.1 (see section 3.1). Various principles and models of effective teaching and learning in each mode of delivery were considered. The aim of the chapter was to provide

guiding principles that are applicable in any of the three modes of delivery. (see Table 3.4 section 3.5). What stood out for the researcher were the seven principles of good undergraduate education that proved to be still applicable to a certain extent in the new learning environment. The guiding principles were summarised using the **communities of inquiry** by Garrison *et al.* (1999). Emphasised under the **teacher presence** was the importance of contact between the student and teacher, as well as the changing role of the teacher and the importance of taking the characteristics of the students in consideration in designing the learning. In order to support the learning, a **social presence** should be created and sustained through cooperation and collaboration among students. Lastly the **cognitive presence** was discussed, which focuses on adopting a deep approach to learning. Guiding principles in this regard were the use of active learning strategies, the focus on higher-order activities, reflection, appropriate assessment and feedback as well as the development of independence of control and lastly the alignment of the learning elements. These guiding principles reflect a student-centred learning environment.

8.2.3 Research question 3

What are the characteristics that adult learners bring to the learning environment that need special consideration in effective learning design?

The changing student population was identified as one of the driving forces of change in higher education. Furthermore, in Chapter 3 one of the guiding principles for effective teaching and learning was the importance of acknowledging the characteristics that students bring to the learning situation. Chapter 4 was therefore used to obtain a detailed view of the adult learner as significant proportion of the changing student population. The chapter commences with an overview of the **definition of adult learners** (section 4.2) followed by the various **adult development perspectives** (section 4.3). This is important because the life stage and tasks that adults are confronted with in their lives will influence the learning environment. The next section (section 4.4) discussed **learning theories** specifically applicable in the **adult learning context**. The section commenced with the foundation of learning in adult learning, with a special emphasis on humanism. This was followed by the most influential adult learning

theories by leaders in the field of adult education. The discussion included **andragogy** (section 4.4.2), **self-directed learning** (section 4.4.3) and **transformation learning** (section 4.4.4.1). Furthermore, **critical reflection** (section 4.4.5), **situated cognition** (section 4.4.6) and **experiential learning** (section 4.4.7) were also discussed. The chapter concluded with **guiding principles in the design of adult learning** (Table 4.9 section 4.6). The guiding principles were organised using the **Four-lens Model of Kiely et al.** (2004). The **adult learner lens** is making provision for andragogy in the design of learning as well as the consideration of the adults' life stage and events. It also emphasises that the goal of learning in adulthood is development. From a **context lens** the importance of a social and cognitive presence was highlighted, together with the inclusion of situated cognition in the learning of adults. The principles of self-directed learning, experiential learning and transformation learning were emphasised in the **process lens**, while the **teacher lens** included the design of a student-centred self-directed learning environment as well as the changing role of the teacher in developing adult students from dependent to self-directed learners.

8.2.4 Research question 4

Does an existing adult learning programme (offered in different modes of delivery) (a) comply with the principles of effective learning design and (b) how can possible shortcomings be addressed/enhanced?

In responding to research question 4, Chapter 5 described the **design and methodology** employed in the empirical investigation. A **triangulation mixed methods design**, specifically the validating quantitative data model, was selected for the study because the collection of the data was done with a single questionnaire consisting mainly of quantitative items and a few qualitative open-ended questions to expand and validate some of the information. The structuring of the **questionnaire** was based on the literature review from Chapters 2 to 4 using the guiding principles as directives to assess the compliance of the BML programme. The questionnaire focused on the opinions and perspectives of students enrolled in the BML programme, since these students would be the most objective group to evaluate the programme. They had experiences in one of the modes of delivery and were involved in all

aspects of the programme in terms of the learning process, and would therefore be in a very good position to provide an overview of a holistic nature and to indicate if the objectives of the programme were reached. **Validation meetings** were also used in the study to validate the findings. A validation meeting was held before the questionnaire was finalised to incorporate the ideas of the panel and a second validation meeting was held after the proposed framework was compiled to test the feasibility of the framework.

In Chapter 6, the **quantitative and qualitative data** was analysed and interpreted to determine if the BML programme complied with the guiding principles identified in Tables 3.4 and 4.9 and to identify possible shortcomings. Although the programme, from a student perspective, mostly complied with the guiding principles, some shortcomings were nevertheless identified. The shortcomings were summarised in Table 7.1.

8.2.5 Overarching research question

How can the learning design of a current adult learning programme offered in different modes of delivery be enhanced, taking into account the changing higher education environment (technology in particular) as well as the needs of adult learners?

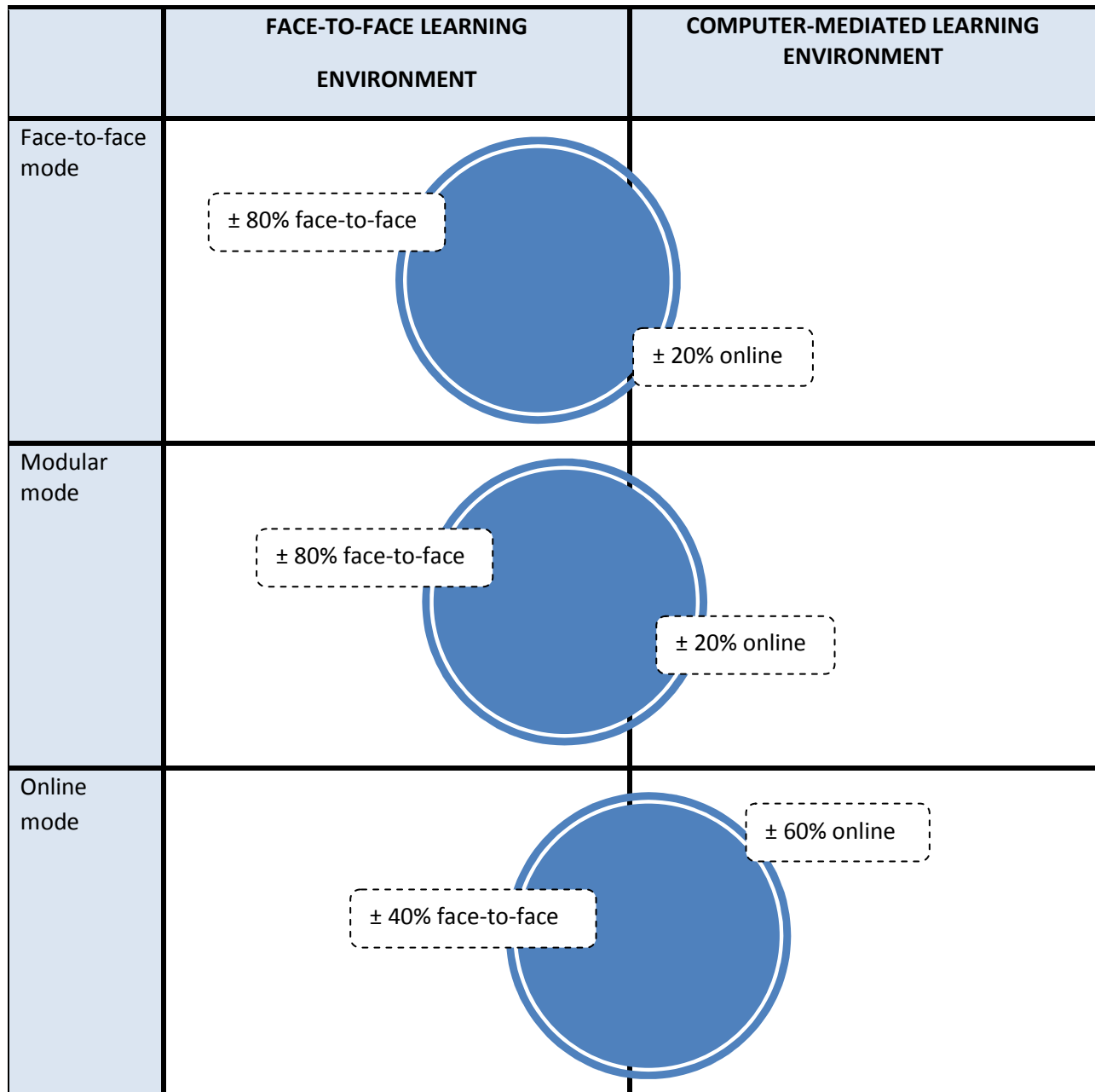
The aim of Chapter 7 was the **compilation of the framework** based on the guiding principles of effective teaching and learning (Table 3.4) that specifically address the learning design of adults (Table 4.9). The shortcomings summarised in Table 7.1 were also taken into account in compiling the framework. The draft framework was then evaluated by a panel involved in the programme. Their recommendations were incorporated (see section 7.3). The following section describes the final framework for learning design in different modes of delivery in an adult learning programme.

8.3 A FRAMEWORK FOR LEARNING DESIGN IN DIFFERENT MODES OF DELIVERY IN AN ADULT LEARNING PROGRAMME

The framework for the learning design in different modes of delivery is presented, addressing the design of learning on two levels, a programme and a module level.

8.3.1 A framework for learning design on a programme level for different modes of delivery

The main criticism against the current learning design was the non-alignment of the different modes of delivery. In order to improve the alignment of the learning design of the different modes of delivery, a blended learning strategy is proposed on a programme level. The blended learning strategy is illustrated in Figure 8.1.



Source: Adapted from Graham (2006:6).

Figure 8.1: Blended learning design on a programme level

In Figure 8.1 the percentages in both the more traditional face-to-face and online (computer-mediated) environments represent contact hours with the lecturer per semester. The average semester was taken into account. Contact time is therefore defined as either face-to-face or online contact with the lecturer. Online contact refers to scheduled, structured communication between the lecturer and students. In the context of the programme it includes both asynchronous and synchronous communication.

The proposed blended learning design may reduce several shortcomings identified in the current learning design among the different modes of delivery. These shortcomings include the mismatch between the teacher and social presence, the unequal exposure to technology among the different groups, the assessment and principles related to the cognitive presence, e.g. reflection, assessment and feedback to a lesser extent.

8.3.2 A framework for learning design on a module level for different modes of delivery

The learning design on a module level represents the guiding principles identified in Tables 3.4 and 4.9. Due to the overlap between some of the guiding principles in Table 3.4 and Table 4.9 the principles are integrated in Table 8.1 to serve as directives in the learning design for adults in different modes of delivery.

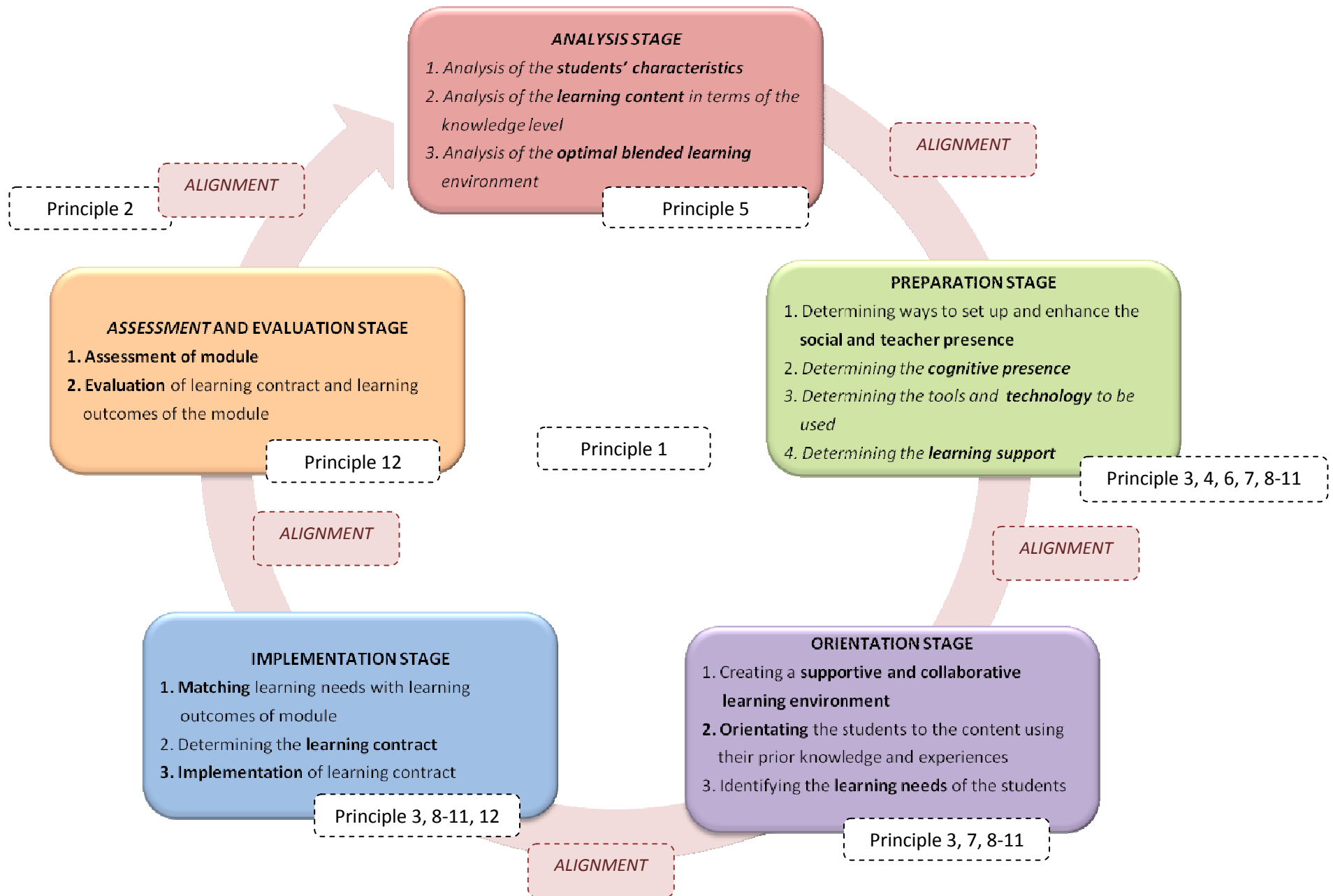
Figure 8.2 indicates how the different principles in Table 8.1 are applicable on the learning design process. The learning design process therefore includes all the guiding principles as summarised in Table 8.1.

Table 8.1: Guiding principles for learning design in different modes of delivery for adult learners

1	In designing learning for adults the overall goal is development.
2	Align the learning elements (including the teaching and learning activities, the learning environment and learning resources).
3	Create a student-centred self-directed learning environment (independence and control to the learners in the learning environment).
4	The role of the teacher is flexible and changes continuously to accommodate the growth of the individual from dependent to self-directed.
5	Acknowledge the characteristics that students bring to the learning situation by focusing andragogical principles, the adults' life stages and life events, prior learning and experiences and their different ways of learning.
6	Encourage lecturer contact between students and lecturers (teacher presence).
7	Encourage cooperation and collaboration among students (social presence).
8	Implement active learning strategies in the learning environment.
9	Focus on activities that facilitate (1) higher-order learning and thinking and (2) set high expectations .
10	Provide opportunities for reflection in the learning environment.
11	Learning activities and assessment must reflect situated cognition (real-world experiences).
12	Ensure appropriate assessment and feedback to students.

Source: Compiled by the researcher.

These guiding principles are reflected in the learning design process on a module level that is depicted in Figure 8.2. A more detailed discussion of the application of the principles in the different stages is provided in section 7.2.2.



Source: Compiled by the researcher from Huang and Zhou (2006:303), Knowles *et al.* (2005:115) and Table 3.4 and 4.9.

Figure 8.2: Proposed learning design process for adults in the BML programme

8.4 SIGNIFICANCE OF THE STUDY

The significance of the study lies in the development of a framework for learning design that is applicable in different modes of delivery in the BML programme, an adult learning programme. The study has incorporated the newest trends that are predicted in higher education and that address contemporary higher education.

The framework has been compiled using directives in teaching and learning as well as the design of learning for adults that are applicable in the changing higher education environment. The framework was evaluated by specialists in the programme and their recommendations and suggestions were incorporated in the final framework.

The framework is not only based on sound theoretical principles (as discussed in the literature review) but provides a practical framework that could be used by the management of the programme and the lecturers in the programme. The study could be applicable to other adult learning programmes due to the generic nature of the directives (applicable to different modes of delivery).

8.5 LIMITATIONS

Although it could be argued that the study has limited generalisability, the researcher is convinced that the study has provided guidelines applicable to other faculties at the University of the Free State (as indicated by the Head of E-learning at the second validation meeting) as well as to other similar contexts (see section 5.3.3.4 (c) and 7.3.1.3).

Although a sufficient response rate was obtained, not all students responded to the questionnaire (see section 6.3.1). This could have influenced the results of the questionnaire survey to a certain extent.

The study only focused on the BML programme, which is unique in South Africa. However, the guiding principles in the design for teaching and learning and adult learning may be highly applicable to other learning programmes in similar contexts.

8.6 FURTHER STUDIES/RESEARCH NEEDED

Due to the rapid changes in the higher education environment and the relative “newness” of the term learning design (as it is applied in the study) it is suggested that learning design as an area of study be further explored and used to update the current framework for the design of learning.

Some of the results in Chapter 6 could be further explored through additional research, for example the influence of the year of study and adopting a deep approach to learning (see section 6.3.1.3).

Although students’ satisfaction in the programme is tested on a module level, an investigation similar to this that focuses on a programme level, could be conducted on a more regular basis (every three to five years) to make informed decisions based on the feedback of the respondents.

The application of the framework will provide research opportunities for identifying the effectiveness of the framework and offering more refinements in the design of learning in different modes of delivery.

The application of the framework to other adult learning programmes could result in generalising the results of the study.

8.7 CONCLUDING REMARKS

The aim of the study was to develop a framework for learning design that could be applied in different modes of delivery in an adult learning programme. Through the study the researcher aimed to utilise the theory and to implement it on a more pragmatic level that could enhance the current programme. The researcher gained greater insight into the needs of the adult students in the different modes of delivery in the BML programme, which will enhance her own teaching in the BML programme. Although the development of the framework was a satisfying experience, the application of the suggestions made and the resulting enhancement of the

programme is the ultimate goal of the study. In the survey one respondent described the programme as follows:

I think the BML programme was fantastic. I enjoyed every minute of it and although there were modules that I did not like, I enjoyed them at the end anyway. The programme was the missing piece in my business puzzle, which has now been completed. I will leave filling the sea with all my tears.

The range of emotions revealed in this comment illustrates the seriousness and intensity with which adult learners approach the learning situation. They have to find themselves in a new world of learning amidst the challenges of their everyday lives where they have to balance all their various roles. It is the researcher's sincere hope that the application of the framework will lead to improvement in an already life-changing experience for many adult students.

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APPENDIX A:

E-MAIL INVITATION TO PARTICIPATE IN THE STUDY



Dear student

I am busy with my PhD in Higher Education. My study focuses on ways that we can improve the BML programme, by designing a quality learning environment that is equally inviting for all students irrespective the delivery mode that you chose (classes on Fridays, block sessions or attending online). Part of my study focuses on the **learning needs of students** in the learning environment. This will assist me in identifying the unique needs of the BML students and to customise the framework for our purposes. In order to achieve this goal I need your assistance.

The questionnaire will take between **15-20 MINUTES** to complete and all answers will be kept **ANONYMOUS and responses** will not be linked to a specific student. (I ask for your student numbers to enable me to follow up questions that I might have and also to identify who has already completed the questionnaire.)

The **QUESTIONNAIRE IS DIVIDED IN 7 SECTIONS**: demographic information, how you learn and then questions regarding the lecturers, the study material, other students, technology and yourself.

The questionnaire **WILL BE OPEN FOR TWO WEEKS, TILL 21 FEBRUARY 2009**. Please take 15-20 minutes of your time to assist me in developing an effective framework but also to improve the quality of the programme.

Please click on the following link to complete the questionnaire: *(the link was different for the three groups to differentiate between the three groups in terms of mode of delivery)*.

http://www.surveymonkey.com/s.aspx?sm=5SYsY6fFi2CajuV91sWL_2bw_3d_3d

If you have **ANY OTHER SUGGESTIONS**, comments or ideas please feel free to e-mail me. I will appreciate this in assisting me to interpret your learning needs better.

If you prefer a **HARD COPY** of the questionnaire, you can request that and I will post one in your post box at the BML Office. After completing the questionnaire you can just hand it in at the office. *(This paragraph was not included in the e-mail sent to the modular and online groups, because they are not on campus on a regular basis.)*

Regards

Liezel

Massyn

APPENDIX B:

EXAMPLE OF THE QUESTIONNAIRE



1. QUESTIONNAIRE ON LEARNING NEEDS OF BML STUDENTS

The PURPOSE of this questionnaire is to improve the way in which we teach the programme and to identify the learning needs of students who enrol in the BML.

This questionnaire will take approximately 15-20 MINUTES to complete.

Please complete the questionnaire as HONESTLY as possible.

Your responses will be kept **CONFIDENTIAL** and no information will be linked to a specific student during data analysis, interpretation of data or reporting thereof.

2. YOUR DEMOGRAPHIC INFORMATION:

2.1 YOUR STUDENT NUMBER (This will be kept confidential and the data analysis, interpretation or reporting will not be linked to a specific student.):

--	--	--	--	--	--	--	--	--	--

2.2 GENDER:

<input type="checkbox"/>	Male	<input type="checkbox"/>	Female
--------------------------	------	--------------------------	--------

2.3 HOME LANGUAGE (mother tongue):

<input type="checkbox"/>	Afrikaans	<input type="checkbox"/>	Sotho	<input type="checkbox"/>	Zulu
<input type="checkbox"/>	English	<input type="checkbox"/>	Xhosa	<input type="checkbox"/>	Tsonga
<input type="checkbox"/>	Ndebele	<input type="checkbox"/>	Swati	<input type="checkbox"/>	Tswana
<input type="checkbox"/>	Venda	<input type="checkbox"/>		<input type="checkbox"/>	
<input type="checkbox"/>	Other (please specify)				

2.4 AGE:

<input type="checkbox"/>	20-22	<input type="checkbox"/>	35-40	<input type="checkbox"/>	55-60
<input type="checkbox"/>	23-25	<input type="checkbox"/>	41-44	<input type="checkbox"/>	61 and older
<input type="checkbox"/>	26-30	<input type="checkbox"/>	45-50		
<input type="checkbox"/>	31-34	<input type="checkbox"/>	51-54		

2.5 IN WHICH CITY/TOWN AND PROVINCE DO YOU CURRENTLY LIVE? (IF IT IS OUTSIDE THE BORDERS OF SOUTH AFRICA, PLEASE INDICATE THE COUNTRY AS WELL):

ARE YOU:

	A face-to-face (classroom contact) student (attending classes on Friday afternoons)
	An online student (participating in chats and discussions)
	Part of the modular group (regular contact sessions with an online component)

2.6 WHY DID YOU SELECT THIS SPECIFIC MODE OF ATTENDANCE (e.g. attending face-to-face classes or online)?

2.8 DID YOU COMPLETE ANY OTHER FORMAL QUALIFICATION BEFORE ENROLLING IN THE BML?

	NO
	YES, please list your other qualification(s)
1	
2	
3	

2.9 WHY DID YOU ENROL IN THE BML PROGRAMME?

2.10 ARE YOU CURRENTLY BUSY WITH:

	The PDC		Mainly second-year modules
	Mainly first-year modules		Mainly third-year modules

2.11 I USUALLY OBTAIN THE FOLLOWING MARKS IN THE BML:

	Below 50%		Between 61-74%
	Between 51-60%		75% and above

2.12 WHAT IS YOUR JOB TITLE?

WHICH OF THE FOLLOWING FIELDS OF THE ECONOMY BEST DESCRIBE YOUR CURRENT EMPLOYER?

	Agriculture and Nature Conservation		Human and Social Sciences
	Culture and Arts		Law, Military and Security
	Business and Commerce		Health Sciences and Social Sciences
	Communication and Language		Physical, Mathematical, Computer and Life Sciences
	Education, Training and Development		Services
	Manufacturing, Engineering and Technology		Physical Planning and Construction
	Other, please specify		

2.13 THE FOLLOWING STATEMENT BEST DESCRIBES MY CURRENT POSITION:

	I am not currently in a management position
	I am in junior (entry level) management
	I am in middle management
	I am in senior management

3. HOW I LEARN...

The following statements relate to HOW YOU LEARN. Please note that there are no right and wrong answers. Just answer as honestly as possible. Your response must reflect how you typically learn in the BML.

3.1 PLEASE RATE THE FOLLOWING STATEMENTS:

		STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
3.1.1	I like to participate in class activities and discussions.				
3.1.2	The activities we do assist me in better understanding the work.				
3.1.3	We are usually actively involved in the BML sessions (classes/chats).				
3.1.4	When I do not agree with other students, I will engage with them.				
3.1.5	I am willing to change my opinion.				
3.1.6	It is important for me to understand how information relates to what I already know.				
3.1.7	I often use my previous experiences in the learning situation.				
3.1.8	When I learn, I like to think about my own life/workplace in order to help me to understand the theory.				
3.1.9	I learn a lot when others talk about their experiences in the workplace.				
3.1.10	I can see how the information that I have learnt apply to real life.				
3.1.11	I prefer it when the information that we learn is linked to real-life situations.				

PLEASE SELECT THE STATEMENT THAT BEST REFLECTS HOW YOU FEEL:

I am more motivated to learn if:

	I find the lecturer supportive
	I work in a group
	I know I can do well in a module
	I get personal satisfaction from the module

3.2 PLEASE SELECT THE STATEMENT THAT BEST REFLECTS YOUR VIEWPOINT:

It is important for me to:

	Perform well academically
	Understand what I learn, regardless of the marks I get

3.3 PLEASE RATE THE FOLLOWING STATEMENTS:

		STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
3.4.1	My learning is NOT affected by factors like the time of the session, rooms without air-conditioning or crowded classes.				
3.4.2	I DO NOT get discouraged when the workload is too high.				
3.4.3	It is easier for me to learn when I can see how the learning outcomes relate to what we do in class and the assignment.				
3.4.4	I will focus more on information that applies to my life.				
3.4.5	It is important for me to see its relevance before learning something.				
3.4.6	I have a need to learn.				
3.4.7	Although the lecturer tells us what the learning outcomes are, I will usually decide for myself what I would like to focus on.				
3.4.8	My attitude regarding various aspects has changed since I enrolled in the BML.				
3.4.9	I often think about the work that we do in the BML.				
3.4.10	I have a regular study schedule.				

3.4 I LIKE TO DISCUSS INFORMATION THAT WE HAVE COVERED IN THE BML WITH (SELECT ALL APPLICABLE ANSWERS):

	Other students
	My colleagues at work
	No one – I like to think about the information on my own
	Other, please specify

3.5 THE FOLLOWING STATEMENT DESCRIBES ME BEST:

	I get the assignments done with the least amount of effort to pass the module.
	I will make sure that I understand all the information, even if it means that I have to look for additional information or support to complete the assignment.

3.6 SELECT THE STATEMENT THAT BEST REFLECTS YOUR OPINION:

	Learning is usually boring and I just go through the motions to finish it.
	I usually find learning exciting and have a feeling of deep satisfaction when I engage in it.

3.7 WHEN I LEARN:

	I focus only on a specific piece of information.
	I try and find out how the information integrates with what I already know.

3.8 IN YOUR OPINION, WHAT MUST A LECTURER DO TO ASSIST YOU IN YOUR LEARNING?

3.9 SELECT THE STATEMENT THAT BEST DESCRIBES YOU:

I learn the most from:

	A lecture
	A discussion
	A real-life situation
	When I write an assignment

3.10 I PREFER THE FOLLOWING KIND OF ASSESSMENT:

	A closed book test where they ask facts that I can memorise
	A closed book test with a case study
	An assignment where I have to apply theory to a case study
	An assignment where I have to evaluate information
	Other, please specify:

3.11 WHEN I AM CONFRONTED WITH NEW INFORMATION IN THE BML, I...

	Prefer smaller chunks of information that flow logically
	All the information at once, whereafter I will organise it myself

3.12 HOW WOULD YOU LIKE TO RECEIVE FEEDBACK ON THE WORK THAT YOU HAVE DONE IN THE BML?

	Working through activities on my own that provide me with feedback on my performance
	Receiving feedback from the lecturer that specifically applies to me
	Receiving general feedback of the most common mistakes students made
	Receiving feedback from my fellow students
	Other, please specify:

3.13 PLEASE RATE THE FOLLOWING STATEMENTS:

		STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
3.14.1	When I enrolled in the BML I read every piece of information and did all activities. Now I only focus on what the lecturer says is important for assignments.				
3.14.2	If I have a lot of work to do, I only try to complete the assignments without looking at other activities in the study guide.				
3.14.3	When I study, I usually start at the beginning and work my way to the end.				
3.14.4	I find the feedback from fellow students irrelevant in completing assignments.				

4. THE LECTURERS IN THE BML

The following statements relate to THE LECTURERS IN THE BML. Please note that there are no right and wrong answers. Just answer as honestly as possible. Your response must reflect how you typically feel.

4.1 SELECT THE STATEMENT THAT DESCRIBES YOU BEST:

I prefer:

	it when the lecturer only focuses on the facts and gives us a lecture.
	to be engaged in class through activities and discussions.

4.2 RANK THE FOLLOWING ROLES OF A LECTURER, WHERE:

1 = most important, 2 = important, 3 = not that important, 4 = least important. (Only write down the number after the statement). I prefer the role of the lecturer to be that of:

An expert in the field with experience in the workplace.	
Someone that guides me through the learning process.	
A facilitator that just facilitates the learning process.	
A consultant/mentor that gives advice when I ask for it.	

4.3 RATE THE FOLLOWING STATEMENTS:

		STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
4.3.1	I will be just as successful in my studies without a lecturer.				
4.3.2	I have sufficient contact with the lecturers to assist me in the learning process.				
4.3.3	I learn better from lecturers that show an interest in me.				
4.3.4	The way the lecturer teaches in class, influences the way I study.				
4.3.5	I read the feedback from lecturers carefully and try to apply it.				
4.3.6	I receive enough feedback from the lecturers in the BML to complete my assignments successfully.				
4.3.7	The lecturers in the BML have high expectations of students.				
4.3.8	I try to make sure that I understand what the lecturer expects from us.				
4.3.9	The lecturers in the BML encourage us to work together.				

5. THE STUDY MATERIAL

The following statements relate to THE STUDY MATERIAL. Please note that there are no right and wrong answers. Just answer as honestly as possible. Your response must reflect how you typically use the study material in the BML.

5.1 WHEN I USE THE STUDY MATERIAL, I OFTEN USE THE FOLLOWING TO HELP ME ORGANISE THE MATERIAL:

	Table of contents
	Learning outcomes
	Headings
	Activities
	A mind map
	My own organizer
	Other, please specify

5.2. I PREFER THE FOLLOWING TYPE OF ACTIVITIES:

	5.2.1	Applying information to a real-life situation
	5.2.2	Discussing information with other students
	5.2.3	Doing research on a topic
	5.2.4	Keeping a diary/journal where I can record my own thoughts
	5.2.5	Listening to lectures
	5.2.6	Practicing skills
	5.2.7	Reading material
	5.2.8	Summarising information
	5.2.9	Watching video's
	5.2.10	Writing an essay on the topic

5.3 INDICATE HOW OFTEN YOU USE THE FOLLOWING:

	Never	Rarely	Occasionally	Often	Very often
Consulting the Internet					
Consulting the study guide for guidance					
Consulting with other students					
Consulting with the lecturer					

5.4 WHAT IS THE MOST USEFUL ASPECT OF THE STUDY GUIDES?

6. OTHER STUDENTS

The following statements are concerned with how you relate TO OTHER STUDENTS. Please note that there are no right and wrong answers. Just answer as honestly as possible. Your response must reflect how you typically feel.

6.1 PLEASE RATE THE FOLLOWING STATEMENTS:

		STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
6.1.1	I often discuss the work that we learn with students OUTSIDE the classroom/chats and discussions.				
6.1.2	I know all the students in my cohort group.				
6.1.3	I belong to a study group that we formed ourselves.				
6.1.4	I show respect to students from different backgrounds and with different levels of learning.				
6.1.5	I am open to consider ideas that are different from my own.				
6.1.6	I would like to collaborate with the students that study in other attendance modes, e.g. face-to-face or online.				

7. TECHNOLOGY

The following statements relate to TECHNOLOGY. Please note that there are no right and wrong answers. Just answer as honestly as possible. Your response must reflect how you typically use technology in the BML.

7.1 WOULD YOU REGARD YOURSELF AS:

	A beginner computer user
	An average computer user
	An advanced computer user

7.2 DO YOU HAVE ACCESS TO:

	YES	NO
A computer at work		
A computer at home		
Internet at work		
Internet at home		

7.3 I OWN THE FOLLOWING (MARK ALL THE OPTIONS THAT ARE APPLICABLE):

<input type="checkbox"/>	A cell phone
<input type="checkbox"/>	A computer/laptop
<input type="checkbox"/>	Internet access
<input type="checkbox"/>	Ipod or MP3 player
<input type="checkbox"/>	Digital camera
<input type="checkbox"/>	Printer at home
<input type="checkbox"/>	PDA/Smartphone (e.g. iPhone)
<input type="checkbox"/>	Portable game player (e.g. PSP)
<input type="checkbox"/>	Not one of the above

7.4 In my workplace the following technology is CRUCIAL to do my job:

<input type="checkbox"/>	A cell phone
<input type="checkbox"/>	A computer/laptop
<input type="checkbox"/>	Internet access (e.g. 3G/iBurst)
<input type="checkbox"/>	PDA or smartphone
<input type="checkbox"/>	E-mail
<input type="checkbox"/>	Video-conferencing
<input type="checkbox"/>	Skype
<input type="checkbox"/>	Not one of the above
<input type="checkbox"/>	Other, please specify

7.5 I (MARK ALL THE APPLICABLE OPTIONS):

<input type="checkbox"/>	Have a profile on Facebook/MySpace or similar site
<input type="checkbox"/>	Use e-mail to keep in touch
<input type="checkbox"/>	Visit chat rooms
<input type="checkbox"/>	Blog
<input type="checkbox"/>	Have an avatar on SecondLife
<input type="checkbox"/>	SMS to keep in touch
<input type="checkbox"/>	Play Nintendo Wii/Playstation or computer games on my computer
<input type="checkbox"/>	Skype
<input type="checkbox"/>	Use Flickr, del.icio.us, YouTube, Frappr, etc.
<input type="checkbox"/>	Not one of the above

I FEEL CONFIDENT

		Not at all confident	Slightly confident	Confident	Very confident
7.6.1	Working on a computer				
7.6.2	Finding relevant information on the Internet				
7.6.3	Delivering a presentation using PowerPoint				
7.6.4	Working on Excel				
7.6.5	Using a computer to complete my assignments				
7.6.6	Communicating with other people online				
7.6.7	Sending an e-mail				
7.6.8	Troubleshooting computer problems (solve problems with computers)				

7.7 I THINK THAT TECHNOLOGY CAN BE USED IN THE BML TO (SELECT ALL APPLICABLE OPTIONS):

	7.7.1	Provide information on modules
	7.7.2	Have up-to-date information
	7.7.3	Provide access to additional information
	7.7.4	Enhance communication between students
	7.7.5	Enhance communication between students and lecturers
	7.7.6	Improve my current learning
	7.7.7	Receive better feedback
	7.7.8	Have a more interactive learning experience

7.8 WHEN I HAVE TO READ MATERIAL ON THE INTERNET FOR STUDY PURPOSES, I WILL:

	Read it from the computer screen
	Print everything
	Only print the most important information

7.9 RATE THE FOLLOWING STATEMENTS:

		STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
7.9.1	One can survive in the workplace without using technology.				
7.9.2	One can survive in the workplace without knowing where to find information.				
7.9.3	I have avoided computers because they are unfamiliar and somewhat intimidating to me.				
7.9.4	I am not interested in learning more on how to use computers.				
7.9.5	I seldom use the Internet for assignments.				

8. YOURSELF

The following statements relate to YOURSELF. Please note that there are no right and wrong answers. Just answer as honestly as possible.

8.1 MARITAL STATUS:

<input type="checkbox"/>	Single	<input type="checkbox"/>	Married	<input type="checkbox"/>	Divorced
<input type="checkbox"/>	Engaged	<input type="checkbox"/>	Separated	<input type="checkbox"/>	Widow(er)
<input type="checkbox"/>	Other, please specify				

8.2 WHICH OF THE FOLLOWING OBLIGATIONS DO YOU HAVE (TICK ALL THAT IS APPLICABLE):

<input type="checkbox"/>	Maintaining a home	<input type="checkbox"/>	Community obligations
<input type="checkbox"/>	Work responsibilities	<input type="checkbox"/>	Supporting children financially
<input type="checkbox"/>	Family obligations		

8.3 DURING THE LAST FIVE YEARS OF MY LIFE, I HAVE EXPERIENCED THE FOLLOWING MAJOR CHANGES (MARK ALL THE APPLICABLE OPTIONS). ALSO INDICATE IF THESE EVENTS HAPPENED TO YOU BEFORE OR DURING YOUR STUDIES IN THE BML:

This happened to me		BEFORE STARTING THE BML	DURING MY STUDIES
	Death of a spouse		
	Got divorced		
	Marital separation		
	Death of a close family member/close friend		
	Major personal injury or illness		
	Got married		
	Birth of a child or gaining a new family member		
	Change in financial status		
	Change in responsibilities at work (e.g. promotion, retrenchment, started a new job)		
	Children left the house		

EVENT

OTHER SPECIFY:		
EVENT	BEFORE STARTING THE BML	DURING MY STUDIES

8.4 RATE THE FOLLOWING STATEMENTS:

		STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
8.4.1	I have experienced significant personal growth since I started the BML.				
8.4.2	Ultimately, I am responsible for what I get from the BML.				
8.4.3	In today's world one needs to learn new information/skills continuously.				
8.4.4	I see learning as something that I would be involved in for the rest of my life.				

THANK YOU FOR YOUR TIME AND EFFORT IN COMPLETING THIS QUESTIONNAIRE.

**APPENDIX C:
ANALYSIS OF THE QUESTIONNAIRE WITH REGARD TO THE CONSTRUCTS**

1. QUESTIONNAIRE ON LEARNING NEEDS OF BML STUDENTS

The PURPOSE of this questionnaire is to improve the way in which we teach the programme and to identify the learning needs of students who enrol in the BML. This questionnaire will take approximately 15-20 MINUTES to complete.

Please complete the questionnaire as HONESTLY as possible.

Your responses will be kept **CONFIDENTIAL** and no information will be linked to a specific student during data analysis, interpretation of data or reporting thereof.

2. YOUR DEMOGRAPHIC INFORMATION:

2.1 YOUR STUDENT NUMBER (This will be kept confidential and the data analysis, interpretation or reporting will not be linked to a specific student.):

--	--	--	--	--	--	--	--	--	--

2.2 GENDER:

	Male		Female
--	------	--	--------

2.3 HOME LANGUAGE (mother tongue):

	Afrikaans		Sotho		Zulu
	English		Xhosa		Tsonga
	Ndebele		Swati		Tswana
	Venda				
	Other (please specify)				

2.4 AGE:

	20-22		35-40		55-60
	23-25		41-44		61 and older
	26-30		45-50		
	31-34		51-54		

Providing complete information to participants, part of ethical considerations

To identify students that already completed questionnaire and correct identification to three modes of delivery

Profile of BML students.

Profile of BML students.

Profile of BML students. Definition of adult learners (chapter 4)/Developmental perspective of adult development

2.5 IN WHICH CITY/TOWN AND PROVINCE DO YOU CURRENTLY LIVE? (IF IT IS OUTSIDE THE BORDERS OF SOUTH AFRICA, PLEASE INDICATE THE COUNTRY AS WELL):

2.5 ARE YOU:

	A face-to-face (classroom contact) student (attending classes on Fridays)
	An online student (participating in chats and discussions)
	Part of the modular group (regular contact sessions with an online component)

2.6 WHY DID YOU SELECT THIS SPECIFIC MODE OF ATTENDANCE (e.g. attending face-to-face classes or online)?

2.7 DID YOU COMPLETE ANY OTHER FORMAL QUALIFICATION BEFORE ENROLLING IN THE BML?

	NO
	YES, please list your other qualification(s)
1	
2	
3	

2.8 WHY DID YOU ENROL IN THE BML PROGRAMME?

2.9 ARE YOU CURRENTLY BUSY WITH:

	The PDC		Mainly second-year modules
	Mainly first-year modules		Mainly third-year modules

2.10 I USUALLY OBTAIN THE FOLLOWING MARKS IN THE BML:

	Below 50%		Between 61-74%
	Between 51-60%		75% and above

Profile of BML students.

Feasibility of blended design.

Profile of BML students. Independent variable, used to verify students in three groups

Profile of BML students. Qualitative question – collecting information on strengths of various modes

Profile of students.

Profile of students. Identification of reasons for participation in formal learning. (Profile of adult learners). Link also with motivation and theory regarding deep and surface learning.

Identification of attitudes could be related to years in programme.

WHAT IS YOUR JOB TITLE?

Profile of BML students.

2.11 WHICH OF THE FOLLOWING FIELDS OF THE ECONOMY BEST DESCRIBE YOUR CURRENT EMPLOYER?

Profile of BML students.

	Agriculture and Nature Conservation		Human and Social Sciences
	Culture and Arts		Law, Military and Security
	Business and Commerce		Health Sciences and Social Sciences
	Communication and Language		Physical, Mathematical, Computer and Life Sciences
	Education, Training and Development		Services
	Manufacturing, Engineering and Technology		Physical Planning and Construction
	Other, please specify		

2.12 THE FOLLOWING STATEMENT BEST DESCRIBES MY CURRENT POSITION

Profile of BML students.

	I am not currently in a management position
	I am in junior (entry level) management
	I am in middle management
	I am in senior management

3. HOW I LEARN...

The following statements relate to HOW YOU LEARN. Please note that there are no right and wrong answers. Just answer as honestly as possible. Your response must reflect how you typically learn in the BML.

3.1 PLEASE RATE THE FOLLOWING STATEMENTS:

	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
3.1.1 I like to participate in class activities and discussions.				
3.1.2 The activities we do assist me in better understanding the work.				
3.1.3 We are usually actively involved in the BML sessions (classes/chats).				
3.1.4 When I do not agree with other students, I will engage with them.				
3.1.5 I am willing to change my opinion.				
3.1.6 It is important for me to understand how information relates to what I already know.				
3.1.7 I often use my previous experiences in the learning situation.				
3.1.8 When I learn, I like to think about my own life/workplace in order to help me to understand the theory.				
3.1.9 I learn a lot when others talk about their experiences in the workplace.				
3.1.10 I can see how the information that I have learnt apply to real life.				
3.1.11 I prefer it when the information that we learn is linked to real-life situations.				

Most of the questions in How I learn as well as the lecturer focus on the learning process variables and are related to Chapter 3 and 4, specifically the principles of effective learning.

All of these questions are related to cognitive presence.

Active learning/Collaboration

Active learning /Cognitive presence

Active learning

Active learning/ Collaboration

Transformative learning/

Transformative learning/Experiences (prior learning)/

Experiences (prior learning)

Experiences (application)/ reflection

Experiences (real life)

Experiences (real life)/reflection/ situated cognition

Experiences (real life)/situated cognition/reflection.

3.2 PLEASE SELECT THE STATEMENT THAT BEST REFLECTS HOW YOU FEEL:

I am more motivated to learn if:

<input type="checkbox"/>	I find the lecturer supportive
<input type="checkbox"/>	I work in a group
<input type="checkbox"/>	I know I can do well in a module
<input type="checkbox"/>	I get personal satisfaction from the module

Motivation/Andragogy

3.3 PLEASE SELECT THE STATEMENT THAT BEST REFLECTS YOUR VIEWPOINT:

It is important for me to:

<input type="checkbox"/>	Perform well academically
<input type="checkbox"/>	Understand what I learn, regardless of the marks I get

Motivation

3.4 PLEASE RATE THE FOLLOWING STATEMENTS:

	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
3.4.1 My learning is NOT affected by factors like the time of the session, rooms without air-conditioning or crowded classes.				
3.4.2 I DO NOT get discouraged when the workload is too high.				
3.4.3 It is easier for me to learn when I can see how the learning outcomes relate to what we do in class and the assignment.				
3.4.4 I will focus more on information that applies to my life.				
3.4.5 It is important for me to see its relevance before learning something.				
3.4.6 I have a need to learn.				
3.4.7 Although the lecturer tells us what the learning outcomes are, I will usually decide for myself what I would like to focus on.				
3.4.8 My attitude regarding various aspects has changed since I enrolled in the BML.				
3.4.9 I often think about the work that we do in the BML.				
3.4.10 I have a regular study schedule.				

Motivation

High expectations

Constructive alignment

Self-directed learning

Self-directed learning

Self-directed learning

(motivation) Garrison

Self-directed learning

Transformative learning
(premise reflection)

Reflection/cognitive presence

Time on task

3.5 I LIKE TO DISCUSS INFORMATION THAT WE HAVE COVERED IN THE BML WITH (SELECT ALL APPLICABLE ANSWERS):

<input type="checkbox"/>	Other students
<input type="checkbox"/>	My colleagues at work
<input type="checkbox"/>	No one - I like to think about the information on my own
<input type="checkbox"/>	Other, please specify

3.6 THE FOLLOWING STATEMENT DESCRIBES ME BEST:

<input type="checkbox"/>	I get the assignments done with the least amount of effort to pass the module.
<input type="checkbox"/>	I will make sure that I understand all the information, even if it means that I have to look for additional information or support to complete the assignment.

3.7 SELECT THE STATEMENT THAT BEST REFLECTS YOUR OPINION:

<input type="checkbox"/>	Learning is usually boring and I just go through the motions to finish it.
<input type="checkbox"/>	I usually find learning exciting and have a feeling of deep satisfaction when I engage in it.

3.8 WHEN I LEARN:

<input type="checkbox"/>	I focus only on a specific piece of information.
<input type="checkbox"/>	I try and find out how the information integrates with what I already know.

3.9 IN YOUR OPINION, WHAT MUST A LECTURER DO TO ASSIST YOU IN YOUR LEARNING?

3.10 SELECT THE STATEMENT THAT BEST DESCRIBES YOU:

I learn the most from:

<input type="checkbox"/>	A lecture
<input type="checkbox"/>	A discussion
<input type="checkbox"/>	A real-life situation
<input type="checkbox"/>	When I write an assignment

Collaboration/Community centered

Deep and surface learning

Time on task

Deep and surface learning/motivation

Deep and surface learning

Deep and surface learning

Teacher/student perspective

Situated cognition

3.11 I PREFER THE FOLLOWING KIND OF ASSESSMENT:

	A closed book test where they ask facts that I can memorise
	A closed book test with a case study
	An assignment where I have to apply theory to a case study
	An assignment where I have to evaluate information
	Other, please specify:

Higher-order thinking

3.12 WHEN I AM CONFRONTED WITH NEW INFORMATION IN THE BML, I...

	Prefer smaller chunks of information that flow logically
	All the information at once, whereafter I will organise it myself

Study material preference

3.13 HOW WOULD YOU LIKE TO RECEIVE FEEDBACK ON THE WORK THAT YOU HAVE DONE IN THE BML?

	Working through activities on my own that provide me with feedback on my performance
	Receiving feedback from the lecturer that specifically applies to me
	Receiving general feedback of the most common mistakes students made
	Receiving feedback from my fellow students
	Other, please specify:

Feedback

3.14 PLEASE RATE THE FOLLOWING STATEMENTS:

	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
3.14.1 When I enrolled in the BML I read every piece of information and did all activities. Now I only focus on what the lecturer says is important for assignments.				
3.14.2 If I have a lot of work to do, I only try to complete the assignments without looking at other activities in the study guide.				
3.14.3 When I study, I usually start at the beginning and work my way to the end.				
3.14.4 I find the feedback from fellow students irrelevant in completing assignments.				

Deep and surface learning

Deep and surface learning

Deep and surface learning

Feedback

4. THE LECTURERS IN THE BML

The following statements relate to THE LECTURERS IN THE BML. Please note that there are no right and wrong answers. Just answer as honestly as possible. Your response must reflect how you typically feel.

4.1 SELECT THE STATEMENT THAT DESCRIBES YOU BEST:

I prefer:

<input type="checkbox"/>	it when the lecturer only focuses on the facts and gives us a lecture.
<input type="checkbox"/>	to be engaged in class through activities and discussions.

4.2 RANK THE FOLLOWING ROLES OF A LECTURER, WHERE:

1 = most important, 2 = important, 3 = not that important, 4 = least important.

(Only write down the number after the statement).

I prefer the role of the lecturer to be that of:

4.2.1 An expert in the field with experience in the workplace and someone that coaches me.	<input type="text"/>
4.2.2 Someone that guides me through the learning process.	<input type="text"/>
4.2.3 A facilitator that just facilitates the learning process.	<input type="text"/>
4.2.4 A consultant/ mentor that gives advice when I ask for it.	<input type="text"/>

Most of the questions are related to the principles of effective teaching and learning (Chapter 3)

Teacher/Student centred

Self-directed learning –
Grow's learning taxonomy

Teacher/Student centred

4.3 RATE THE FOLLOWING STATEMENTS:

All these questions are related to teaching and learning principles (Chapter 3)

	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
4.3.1 I will be just as successful in my studies without a lecturer.				
4.3.2 I have sufficient contact with the lecturers to assist me in the learning process.				
4.3.3 I learn better from lecturers that show an interest in me.				
4.3.4 The way the lecturer teaches in class, influences the way I study.				
4.3.5 I read the feedback from lecturers carefully and try to apply it.				
4.3.6 I receive enough feedback from the lecturers in the BML to complete my assignments successfully.				
4.3.7 The lecturers in the BML have high expectations of students.				
4.3.8 I try to make sure that I understand what the lecturer expects from us.				
4.3.9 The lecturers in the BML encourage us to work together.				

Teacher presence

Contact between teacher and student/Teacher presence

Teacher presence

Teacher presence

Feedback

Feedback

High expectations

High Expectations

Cooperation

5. THE STUDY MATERIAL

The following statements relate to THE STUDY MATERIAL. Please note that there are no right and wrong answers. Just answer as honestly as possible. Your response must reflect how you typically use the study material in the BML.

5.1 WHEN I USE THE STUDY MATERIAL, I OFTEN USE THE FOLLOWING TO HELP ME ORGANIZE THE MATERIAL:

	Table of contents
	Learning outcomes
	Headings
	Activities
	A mind map
	My own organiser
	Other, please specify

5.2 I PREFER THE FOLLOWING TYPE OF ACTIVITIES:

5.2.1	Applying information to a real-life situation <i>Experiences real life/situated cognition</i>	5.2.6	Practicing skills
5.2.2	Discussing information with other students <i>Collaboration</i>	5.2.7	Reading material
5.2.3	Doing research on a topic	5.2.8	Summarising information
5.2.4	Keeping a diary/journal where I can record my own thoughts	5.2.9	Watching video's
5.2.5	Listening to lectures	5.2.10	Writing an essay on the topic

5.3 INDICATE HOW OFTEN YOU USE THE FOLLOWING:

	Never	Rarely	Occasionally	Often	Very often
Consulting the Internet					
Consulting the study guide for guidance					
Consulting with other students					
Consulting with the lecturer					

Questions in this part of the questionnaire focus on Chapter 2

Usefulness of study material (Chapter 2)

Preference to activities in student material

Learning spaces

Interaction with resources

5.4 WHAT IS THE MOST USEFUL ASPECT OF THE STUDY GUIDES?

Usefulness of study material

6. OTHER STUDENTS

The following statements are concerned with how you relate TO OTHER STUDENTS. Please note that there are no right and wrong answers. Just answer as honestly as possible. Your response must reflect how you typically feel.

6. PLEASE RATE THE FOLLOWING STATEMENTS:

	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
6.1.1 I often discuss the work that we learn with students OUTSIDE the classroom/chats and discussions.				
6.1.2 I know all the students in my cohort group.				
6.1.3 I belong to a study group that we formed ourselves.				
6.1.4 I show respect to students from different backgrounds and with different levels of learning.				
6.1.5 I am open to consider ideas that are different from my own.				
6.1.6 I would like to collaborate with the students that study in other attendance modes, e.g. face-to-face or online.				

Collaboration/social presence

Cooperation/Social presence

Cooperation/Social presence

Diversity/social presence

Transformative learning/social presence

Cooperation/blended design

7. TECHNOLOGY

The following statements relate to TECHNOLOGY. Please note that there are no right and wrong answers. Just answer as honestly as possible. Your response must reflect how you typically use technology in the BML.

7.1 WOULD YOU REGARD YOURSELF AS:

<input type="checkbox"/>	A beginner computer user
<input type="checkbox"/>	An average computer user
<input type="checkbox"/>	An advanced computer user

7.2 DO YOU HAVE ACCESS TO:

	YES	NO
A computer at work		
A computer at home		
Internet at work		
Internet at home		

7.3 I OWN THE FOLLOWING (MARK ALL THE OPTIONS THAT ARE APPLICABLE):

<input type="checkbox"/>	A cell phone
<input type="checkbox"/>	A computer/lap top
<input type="checkbox"/>	Internet access
<input type="checkbox"/>	Ipod or MP3 player
<input type="checkbox"/>	Digital camera
<input type="checkbox"/>	Printer at home
<input type="checkbox"/>	PDA/Smartphone (e.g. iPhone)
<input type="checkbox"/>	Portable game player (e.g. PSP)
<input type="checkbox"/>	Not one of the above

Use of technology
(Chapter 2)

Feasibility of blended
design

Access to technology
(Chapter 2)

Feasibility of blended
design

Access to technology
(Chapter 2)

Feasibility of blended
design

7.4 In my workplace the following technology is CRUCIAL to do my job:

	A cell phone
	A computer/lap top
	Internet access (e.g. 3G/iBurst)
	PDA or SMARTPHONE
	E-mail
	Video-conferencing
	Skype
	Not one of the above
	Other, please specify

Use of technology at work (Chapter 2)

7.5 I (MARK ALL THE APPLICABLE OPTIONS):

	Have a profile on Facebook/MySpace or similar site
	Use e-mail to keep in touch
	Visit chat rooms
	Blog
	Have an avatar on SecondLife
	SMS to keep in touch
	Play Nintendo Wii/Playstation or computer games on my computer
	Skype
	Use Flickr, del.icio.us, YouTube, Frappr, etc.
	Not one of the above

Current usage of technology (Chapter 2)

7.6 I FEEL CONFIDENT

	Not at all confident	Slightly confident	Confident	Very confident
7.6.1 Working on a computer				
7.6.2 Finding relevant information on the Internet				
7.6.3 Delivering a presentation using PowerPoint				
7.6.4 Working on Excel				
7.6.5 Using a computer to complete my assignments				
7.6.6 Communicating with other people online				
7.6.7 Sending an e-mail				
7.6.8 Troubleshooting computer problems (solve problems with computers)				

7.7 I THINK THAT TECHNOLOGY CAN BE USED IN THE BML TO (SELECT ALL APPLICABLE OPTIONS):

7.7.1	Provide information on modules	7.7.5	Enhance communication between students and lecturers
7.7.2	Have up-to-date information	7.7.6	Improve my current learning
7.7.3	Provide access to additional information	7.7.7	Receive better feedback
7.7.4	Enhance communication between students	7.7.8	Have a more interactive learning experience

7.8 WHEN I HAVE TO READ MATERIAL ON THE INTERNET FOR STUDY PURPOSES, I WILL:

<input type="checkbox"/>	Read it from the computer screen
<input type="checkbox"/>	Print everything
<input type="checkbox"/>	Only print the most important information

Usage of technology work (Chapter 2)

Attitude towards technology (Chapter 2)

Feasibility of blended design

Current usage of technology (Chapter 2)

7.9 RATE THE FOLLOWING STATEMENTS:

	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
7.9.1 One can survive in the workplace without using technology.				
7.9.2 One can survive in the workplace without knowing where to find information.				
7.9.3 I have avoided computers because they are unfamiliar and somewhat intimidating to me.				
7.9.4 I am not interested in learning more on how to use computers.				
7.9.5 I seldom use the Internet for assignments.				

8. YOURSELF

The following statements relate to YOURSELF. Please note that there are no right and wrong answers. Just answer as honestly as possible.

8.1 MARITAL STATUS:

	Single		Married		Divorced
	Engaged		Separated		Widow(er)
	Other, please specify				

8.2 WHICH OF THE FOLLOWING OBLIGATIONS DO YOU HAVE (TICK ALL THAT IS APPLICABLE):

	Maintaining a home		Community obligations
	Work responsibilities		Supporting children financially
	Family obligations		

Attitude to technology
(chapter 2)

Feasibility of blended
design

Profile of
students/Transitions in
adult life (Chapter 4)

Definition of adult
learners (Chapter 4)

8.3 DURING THE LAST FIVE YEARS OF MY LIFE, I HAVE EXPERIENCED THE FOLLOWING MAJOR CHANGES (MARK ALL THE APPLICABLE OPTIONS). ALSO INDICATE IF THESE EVENTS HAPPENED TO YOU BEFORE OR DURING YOUR STUDIES IN THE BML:

Transitions in adult life (Chapter 4)/Contextual and transitional perspective of adult development

This happened to me		BEFORE STARTING THE BML	DURING MY STUDIES
	Death of a spouse		
	Got divorced		
	Marital separation		
	Death of a close family member/close friend		
	Major personal injury or illness		
	Got married		
	Birth of a child or gaining a new family member		
	Change in financial status		
	Change in responsibilities at work (e.g. promotion, retrenchment, started a new job)		
	Children left the house		

OTHER, PLEASE SPECIFY

EVENT	BEFORE STARTING THE BML	DURING MY STUDIES

8.4 RATE THE FOLLOWING STATEMENTS:

	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
8.4.1 I have experienced significant personal growth since I started the BML.				
8.4.2 Ultimately, I am responsible for what I get from the BML.				
8.4.3 In today's world one needs to learn new information/skills continuously.				
8.4.4 I see learning as something that I would be involved in for the rest of my life.				

Transformative learning/ personal development (Chapter 4)

Andragogy-(Chapter 4)

Lifelong learning

Lifelong learning

THANK YOU FOR YOUR TIME AND EFFORT IN COMPLETING THIS QUESTIONNAIRE.

APPENDIX D:
LETTER OF PERMISSION





Bestuurskool / School of Management
Fakulteit Ekonomiese en Bestuurswetenskappe /
Faculty of Economic and Management Sciences

21 April 2009

TO WHOM IT MAY CONCERN

Herewith a confirmation that the School of Management approved the use of BML data for the PHD titled, **A framework for learning design in different modes of delivery in an adult learning programme**, conducted by Liezel Massyn. In addition, the Faculty Committee also approved the use of BML data for the above study at a meeting held on 19 March 2009.

Yours sincerely

Prof. H. van Zyl
DIRECTOR: SCHOOL OF MANAGEMENT



APPENDIX E:

POWERPOINT PRESENTATION USED IN SECOND VALIDATION MEETING



VALIDATION MEETING

15 MAY 2009

PURPOSE OF THE VALIDATION MEETING

- Evaluate the proposed framework in order to adapt and refine the current framework
- Enhance the internal validity or credibility as well as the external validity and transferability of the framework

OBJECTIVES

- Evaluate key aspects of the framework
- Test participants opinions' regarding the proposed framework
- Identify possible shortcomings
- Obtain suggestions for improvement

BRIEF OVERVIEW OF STUDY

Framework for learning design in different modes of delivery in an adult learning programme

- Learning design: application of a educational framework (effective teaching and learning), for a specific target group (adult learners) and in a specific context (different modes of delivery)
- Can be applied on various levels (programme, module, lesson level)
- Mode of delivery: way in which the student has contact with the lecturer the majority of the time during their studies (f2f, online, modular)

PROCESS

- Literature review:
 - ▣ Forces of change in contemporary higher education, especially the influence of technology
 - ▣ Perspectives on effective teaching and learning in different modes of delivery
 - ▣ Contribution of adult learning to the learning environment

- Literature review informed the construction of the questionnaire
- Send to all current students in the BML programme in all three modes of delivery
- AIM: Does the BML programme (offered in different modes of delivery) (a) comply with the principles of effective learning design and (b) how can possible shortcomings be addressed/enhanced?
- Summary of findings (additional document)

SHORTCOMINGS IDENTIFIED BY RESPONDENTS

PROPOSED FRAMEWORK

- More integrated learning design for different modes of deliveries
- MAIN CRITICISM: No alignment between different modes of deliveries (rapid expansion)
- Proposed framework lies on two levels
 - Programme level
 - Module level

PROGRAMME LEVEL

- Three silos in terms of mode of delivery
- Alignment: needs to bring them together
- How: Implementation of blended learning

	TRADITIONAL (0% ONLINE)	WEB-FACILITATED (1-29% ONLINE)	BLENDED (30-79% ONLINE)	ONLINE (80%+ ONLINE)
CURRENT	Face-to-face Modular			Online
PROPOSED		Face-to-face Modular	Online	

- Address shortcomings 1-6, 8 and 13

Contact hours

- "If I compare the hours that I put in on the online option to the hours that the people who does classes put in (modular mode), it does not quite compare. When attending classes, the guys get their assignments and do most of it during the week that they attend. Some of them say that they go back home, put in some time and have all their assignments in by the second week of attending. On the online option, I have had classes two evenings a week this year. Some of the lecturers request assignments and discussions to be handed in for every class. This really takes up a lot of time. I can understand that the lecturers need more information to ensure that we know what we've been taught, but it impacts severely on an already hectic schedule."

Contact hours

Mode of delivery	Current	Proposed
Face-to-face	5.25 hours per week x 12 weeks per semester = 63 hours contact per semester (NLH=420)	63 hours + 12 hours asynchronous contact = 75 hours (16% online) 42 CREDITS/SEMESTER (5 years)
Modular	32 hours per week x 2 block sessions per semester = 64 hours contact per semester (NLH=420)	48 hours + 27 hours f2f contact = 75 hours (64% online) 42 CREDITS/SEMESTER (5 years)
Online	2 hours synchronous sessions per week + 2 hours asynchronous sessions per week x 12 weeks = 48 hours synchronous and asynchronous contact per semester (NLH=350)	64 hours + 12 hours asynchronous contact = 76 hours (16% online) 35 + 20 = 54 CREDITS/SEMESTER (4 years)

Assessment

Mode of delivery	Formative assessment	Summative assessment
Online	50% synchronous and asynchronous communication*	50% assignment
Face-to-face	50% (30% class assessment and 20% asynchronous communication)	50% assignment
Modular	50% (30% class assessment and 20% asynchronous communication)	50% assignment

* Depending on the module, this could also consist of assessments that take place in class.

MODULE LEVEL

- Implementation will rely on participation of individual lecturers (training and support important)
- Remaining shortcomings (7, 9-12) address 2 aspects:
 - Development of independence and control (development) (shortcomings 7, 9, 10)
 - #7: Development of independence and control
 - #9: Modular group – not about development
 - #10: Self-directed learning encouraged
 - Redesigning the learning material to reflect more student-centred approach (shortcomings 11-12)

Development of independence

- Need student to be more involved in the learning process
- Process model is suggested (Knowles 2005)
 - Learner decides on learning goals, activities and learning material
 - Learning contract

- Process model is developed through incorporation of guiding principles
- Learning design process
 - ▣ See p.2 Learning design process

LEARNING CONTRACT FOR				
MODULE		UNIT		
Learning outcomes	Learning activities or strategies	Learning resources	Evidence of accomplishment (Assessment)	Criteria and means for validating evidence (Assessment criteria/rubric)

Redesign of study material

- Prepackaged material does not support student-centred approach
- Addressed through learning design process
- Move away from prepackaged learning material to electronic material
- Have a database of information available (LMS)
- Through learning contract identify most appropriate learning materials and activities

- Move away from bound paper-based copies to online materials
- Use of folders with dividers
- After learning contract is finalised, student will print most appropriate material
 - Flexibility
 - Individualised learning
 - Independence and control to student (student-centred)
- Only print material needed according to learning contract

Terminology

- **Andragogy:** 6 assumptions of adult learners (relevance of learning/need to know, readiness to learn, self-concept of adult, prior experiences, life-centred, internal motivation to learn)
- **Self-directed learning:** The process where adult learners take control of their own learning by identifying their learning needs, deciding on their learning goals, recognising the appropriate resources, implementing learning methods and strategies, and evaluating their progress

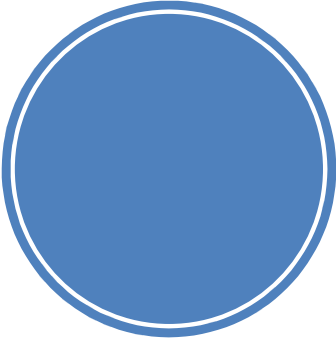
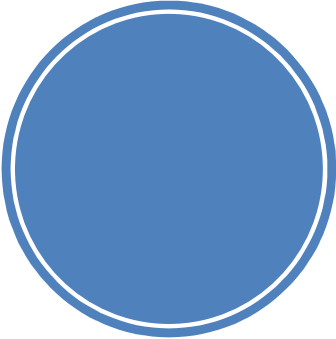
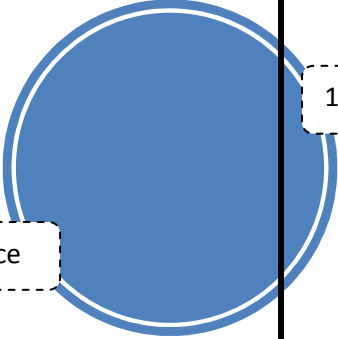
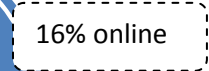
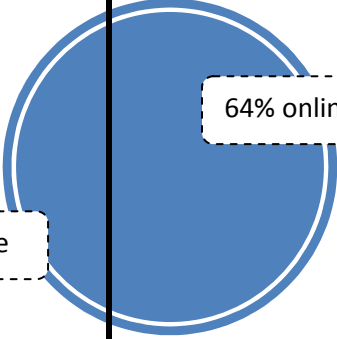
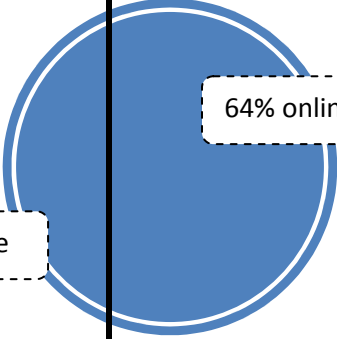
- **Transformation learning:** The process of using a prior interpretation to construe a new or a revised interpretation of the meaning of one's experience in order to guide future action (experience, critical reflection, reflective discourse and action)
- **Experiential learning:** Construct knowledge through reflection on their experiences and interactions with others to create deep learning (use experiences, reflection, evaluation and application)
- **Situated cognition:** Submerging adults in real-world experiences and indicating relevance of learning to real world

APPENDIX F:

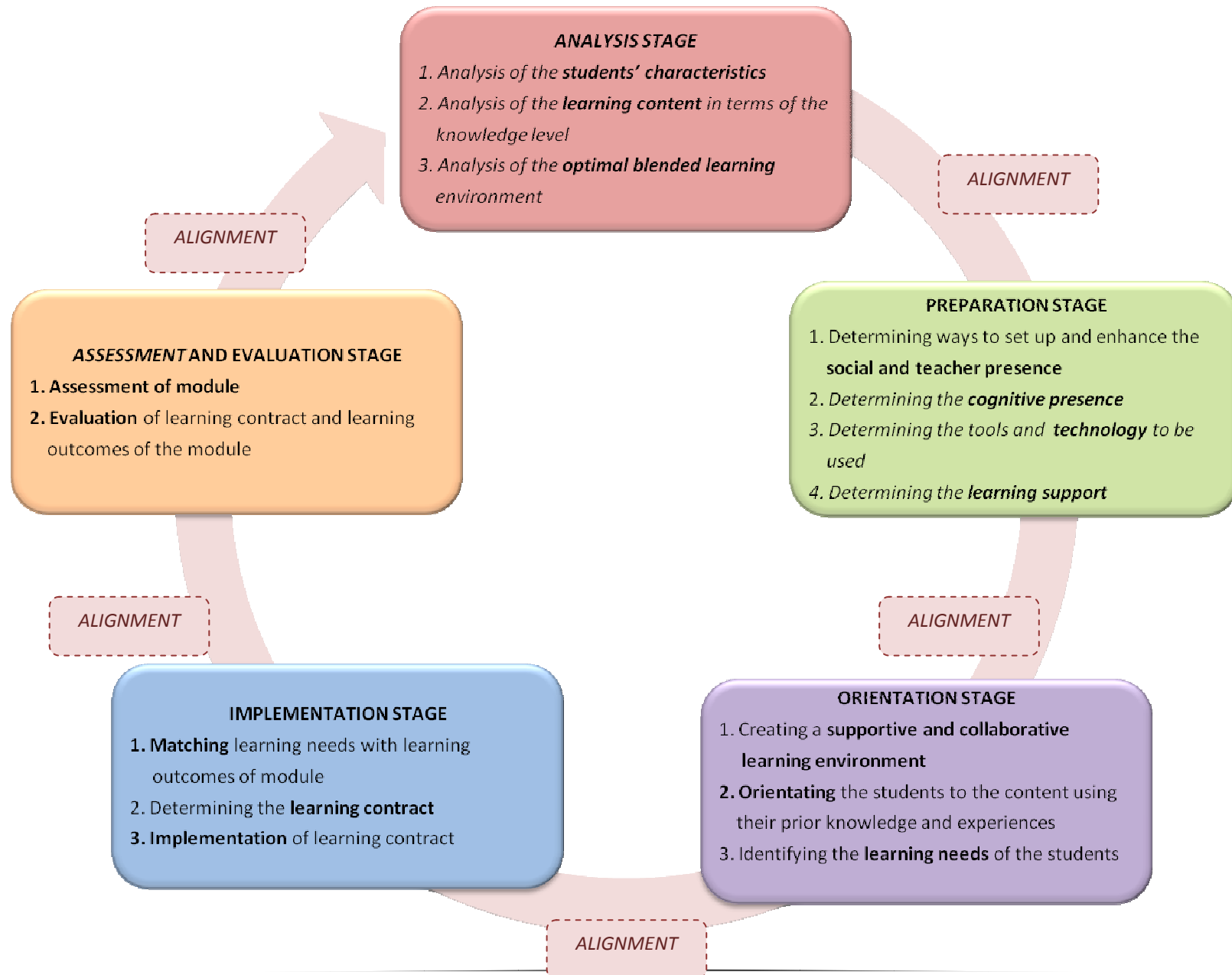
HAND-OUT OF LEARNING DESIGN USED IN SECOND VALIDATION MEETING



PROPOSED LEARNING DESIGN ON PROGRAMME LEVEL

	FACE-TO-FACE LEARNING ENVIRONMENT	COMPUTER-MEDIATED LEARNING ENVIRONMENT
CURRENT	Face-to-face and modular mode 	Online mode 
PROPOSED	Face-to-face and modular mode  <div style="border: 1px dashed black; border-radius: 10px; padding: 2px; display: inline-block;">84% face-to-face</div>	 <div style="border: 1px dashed black; border-radius: 10px; padding: 2px; display: inline-block;">16% online</div>
	 <div style="border: 1px dashed black; border-radius: 10px; padding: 2px; display: inline-block;">36% face-to-face</div>	Online mode  <div style="border: 1px dashed black; border-radius: 10px; padding: 2px; display: inline-block;">64% online</div>

LEARNING DESIGN ON A MODULE LEVEL



Source: Compiled by the researcher from Huang and Zhou (2006:303), Knowles *et al.* (2005:115) and Table 3.4 and 4.9.

Proposed learning design process for adults in the BML programme

APPENDIX G:

**HAND-OUT OF SHORTCOMINGS IN THE BML PROGRAMME USED IN SECOND
VALIDATION MEETING**

SUMMARY OF FINDINGS

GUIDING PRINCIPLES	SHORTCOMING	PROPOSAL
LEARNING DESIGN		
TEACHER PRESENCE		
#1: Encourage contact between students and lecturers.	#1: An uneven number of contact hours. (<u>online group</u> has fewer contact hours than the face-to-face and modular groups.)	Address on programme level. Use blended learning. Online to include f2f contact (1 week/semester). Modular and F2F to include online contact (1 hour/week).
	#2: <u>Online group</u> reported insufficient contact with lecturers.	Address on programme level. Compulsory f2f session. Scheduling will be important: 1. Based on need of module. 2. Must have at least a session with all the lecturers before going online. 3. More “difficult” modules – present f2f.
#2: Acknowledge students’ characteristics and their different ways of learning.		
#3: Acknowledge the changing role of the teacher in the learning process.		
SOCIAL PRESENCE		
#4: Encourage cooperation and collaboration among students.	#3: <u>Online group</u> does not have a strong social presence (does not use study groups or know the members of cohort group).	Address on programme level. Compulsory f2f session. Easier to develop social presence f2f than online (Graham 2006:18). Focus on a session where interaction, getting to know each other is encouraged, formation of study groups. Need to create the learning space for social presence to be developed and enhanced.
COGNITIVE PRESENCE		
#5: Implement active learning strategies in the learning process.		
#6: Facilitate higher-order learning and thinking (high expectations).		
#7: Provide opportunities for reflection in the learning process.	#4: Reflection is lacking in the <u>face-to-face</u> and <u>modular groups</u> (due to the amount of formative assessment and the nature of their communication channel, viz. oral communication).	Address on programme level. Incorporation of asynchronous communication will create an environment for the development of higher-order cognitive learning, critical thinking and reflection.

GUIDING PRINCIPLES	SHORTCOMING	PROPOSAL
#8: Ensure appropriate assessment and feedback to students.	#5: Incongruence in assessment strategy (more structured at online 50% formative mark), not as formalised in other modes. #6: <u>Online group</u> reported insufficient feedback and lack of prompt feedback.	Address on programme level. Introduce a 50% compulsory formative mark for all the groups. Address on programme level. Provision of formative feedback must be enforced and given within a one-week time frame.
#9: Develop independence and control to the learners in the learning process.	#7: There are concerns regarding the development of independence and the control that the students have in the teaching and learning situation.	Addressed through learning design process.
#10: Alignment of learning elements (including the learning environment and resources).	#8: Alignment lacking between modes of delivery especially on programme level.	Address on programme level.
ADULT LEARNING PRINCIPLES		
ADULT LEARNER LENS		
#11: Learning design for adult learners must make provision for the characteristics of adult learners as described by andragogy.		
#12: Adults' life stages and life events should also be considered in the design of learning for adults.		
#13: In designing learning for adults, the overall goal is development.	#9: From the qualitative responses it was observed that the primary reason for enrolment for the <u>modular group</u> was not personal growth but just to obtain a qualification.	Addressed through learning design process.
CONTEXT LENS		
#14: The learning environment should reflect affective-social (social presence) and intellectual dimensions (cognitive presence) needed to create an optimal learning climate.	Link with shortcoming #3 and #4-#8.	
#15: The learning context (environment) must reflect situated cognition (submerging adults in real-world experiences and indicating the relevance of the learning to the real world).		
PROCESS LENS		
#16: The learning situation must encourage self-directed learning principles.	#10: Although the responses reflected a positive evaluation, self-directed learning in terms of developing independence could be enhanced.	Addressed through learning design process.
#17: Experiential learning and transformation learning advocate the inclusion of prior experiences and reflection in the learning design for adults.		

GUIDING PRINCIPLES	SHORTCOMING	PROPOSAL
TEACHER LENS		
#18: The learning environment should reflect a student-centred, self-directed learning environment.	#11: From the evaluation of the study material it was observed that the study material did not support student-centred and self-directed learning (prepackaged).	Addressed through learning design process. Move away from prepackaged learning material. Have a database of information available (LMS). Through learning contract identify most appropriate learning materials and activities. Improve the quality of the copies and a more professional look.
#19: The roles of the teacher in the learning design for adults are flexible and change continuously to accommodate the growth of the individual from dependent to self-directed.		
STUDY MATERIAL		
A breakdown in courses and content, with content presented in smaller chunks. This will make provision for the reusability of content and greater involvement from learners.	#12: Respondents felt that the quality of the copies and the lay-out of the study guides could improve.	Move away from bound paper-based copies to online materials. Use of folders with dividers. Only print material needed according to learning contract.
TECHNOLOGY		
Address shortcomings of f2f mode and support the development of appropriate skills needed to be effective in new environment.	#13: Computer competence or technological literacy is an important part of the overall outcomes of the programme. Only the online students are submerged in the use of technology, while the <u>face-to-face</u> and <u>modular</u> groups have very little practice regarding the development of their computer literacy in the programme.	Address on programme level. Blended learning will provide exposure to computers for all modes of delivery.

CD-ROM WITH NUMERICAL DATA OF CHAPTER 6

Table for Figure 6.1: Geographical distribution of students according to mode of delivery

Question 2.5	F2F		ONLINE		MODULAR		TOTAL	
	N	%	N	%	N	%	N	%
Free State	99	95	6	7	9	36	114	54
Gauteng	0	0	39	47	2	8	41	19
KZN	0	0	14	17	6	24	20	9
Western Cape	0	0	9	11	1	4	10	5
Northern Cape	2	2	3	4	3	12	8	4
Other provinces	0	0	5	6	4	16	9	4
North West	0	0	1	1.2	3	12	4	2
Mpumalanga	0	0	2	2.4	0	0	2	1
Eastern Cape	0	0	2	2.4	0	0	2	1
Limpopo	0	0	0	0	1	4	1	0
Other countries	3	3	7	8	0	0	10	5
Lesotho	3	3	3	4	0	0	6	3
Kenya	0	0	2	2	0	0	2	1
Tanzania	0	0	1	1	0	0	1	0.5
Quatar	0	0	1	1	0	0	1	0.5
TOTAL	104	100	83	100	25	100	212	100
Frequency Missing	19		9		1		29	

*Not all percentages add up to 100% due to rounding

Table for Figure 6.2: Age distribution according to mode of delivery

Question 2.4	FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
	N	%	N	%	N	%	N	%
20-22	3	2	0	0	0	0	3	1.2
23-25	2	2	1	1.1	0	0	3	1.2
26-30	11	9	6	6.5	0	0	17	7.1
31-34	22	18	16	17.4	6	23.1	44	18.3
35-40	35	28	27	29.4	8	30.8	70	29.1
41-44	28	23	16	17.4	5	19.2	49	20.3
45-50	18	15	14	15.2	7	26.9	39	16.2
51-54	3	2	6	6.5	0	0	9	3.7
55-60	1	1	5	5.4	0	0	6	2.5
61 and older	0	0	1	1.1	0	0	1	0.4
TOTAL POPULATION	123	100	92	100	26	100	241	100
Frequency missing	0		0		0		0	

Table for Figure 6.3: Responsibilities according to mode of delivery

	FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
	N(123)	%	N(92)	%	N(26)	%	N(241)	%
Work responsibilities	99	81	75	82	22	85	196	81
Family obligations	92	75	75	82	18	69	185	77
Maintaining a home	90	73	66	72	18	69	174	72
Community obligations	50	41	48	52	10	39	108	45
Supporting children financially	66	54	55	60	13	50	134	56

Table for Figure 6.4: Life events students are confronted with according to mode of delivery

	FACE-TO-FACE (N=123)			ONLINE (N=92)			MODULAR (N=26)			TOTAL (N=241)		
	Before	During	Total	Before	During	Total	Before	During	Total	Before	During	Total
Death of a spouse	0	1	1	3	2	5	0	0	0	3	3	6
%	0	1	1	3	2	5	0	0	0	1	1	2
Got divorced	8	3	11	3	1	4	0	1	1	11	5	16
%	7	2.4	9	3	1	4	0	4	4	5	2	7
Marital separation	1	2	3	1	8	9	0	2	2	2	12	14
%	1	2	2	1	9	10	0	8	8	1	5	6
Death of a close family member/friend	22	26	48	13	43	56	4	5	9	39	74	113
%	18	21	39	14	47	61	15	19	35	16	31	47
Major personal injury or illness	4	6	10	4	0	22	1	2	3	9	26	35
%	3	5	8	4	0	24	4	8	12	4	11	15
Got married	10	6	16	5	4	9	2	0	2	17	4	27
%	8	5	13	5	4	10	8	0	8	7	2	11
Birth of a child or gaining a new family member	17	13	30	9	20	29	5	1	6	31	34	65
%	14	11	24	10	22	32	19	4	23	13	14	27
Change in financial state	20	29	49	8	47	55	2	9	11	30	85	115
%	16	24	40	9	51	60	8	35	42	12	35	48
Change in responsibilities at work	20	31	51	10	58	68	3	16	19	33	105	137
%	16	25	42	11	63	74	12	62	73	14	44	57
Children left the house	1	9	10	3	8	11	3	6	9	7	23	30
%	1	7	8	3	9	12	12	23	35	3	10	12
Moved to new city or town	1	5	6	5	20	25	2	7	9	8	32	40
%	1	4	5	5	22	27	8	27	35	3	13	17
Crime Victim	0	0	0	1	0	1	0	0	0	1	0	1
%	0	0	0	1	0	1			0	1	0	1
Moved to new house	0	2	2	0	0	0	0	0	0	0	2	2
%	0	2	2	0	0	0	0	0	0	0	1	1
Illness in family	0	1	1	0	0	0	0	0	0	0	1	1
%	0	1	1	0	0	0	0	0	0	0	0	0

Table for Figure 6.6: Respondents with qualifications according to mode of delivery

Question 2.8.1	FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
	N	%	N	%	N	%	N	%
Certificate	26	48	16	33	8	50	50	42
Diploma	24	44	32	65	8	50	64	53.8
Higher Diploma	2	4	0	0	0	0	2	1.7
Degree	2	4	1	2	0	0	3	2.5
Total	54	100	49	100	16	100	119	100

*Not all percentages add up to 100% due to rounding

Table for Figure 6.6: Management positions of respondents according to mode of delivery

Question 2.14	FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
Senior management	12	9.8	10	19	20.7	21	2	7.7	8	33	13.8	14
Middle management	46	37.7	48	41	44.6	66	21	80.8	89	108	45	59
Junior management	35	28.7	77	19	20.7	87	0	0	89	54	22.5	82
Not currently in management	29	23.8	100	13	14	100	3	11.5	100	45	18.8	100
Total	122	100*		92	100*		26	100*		240	100*	
Frequency missing	1			0			0			1		

*Not all percentages add up to 100% due to rounding

Table for Figure 6.7: Inclination to deep and surface approaches to learning

	FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
	N	%	N	%	N	%	N	%
3.6 (a) External obligation#	9	8.4	9	10.2	2	8	20	9.09
3.6 (b) Internal emphasis	98	91.6	79	89.8	23	92	200	90.91
Frequency missing	17		4		3		24	
3.7 (a) No enjoyment	6	5.6	2	2.3	4	16	12	5.43
3.7 (b) Excited and satisfaction	102	94.4	86	97.7	21	84	209	94.57
Frequency missing	15		4		1		20	
3.8 (a) Learning is distorted and unrelated	7	6.5	14	15.9	4	16	25	11.36
3.8 (b) Learning forms a coherent whole	100	93.5	74	84.1	21	84	195	88.64
Frequency missing	16		4		1		21	

Table for Figure 6.9: Deep and surface approaches to learning according to mode of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%		N	%		N	%		N	%	
3.14.1	Strongly Disagree	5	4.7		9	10.2		0	0		14	6.4	
On enrollment I read everything, now I only focus on assignments	Disagree	38	35.5	40.2	41	46.6	56.8	9	37.5	37.5	88	40.2	46.6
	Agree	54	50.5		31	35.2		14	58.3		99	45.2	
	Strongly Agree	10	9.3	59.8	7	8	43.2	1	4.2	65.2	18	8.2	53.4
Frequency missing		16			4			2			22		
3.14.2	strongly Disagree	10	9.3		15	17.1		0	0		25	11.4	
When I have lots of work, I only look at assignments	Disagree	53	49.1	58.3	38	43.2	60.23	12	50	50	103	46.8	58.18
	Agree	41	38		27	30.7		12	50		80	36.3	
	Strongly Agree	4	3.7	41.7	8	9.1	39.69	0	0	50	12	5.5	41.75
Frequency missing		15			4			2			21		
3.1.6	Strongly Disagree	2	2		0	0	0	0	0	0	2	1	
New information must relate to what I know	Disagree	0	0	2	0	0	0	2	8	8	2	1	2
	Agree	47	43		31	35		8	32	40	86	39	
	Strongly Agree	60	55	98	57	65	100	15	60	100	132	59	98
Frequency missing		14			4			1			19		
3.1.7	Strongly Disagree	1	1		0	0	0	0	0	0	1	0	0
I use prior experiences in learning	Disagree	2	2	3	1	1	1	0	0	0	3	1	2
	Agree	43	39		28	32		7	28		78	35	
	Strongly Agree	63	58	97	59	67	99	18	72	100	140	63	98
Frequency missing		14			4			1			19		
3.1.8	Strongly Disagree	2	2		0	0		0	0		2	1	
Think of my own life to understand theory	Disagree	2	2	4	3	3	3	0	0	0	5	2	3
	Agree	46	42		28	32		12	48		86	39	
	Strongly Agree	59	54	96	57	65	97	13	52	100	129	58	97
Frequency missing		14			4			1			19		

Table for Figure 6.10: Approach to learning according to mode of delivery

Question 4.1	FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
	N	%	N	%	N	%	N	%
Prefer a lecture and a focus on the important facts	13	13	21	26	4	17	38	18
Prefer to be engaged through activities and discussions	89	87	61	74	19	83	169	82
Frequency missing	21		0		3		25	

Table for Figure 6.12: Influence of teaching on student learning

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
4.3.1	Strongly Disagree	45	44		46	56		11	48		102	49	
Success is independent from the lecturer	Disagree	52	51	94	28	34	90	10	43	91	90	43	92
	Agree	6	6		6	8		2	9		14	7	
	Strongly Agree	0	0	6	2	2	10	0	0	9	2	1	8
Frequency missing		26			10			3			39		
4.3.2	Strongly Disagree	0	0		4	5		1	4		5	2	
Sufficient contact with lecturer	Disagree	19	18	18	30	37	41	3	13	17	52	25	27
	Agree	72	70		45	55		18	78		135	65	
	Strongly Agree	12	12	82	3	4	59	1	4	83	16	8	73
Frequency missing		20			10			3			33		
4.3.3	Strongly Disagree	1	1		1	1		0	0		2	1	
Learn better if lecturer shows interest in me	Disagree	31	30	31	11	13	15	2	9	9	44	21	22
	Agree	49	48		46	56		18	78		113	54	
	Strongly Agree	22	21	69	24	29	85	3	13	91	49	24	78
Frequency missing		20			10			3			33		

Table for Figure 6.14: Cooperation and collaboration according to modes of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
6.1.1	Strongly Disagree	3	3		4	5		0	0		7	3	
Discuss the work outside the classroom with peers	Disagree	17	17	20	26	33	38	3	14	14	46	23	26
	Agree	57	56		35	44		15	68		107	52	
	Strongly Agree	25	25	80	15	19	63*	4	18	86	44	22	74
Frequency missing		21			12			4			37		
6.1.2	Strongly Disagree	2	2		8	10		0	0	0	10	5	
I know all the students in my group	Disagree	21	21	23	31	39	49	1	5	5	53	26	31
	Agree	51	51		26	33		12	55		89	44	
	Strongly Agree	27	27	78*	15	19	52*	9	41	96*	51	25	69
Frequency missing		22			12			4			38		
6.1.3	Strongly Disagree	4	3.9		8	10		1	5		13	6	
I belong to a study group	Disagree	12	12	16	26	33	43	5	23	27	43	21	27
	Agree	45	44		29	36		10	45		84	41	
	Strongly Agree	41	40	84	17	21	57	6	27	72	64	31	72*
Frequency missing		21			12			4			38		
6.1.4	Strongly Disagree	0	0		0	0		0	0		0	0	
I show respect for students from different backgrounds	Disagree	0	0	0	0	0	0	1	5	5	5	1	1
	Agree	37	36		32	40		11	50	55		39	
	Strongly Agree	65	64	100	48	60	100	10	45	100	95	60	99
Frequency missing		21			12			4			37		
6.1.5	Strongly Disagree	0	0	0	0	0	0	0	0	0	0	0	0
I am open to consider ideas different from my own	Disagree	1	1	1	0	0	0	1	5	5	2	1	1
	Agree	55	53		42	53		12	55		109	53	
	Strongly Agree	47	46	99	38	48	100	9	41	95	94	46	99
Frequency missing		20			12			4			36		

*Not all percentages add up to 100% due to rounding

Table for Figure 6.15: Active learning strategies used by different modes of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.1.1	Strongly Disagree	2	1.8		1	1.1		0	0		3	1.4	
I like to participate in class activities and discussions	Disagree	5	4.6	6	3	3.4	5	0	0	0	8	3.6	5
	Agree	51	47		50	57		12	48		113	51	
	Strongly Agree	51	47	94	34	39	96*	13	52	100	98	44	95
Frequency missing		14			4			1			19		
3.1.2	Strongly Disagree	2	1.8		1	1		0	0		3	1.4	
Activities assist my understanding	Disagree	2	1.8	4	2	2	3	1	4	4	5	2.3	4
	Agree	59	54		51	59		12	48		122	55	
	Strongly Agree	46	42	96	33	38	97	12	48	96	91	41	96
Frequency missing		14			5			1			20		
3.1.3	Strongly Disagree	1	0.9		1	1		0	0		2	0.9	
We are actively involved in the BML classes	Disagree	3	2.8	4	1	1	2	0	0	0	4	1.8	3
	Agree	63	58		44	50		11	44		118	53	
	Strongly Agree	42	39	96	42	48	98	14	56	100	98	44	97
Frequency missing		14			4			1			19		
3.1.4	Strongly Disagree	2	1.8		0	0	0	0	0	0	2	0.9	1
When I do not agree with students, I will engage with them	Disagree	11	10	12	14	16	16	2	8	8	27	12	13
	Agree	56	51		53	60		17	68		126	57	
	Strongly Agree	40	37	88	21	24	84	6	24	92	67	30	87
Frequency missing		14			4			1			19		

Table for Figure 6.16: Higher order learning according to mode of delivery

3.11		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
I prefer the following type of assessment	Test with facts to memorise	5	5	2	2.3	1	4.17	7	3.32
	Test with case study	6	6	2	2.3	15	62.5	9	4.27
	Case study assignment	67	67	54	62.1	7	29.2	136	64.5
	Evaluation of information	20	20	26	29.9	1	4.17	53	25.1
Frequency missing		25		8		2		35	

Table for Figure 6.17: High expectations according to mode of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
4.3.7	Strongly Disagree	0	0		1	1.2		0	0		1	0.5	
Lecturers have high expectations	Disagree	13	13	13	12	15	16	2	9	9	27	13	14
	Agree	61	60		48	59		18	78		127	62	
	Strongly Agree	27	27	87	21	26	85*	3	13	91	51	25	86
Frequency missing		22			11			3			36		
4.3.8	Strongly Disagree	0	0		1	1		0	0	0	1	0.5	0
I try to make sure I understand what is expected	Disagree	0	0	0	3	4	5	0	0	0	3	1.5	2
	Agree	60	59		47	57		16	70		123	59	
	Strongly Agree	42	41	100	31	38	95	7	30	100	80	39	98
Frequency missing		21			11			3			35		

*Not all percentages add up to 100% due to rounding

Table for Figure 6.18: Reflection

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.4.9	Strongly Disagree	0	0		0	0		0	0		0	0	
I often think about the work that we did	Disagree	2	2	2	1	2	2	1	4	2	4	2	2
	Agree	55	51		45	51		17	68		117	53	
	Strongly Agree	52	48	98	42	48	98	7	28	98	101	46	98
Frequency missing		14			4			1			19		

Table for Figure 6.19: Preference for feedback according to mode of delivery

		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
3.12	Feedback through self answering activities (quiz)	14	11	7	6.25	2	6.89	23	8.65
I prefer to receive feedback from	Lecturer	80	64	73	65.2	19	65.5	172	64.7
	General feedback from lecturer	26	21	27	24.1	7	2.41	60	22.6
	Students	5	4	5	4.46	1	3.45	11	4.14

Table for Figure 6.20: Evaluation and use of feedback

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative	N	%	Cumulative	N	%	Cumulative	N	%	Cumulative
4.3.5	Strongly Disagree	0	0		2	2.4		0	0		2	1	
I read feedback and apply it	Disagree	2	1.9	2	2	2.4	5	0	0	0	4	2	3
	Agree	61	59		36	44		17	74		114	55	
	Strongly Agree	40	39	98	42	51	95	6	26	100	88	42	97
		20			10			3			33		
4.3.6	Strongly Disagree	1	1		8	10		0	0		9	4.4	
I receive enough feedback to attempt assignments successfully	Disagree	15	15	16	32	39	49	1	4	4	48	23	28
	Agree	62	61		37	45		21	91		120	58	
	Strongly Agree	24	24	84	5	6	51	1	4	96	30	14	72
Frequency missing		21			10			3			34		

Table for Figure 6.21: Independence and control to students

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.4.7	Strongly Disagree	9	8.3		2	2		1	4		12	5.4	
I decide for myself what I will learn	Disagree	46	42	50	44	50	52	8	32	36	98	44	50
	Agree	46	42		37	42		14	56		97	44	
	Strongly Agree	8	7.3	50	5	6	48	2	8	64	15	6.7	50
Frequency missing		14			4			1			19		
8.4.2	Strongly Disagree	0	0		1	1		0	0		1	0.5	
I am responsible for what I get from the BML	Disagree	1	1	1	1	1	3	0	0	0	2	1	1
	Agree	35	34		23	29		7	32		65	32	
	Strongly Agree	66	65	99	53	68	97	15	68	100	134	66	99
Frequency missing		21			14			4			39		

Table for Figure 6.22: Importance of alignment

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.4.3	Strongly Disagree	0	0		0	0		0	0		0	0	0
Easier to learn when alignment is clear	Disagree	1	1	1	0	0	0	0	0	0	1	0.5	
	Agree	66	62		55	63		14	56		135	61	
	Strongly Agree	40	37	99	33	38	100	11	44	100	84	38	100
Frequency missing		16			4			1			21		

Table for Figure 6.25: Andragogical principles in the BML according to mode of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.4.4	Strongly Disagree	2	1.9		3	3		0	0		5	2	
Focus more on info that is applicable to my life	Disagree	17	16	18	12	14	17	2	8	8	31	14	16
	Agree	72	67		49	56		17	68		138	62	
	Strongly Agree	17	16	82*	24	27	83	6	24	92	47	21	84*
Frequency missing		15			4			1			20		
3.4.5	Strongly Disagree	2	2		2	2		0	0		4	2	
Must see relevance before I learn something	Disagree	26	24	26	11	13	15	1	4	4	38	17	19
	Agree	60	55		59	67		18	72		137	62	
	Strongly Agree	21	19	74	16	18	85	6	24	96	43	19	81
Frequency missing		14			4			1			19		

*Not all percentages add up to 100% due to rounding

Table for Figure 6.27: Elements that motivate respondents to learn

		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
3.2									
Motivate to learn when:	I find the lecturer supportive	43	44	28	32	4	16	75	36
	I work in a group	9	9.3	1	1.2	7	28	17	8
	I know I can do well	8	8.3	11	13	0	0	19	9.1
	I get personal satisfaction	37	38	47	54	14	56	98	47
Frequency missing		26		5		1		32	

Table for Figure 6.28: Agreement with growth experienced in the BML programme

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
8.4.1	Strongly Disagree	0	0		0	0		0	0		0	0	
I have experienced growth since I started with the BML	Disagree	4	4	4	0	0	0	1	5	5	5	2.5	2
	Agree	39	39		26	33		12	55		77	38	
	Strongly Agree	58	57	96	52	67	100	9	41	95	119	59	98
Frequency missing		22			14			4			40		

Table for Figure 6.29: Preferred learning activities associated with situated cognition

3.1		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
I learn most from	A lecture	14	14	10	11.5	3	12.5	27	13.0
	A discussion	33	34	18	20.7	11	45.8	62	29.8
	Real-life situation	26	27	34	39.1	8	33.3	68	32.7
	Writing an assignment	24	25	25	28.7	2	8.33	51	24.5
Frequency missing		26		5		2		29	

Table for Figure 6.30: Preference for learning activities

5.2.1		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
I prefer	Applying info to real-life	66	15.7	56	19	15	18.3	137	17
	Discussions	62	14.8	41	13.9	13	15.9	116	15
	Research	49	11.7	44	15	9	11	102	13
	Diary	14	3.4	5	1.7	1	1.2	20	3
	Listening to lectures	61	14.5	37	12.5	15	1.8	113	14
	Practicing skills	48	11.4	28	9.5	9	11	85	11
	Reading	41	9.76	35	11.9	3	3.7	79	10
	Summarising	33	7.9	24	8.1	8	9.8	65	8
	Watching video's	21	5	16	5.4	7	8.5	44	6
	Writing essays	25	6	9	3.1	2	2.4	36	5

Table for Figure 6.31: Preference for situated cognition according to modes of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.1.10	Strongly Disagree	2	2		0	0		0	0		2	1	
I can see how info are applicable to real life	Disagree	0	0	2	1	1	1	0	0	0	1	0	1
	Agree	44	40		32	36		13	52		89	40	
	Strongly Agree	63	58	98	55	63	99	12	48	100	130	59	99
Frequency missing		14			4			1			19		
3.1.11	Strongly Disagree	2	2		0	0		0	0		2	1	
Info must be linked to real-life situations	Disagree	0	0	2	0	0	0	1	4	4	1	0	1
	Agree	44	40		29	33		8	32		81	36	
	Strongly Agree	63	58	98	59	67	100	16	64	96	138	62	99
Frequency missing		14			4			1			19		

Table for Figure 6.32: Learning from other students' experiences

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%		N	%		N	%		N	%	
3.1.9	Strongly Disagree	2	2		0	0	0	0	0	0	2	1	1
I learn when others talk about their experiences	Disagree	7	6	8	7	8	8	0	0	0	14	6	7
	Agree	55	50		41	47		13	52		109	49	
	Strongly Agree	45	41	92	39	45	92	12	48	100	96	43	93
Frequency missing		14			5			1			20		

Table for Figure 6.33: Openness to discourse

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.1.5	Strongly Disagree	2	2	2	0	0	0	0	0	0	2	1	1
I am willing to change my opinion	Disagree	10	9	11	7	8	8	1	4	4	18	8	9
	Agree	67	61	72	59	67	75	19	76	80	145	65	74
	Strongly Agree	30	28	100	22	25	100	5	20	100	57	26	100
Frequency missing		14			4			1			19		
3.4.8	Strongly Disagree	0	0	0	0	0	0	0	0	0	0	0	0
My attitude regarding various aspects has changed	Disagree	4	3.7	4	2	2	2	2	8	8	8	3.6	4
	Agree	45	42	45	34	39	41	15	60	68	94	43	46
	Strongly Agree	59	55	100	52	59	100	8	32	100	119	54	100
Frequency missing		15			4			1			20		

Table for Figure 6.34: Preference regarding receiving new material

3.12		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
When confronted with new info	Prefer smaller chunks	63	58	67	76	21	84	151	68
	All information at once, I will organise it	45	42	21	24	4	16	70	32
Frequency missing		15		4		1		20	

Table for Figure 6.35: Preference for advanced organisers used in study material

5.1		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
Organisers	Table of Contents	46	19	27	16	13	23	86	19
	Learning outcomes	60	25	39	23	13	23	112	24
	Headings	42	18	26	16	11	19	79	17
	Activities	29	12	28	17	8	14	65	14
	Use a mind map	31	13	22	13	4	7	57	12
	Make my own organiser	30	13	24	14	8	14	62	13
	Own notes and highlighting NB points	0	0	1	1	0	0	1	0
	Do not use study guide	1	0.4	0	0	0	0	1	0

Table for Figure 6.36: Usage of different resources – Internet (1)

INTERNET									
5.3		F2F		Online		Modular		Total	
		N	%	N	%	N	%	N	%
	Never	0	0	1	1.23	0	0	1	0
	Rarely	4	3.9	5	6.17	0	0	9	4
	Occasionally	5	4.9	7	8.64	4	18.2	16	8
	Often	43	42	29	35.8	12	54.6	84	41
	Very often	51	50	39	48.2	6	27.3	96	47
	Frequency missing	20		11		4		35	

Table for Figure 6.36: Usage of different resources – Study guide (2)

STUDY GUIDE									
5.3		F2F		Online		Modular		Total	
		N	%	N	%	N	%	N	%
	Never	0	0	0	0	0	0	0	0
	Rarely	8	7.8	10	12.4	3	13.6	21	10
	Occasionally	27	26	33	40.7	5	22.7	65	32
	Often	43	42	24	29.6	10	45.5	77	37
	Very often	25	24	14	17.3	4	18.2	43	21
	Frequency missing	20		11		4		35	

Table for Figure 6.36: Usage of different resources – Other students (3)

OTHER STUDENTS									
5.3		F2F		Online		Modular		Total	
		N	%	N	%	N	%	N	%
	Never	3	2.9	3	3.7	1	4.55	7	3
	Rarely	25	24	29	35.8	5	22.7	59	29
	Occasionally	32	31	26	32.1	11	50	69	34
	Often	34	33	21	25.9	4	18.2	59	29
	Very often	9	8.7	2	2.47	1	4.55	12	6
	Frequency missing	20		11		4		35	

Table for Figure 6.36: Usage of different resources – Lecturers (4)

LECTURER									
5.3		F2F		Online		Modular		Total	
		N	%	N	%	N	%	N	%
	Never	1	1	0	0	0	0	1	0
	Rarely	4	3.9	0	0	0	0	4	2
	Occasionally	19	18	3	3.7	4	18.2	26	13
	Often	35	34	19	23.5	7	31.8	61	30
	Very often	44	43	59	72.8	11	50	114	55
	Frequency missing	20		11		4		35	

Table for Figure 6.37: Computer literacy

		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
7.1		N	%	N	%	N	%	N	%
I am a	beginner computer user	6	5.9	6	7	0	0	12	5
	average computer user	54	53	47	60	18	81.8	119	59
	advanced computer user	42	41	26	33	4	18.2	72	36
Frequency missing		21		13		4		38	

Table for Figure 6.38: Computer confidence

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
7.6.1	Not at all confident	0	0		0	0		0	0		0	0	
work on a computer	Slightly confident	5	5	5	5	6	6	0	0	0	10	5	5
	Confident	35	34		36	46		15	68		86	42	
	Very confident	62	61	95	38	48	94	7	32	100	107	53	95
Frequency missing		21			13			4			38		
7.6.2	Not at all confident	2	2		0	0		0		0	2	1	
Find information on Internet	Slightly confident	10	10	12	3	4	4	1	5	5	14	7	8
	Confident	41	40		40	51		15		73	96	47	
	Very confident	49	48	88	36	46	96	6	95	100	91	45	91
Frequency missing		21			13			4			38		
7.6.3	Not at all confident	1	2		3	3		0	0		4	3	
Deliver a Powerpoint presentation	Slightly confident	6	13	15	13	17	20	0	0	0	19	13	16
	Confident	21	43		25	33		12	57.1		58	40	
	Very confident	20	42	85	34	45	80	9	42.9	100	63	44	84
Frequency missing		75			17			5			97		
7.6.4	Not at all confident	6	6		6	8		0	0		12	6	
Work on excel	Slightly confident	12	12	18	12	15	23	1	4.55	5	25	12	18
	Confident	38	37		34	43		14	63.6		86	42	
	Very confident	46	45	82	27	34	87	7	31.8	95	80	39	82
Frequency missing		21			13			4			38		

Table for Figure 6.38: Computer confidence (continues)

7.6.5	Not at all confident	0	0		0	0		0	0		0		
Use a computer to complete assignments	Slightly confident	5	5	5	1	1	1	0	0	0	6	3	3
	Confident	31	30		28	35		10	45.5		69	34	
	Very confident	66	65	95	50	63	95	12	54.6	95	128	63	97
Frequency missing		21			13			4			38		
7.6.6	Not at all confident	7	7		0	0		0	0		7	3	
Communitating online	Slightly confident	14	14	21	4	5.1	5	2	9.09	9	20	10	13
	Confident	35	34		33	42		13	59.1		81	40	
	Very confident	46	45	79	42	53	95	7	31.8	91	95	47	87
Frequency missing		21			13			4			38		
7.6.7	Not at all confident	1	1		0	0		0	0		1	0	
Sending e-mail	Slightly confident	5	5	6	1	1.3	1	0	0	0	6	3	3
	Confident	24	24		20	25		6	27.3		50	25	
	Very confident	72	70	94	58	73	99	16	72.7	100	146	72	97
Frequency missing		21			13			4			38		

Table for Figure 6.39: Attitude towards technology

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
7.9.1	Strongly Disagree	72	71		64	81		18	82		154	76	
One can survive in the workplace without technology	Disagree	25	24	95	14	18	99	3	14	95	42	21	97
	Agree	5	5		0	0		1	5		6	3	
	Strongly Agree	0	0	5	1	1	1	0	0	5	1	0	3
Frequency missing		21			13			4			38		
7.9.2	Strongly Disagree	74	73		64	81		17	77		155	76	
One can survive without knowing where to find info	Disagree	27	27	100	14	18	99	5	23	100	46	23	99
	Agree	0	0		1	1		0	0		1	0	
	Strongly Agree	0	0	0	0	0	1	0	0	0	1	0	1
Frequency missing		22			13			4			39		
7.9.3	Strongly Disagree	84	82		65	82		19	86.4		168	83	
I avoid computers	Disagree	15	15	97	10	13	95	2	9.09	95	27	13	96
	Agree	1	1		2	2.5		0	0		3	1	
	Strongly Agree	2	2	3	2	2.5	5	1	4.55	5	5	2	4
Frequency missing		21			13			4			38		
7.9.4	Strongly Disagree	84	83		63	81		19	86.4		166	82	
I am interested to learn more from computers	Disagree	15	14	97	12	15	96	2	9.09	95	29	14	97
	Agree				3	3.9		1	4.55		4	2	
	Strongly Agree	3	3	3	0	0	4	0	0	5	3	1	3
Frequency missing		21			14			4			39		

Table for Figure 6.40: Access to technology

7.2		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
Access	Computer at work	97	79	78	85	22	85	197	82
	Computer at home	88	72	78	85	21	81	187	78
	Internet access at work	86	70	68	74	22	85	176	73
	Internet access at home	51	41	79	86	18	69	148	61

Table to Figure 6.41: Possible utilisation of technology in the BML programme

7.7		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
	Provide info on modules	88	13	70	13	20	16	178	13
	have up-to-date information	80	12	69	13	18	14	167	13
	provide additional information	88	13	69	13	19	15	176	13
	Enhance communication between students	78	12	65	12	14	11	157	12
	Enhance communication among lecturers and students	90	14	71	13	17	14	178	13
	Improve current learning	77	12	62	11	14	11	153	12
	Receive better feedback	81	12	64	12	13	10	158	12
	Have a more interactive learning experience	75	11	67	13	10	8	152	12

Table for Figure 6.1: Geographical distribution of students according to mode of delivery

Question 2.5	F2F		ONLINE		MODULAR		TOTAL	
	N	%	N	%	N	%	N	%
Free State	99	95	6	7	9	36	114	54
Gauteng	0	0	39	47	2	8	41	19
KZN	0	0	14	17	6	24	20	9
Western Cape	0	0	9	11	1	4	10	5
Northern Cape	2	2	3	4	3	12	8	4
Other provinces	0	0	5	6	4	16	9	4
North West	0	0	1	1.2	3	12	4	2
Mpumalanga	0	0	2	2.4	0	0	2	1
Eastern Cape	0	0	2	2.4	0	0	2	1
Limpopo	0	0	0	0	1	4	1	0
Other countries	3	3	7	8	0	0	10	5
Lesotho	3	3	3	4	0	0	6	3
Kenya	0	0	2	2	0	0	2	1
Tanzania	0	0	1	1	0	0	1	0.5
Quatar	0	0	1	1	0	0	1	0.5
TOTAL	104	100	83	100	25	100	212	100
Frequency Missing	19		9		1		29	

*Not all percentages add up to 100% due to rounding

Table for Figure 6.2: Age distribution according to mode of delivery

Question 2.4	FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
	N	%	N	%	N	%	N	%
20-22	3	2	0	0	0	0	3	1.2
23-25	2	2	1	1.1	0	0	3	1.2
26-30	11	9	6	6.5	0	0	17	7.1
31-34	22	18	16	17.4	6	23.1	44	18.3
35-40	35	28	27	29.4	8	30.8	70	29.1
41-44	28	23	16	17.4	5	19.2	49	20.3
45-50	18	15	14	15.2	7	26.9	39	16.2
51-54	3	2	6	6.5	0	0	9	3.7
55-60	1	1	5	5.4	0	0	6	2.5
61 and older	0	0	1	1.1	0	0	1	0.4
TOTAL POPULATION	123	100	92	100	26	100	241	100
Frequency missing	0		0		0		0	

Table for Figure 6.3: Responsibilities according to mode of delivery

	FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
	N(123)	%	N(92)	%	N(26)	%	N(241)	%
Work responsibilities	99	81	75	82	22	85	196	81
Family obligations	92	75	75	82	18	69	185	77
Maintaining a home	90	73	66	72	18	69	174	72
Community obligations	50	41	48	52	10	39	108	45
Supporting children financially	66	54	55	60	13	50	134	56

Table for Figure 6.4: Life events students are confronted with according to mode of delivery

	FACE-TO-FACE (N=123)			ONLINE (N=92)			MODULAR (N=26)			TOTAL (N=241)		
	Before	During	Total	Before	During	Total	Before	During	Total	Before	During	Total
Death of a spouse	0	1	1	3	2	5	0	0	0	3	3	6
%	0	1	1	3	2	5	0	0	0	1	1	2
Got divorced	8	3	11	3	1	4	0	1	1	11	5	16
%	7	2.4	9	3	1	4	0	4	4	5	2	7
Marital separation	1	2	3	1	8	9	0	2	2	2	12	14
%	1	2	2	1	9	10	0	8	8	1	5	6
Death of a close family member/friend	22	26	48	13	43	56	4	5	9	39	74	113
%	18	21	39	14	47	61	15	19	35	16	31	47
Major personal injury or illness	4	6	10	4	0	22	1	2	3	9	26	35
%	3	5	8	4	0	24	4	8	12	4	11	15
Got married	10	6	16	5	4	9	2	0	2	17	4	27
%	8	5	13	5	4	10	8	0	8	7	2	11
Birth of a child or gaining a new family member	17	13	30	9	20	29	5	1	6	31	34	65
%	14	11	24	10	22	32	19	4	23	13	14	27
Change in financial state	20	29	49	8	47	55	2	9	11	30	85	115
%	16	24	40	9	51	60	8	35	42	12	35	48
Change in responsibilities at work	20	31	51	10	58	68	3	16	19	33	105	137
%	16	25	42	11	63	74	12	62	73	14	44	57
Children left the house	1	9	10	3	8	11	3	6	9	7	23	30
%	1	7	8	3	9	12	12	23	35	3	10	12
Moved to new city or town	1	5	6	5	20	25	2	7	9	8	32	40
%	1	4	5	5	22	27	8	27	35	3	13	17
Crime Victim	0	0	0	1	0	1	0	0	0	1	0	1
%	0	0	0	1	0	1			0	1	0	1
Moved to new house	0	2	2	0	0	0	0	0	0	0	2	2
%	0	2	2	0	0	0	0	0	0	0	1	1
Illness in family	0	1	1	0	0	0	0	0	0	0	1	1
%	0	1	1	0	0	0	0	0	0	0	0	0

Table for Figure 6.6: Respondents with qualifications according to mode of delivery

Question 2.8.1	FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
	N	%	N	%	N	%	N	%
Certificate	26	48	16	33	8	50	50	42
Diploma	24	44	32	65	8	50	64	53.8
Higher Diploma	2	4	0	0	0	0	2	1.7
Degree	2	4	1	2	0	0	3	2.5
Total	54	100	49	100	16	100	119	100

*Not all percentages add up to 100% due to rounding

Table for Figure 6.6: Management positions of respondents according to mode of delivery

Question 2.14	FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
Senior management	12	9.8	10	19	20.7	21	2	7.7	8	33	13.8	14
Middle management	46	37.7	48	41	44.6	66	21	80.8	89	108	45	59
Junior management	35	28.7	77	19	20.7	87	0	0	89	54	22.5	82
Not currently in management	29	23.8	100	13	14	100	3	11.5	100	45	18.8	100
Total	122	100*		92	100*		26	100*		240	100*	
Frequency missing	1			0			0			1		

*Not all percentages add up to 100% due to rounding

Table for Figure 6.7: Inclination to deep and surface approaches to learning

	FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
	N	%	N	%	N	%	N	%
3.6 (a) External obligation#	9	8.4	9	10.2	2	8	20	9.09
3.6 (b) Internal emphasis	98	91.6	79	89.8	23	92	200	90.91
Frequency missing	17		4		3		24	
3.7 (a) No enjoyment	6	5.6	2	2.3	4	16	12	5.43
3.7 (b) Excited and satisfaction	102	94.4	86	97.7	21	84	209	94.57
Frequency missing	15		4		1		20	
3.8 (a) Learning is distorted and unrelated	7	6.5	14	15.9	4	16	25	11.36
3.8 (b) Learning forms a coherent whole	100	93.5	74	84.1	21	84	195	88.64
Frequency missing	16		4		1		21	

Table for Figure 6.9: Deep and surface approaches to learning according to mode of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%		N	%		N	%		N	%	
3.14.1	Strongly Disagree	5	4.7		9	10.2		0	0		14	6.4	
On enrollment I read everything, now I only focus on assignments	Disagree	38	35.5	40.2	41	46.6	56.8	9	37.5	37.5	88	40.2	46.6
	Agree	54	50.5		31	35.2		14	58.3		99	45.2	
	Strongly Agree	10	9.3	59.8	7	8	43.2	1	4.2	65.2	18	8.2	53.4
Frequency missing		16			4			2			22		
3.14.2	strongly Disagree	10	9.3		15	17.1		0	0		25	11.4	
When I have lots of work, I only look at assignments	Disagree	53	49.1	58.3	38	43.2	60.23	12	50	50	103	46.8	58.18
	Agree	41	38		27	30.7		12	50		80	36.3	
	Strongly Agree	4	3.7	41.7	8	9.1	39.69	0	0	50	12	5.5	41.75
Frequency missing		15			4			2			21		
3.1.6	Strongly Disagree	2	2		0	0	0	0	0	0	2	1	
New information must relate to what I know	Disagree	0	0	2	0	0	0	2	8	8	2	1	2
	Agree	47	43		31	35		8	32	40	86	39	
	Strongly Agree	60	55	98	57	65	100	15	60	100	132	59	98
Frequency missing		14			4			1			19		
3.1.7	Strongly Disagree	1	1		0	0	0	0	0	0	1	0	0
I use prior experiences in learning	Disagree	2	2	3	1	1	1	0	0	0	3	1	2
	Agree	43	39		28	32		7	28		78	35	
	Strongly Agree	63	58	97	59	67	99	18	72	100	140	63	98
Frequency missing		14			4			1			19		
3.1.8	Strongly Disagree	2	2		0	0		0	0		2	1	
Think of my own life to understand theory	Disagree	2	2	4	3	3	3	0	0	0	5	2	3
	Agree	46	42		28	32		12	48		86	39	
	Strongly Agree	59	54	96	57	65	97	13	52	100	129	58	97
Frequency missing		14			4			1			19		

Table for Figure 6.10: Approach to learning according to mode of delivery

Question 4.1	FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
	N	%	N	%	N	%	N	%
Prefer a lecture and a focus on the important facts	13	13	21	26	4	17	38	18
Prefer to be engaged through activities and discussions	89	87	61	74	19	83	169	82
Frequency missing	21		0		3		25	

Table for Figure 6.12: Influence of teaching on student learning

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
4.3.1	Strongly Disagree	45	44		46	56		11	48		102	49	
Success is independent from the lecturer	Disagree	52	51	94	28	34	90	10	43	91	90	43	92
	Agree	6	6		6	8		2	9		14	7	
	Strongly Agree	0	0	6	2	2	10	0	0	9	2	1	8
Frequency missing		26			10			3			39		
4.3.2	Strongly Disagree	0	0		4	5		1	4		5	2	
Sufficient contact with lecturer	Disagree	19	18	18	30	37	41	3	13	17	52	25	27
	Agree	72	70		45	55		18	78		135	65	
	Strongly Agree	12	12	82	3	4	59	1	4	83	16	8	73
Frequency missing		20			10			3			33		
4.3.3	Strongly Disagree	1	1		1	1		0	0		2	1	
Learn better if lecturer shows interest in me	Disagree	31	30	31	11	13	15	2	9	9	44	21	22
	Agree	49	48		46	56		18	78		113	54	
	Strongly Agree	22	21	69	24	29	85	3	13	91	49	24	78
Frequency missing		20			10			3			33		

Table for Figure 6.14: Cooperation and collaboration according to modes of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
6.1.1	Strongly Disagree	3	3		4	5		0	0		7	3	
Discuss the work outside the classroom with peers	Disagree	17	17	20	26	33	38	3	14	14	46	23	26
	Agree	57	56		35	44		15	68		107	52	
	Strongly Agree	25	25	80	15	19	63*	4	18	86	44	22	74
Frequency missing		21			12			4			37		
6.1.2	Strongly Disagree	2	2		8	10		0	0	0	10	5	
I know all the students in my group	Disagree	21	21	23	31	39	49	1	5	5	53	26	31
	Agree	51	51		26	33		12	55		89	44	
	Strongly Agree	27	27	78*	15	19	52*	9	41	96*	51	25	69
Frequency missing		22			12			4			38		
6.1.3	Strongly Disagree	4	3.9		8	10		1	5		13	6	
I belong to a study group	Disagree	12	12	16	26	33	43	5	23	27	43	21	27
	Agree	45	44		29	36		10	45		84	41	
	Strongly Agree	41	40	84	17	21	57	6	27	72	64	31	72*
Frequency missing		21			12			4			38		
6.1.4	Strongly Disagree	0	0		0	0		0	0		0	0	
I show respect for students from different backgrounds	Disagree	0	0	0	0	0	0	1	5	5	5	1	1
	Agree	37	36		32	40		11	50	55		39	
	Strongly Agree	65	64	100	48	60	100	10	45	100	95	60	99
Frequency missing		21			12			4			37		
6.1.5	Strongly Disagree	0	0	0	0	0	0	0	0	0	0	0	0
I am open to consider ideas different from my own	Disagree	1	1	1	0	0	0	1	5	5	2	1	1
	Agree	55	53		42	53		12	55		109	53	
	Strongly Agree	47	46	99	38	48	100	9	41	95	94	46	99
Frequency missing		20			12			4			36		

*Not all percentages add up to 100% due to rounding

Table for Figure 6.15: Active learning strategies used by different modes of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.1.1	Strongly Disagree	2	1.8		1	1.1		0	0		3	1.4	
I like to participate in class activities and discussions	Disagree	5	4.6	6	3	3.4	5	0	0	0	8	3.6	5
	Agree	51	47		50	57		12	48		113	51	
	Strongly Agree	51	47	94	34	39	96*	13	52	100	98	44	95
Frequency missing		14			4			1			19		
3.1.2	Strongly Disagree	2	1.8		1	1		0	0		3	1.4	
Activities assist my understanding	Disagree	2	1.8	4	2	2	3	1	4	4	5	2.3	4
	Agree	59	54		51	59		12	48		122	55	
	Strongly Agree	46	42	96	33	38	97	12	48	96	91	41	96
Frequency missing		14			5			1			20		
3.1.3	Strongly Disagree	1	0.9		1	1		0	0		2	0.9	
We are actively involved in the BML classes	Disagree	3	2.8	4	1	1	2	0	0	0	4	1.8	3
	Agree	63	58		44	50		11	44		118	53	
	Strongly Agree	42	39	96	42	48	98	14	56	100	98	44	97
Frequency missing		14			4			1			19		
3.1.4	Strongly Disagree	2	1.8		0	0	0	0	0	0	2	0.9	1
When I do not agree with students, I will engage with them	Disagree	11	10	12	14	16	16	2	8	8	27	12	13
	Agree	56	51		53	60		17	68		126	57	
	Strongly Agree	40	37	88	21	24	84	6	24	92	67	30	87
Frequency missing		14			4			1			19		

Table for Figure 6.16: Higher order learning according to mode of delivery

3.11		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
I prefer the following type of assessment	Test with facts to memorise	5	5	2	2.3	1	4.17	7	3.32
	Test with case study	6	6	2	2.3	15	62.5	9	4.27
	Case study assignment	67	67	54	62.1	7	29.2	136	64.5
	Evaluation of information	20	20	26	29.9	1	4.17	53	25.1
Frequency missing		25		8		2		35	

Table for Figure 6.17: High expectations according to mode of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
4.3.7	Strongly Disagree	0	0		1	1.2		0	0		1	0.5	
Lecturers have high expectations	Disagree	13	13	13	12	15	16	2	9	9	27	13	14
	Agree	61	60		48	59		18	78		127	62	
	Strongly Agree	27	27	87	21	26	85*	3	13	91	51	25	86
Frequency missing		22			11			3			36		
4.3.8	Strongly Disagree	0	0		1	1		0	0	0	1	0.5	0
I try to make sure I understand what is expected	Disagree	0	0	0	3	4	5	0	0	0	3	1.5	2
	Agree	60	59		47	57		16	70		123	59	
	Strongly Agree	42	41	100	31	38	95	7	30	100	80	39	98
Frequency missing		21			11			3			35		

*Not all percentages add up to 100% due to rounding

Table for Figure 6.18: Reflection

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.4.9	Strongly Disagree	0	0		0	0		0	0		0	0	
I often think about the work that we did	Disagree	2	2	2	1	2	2	1	4	2	4	2	2
	Agree	55	51		45	51		17	68		117	53	
	Strongly Agree	52	48	98	42	48	98	7	28	98	101	46	98
Frequency missing		14			4			1			19		

Table for Figure 6.19: Preference for feedback according to mode of delivery

		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
3.12	Feedback through self answering activities (quiz)	14	11	7	6.25	2	6.89	23	8.65
I prefer to receive feedback from	Lecturer	80	64	73	65.2	19	65.5	172	64.7
	General feedback from lecturer	26	21	27	24.1	7	2.41	60	22.6
	Students	5	4	5	4.46	1	3.45	11	4.14

Table for Figure 6.20: Evaluation and use of feedback

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative	N	%	Cumulative	N	%	Cumulative	N	%	Cumulative
4.3.5	Strongly Disagree	0	0		2	2.4		0	0		2	1	
I read feedback and apply it	Disagree	2	1.9	2	2	2.4	5	0	0	0	4	2	3
	Agree	61	59		36	44		17	74		114	55	
	Strongly Agree	40	39	98	42	51	95	6	26	100	88	42	97
		20			10			3			33		
4.3.6	Strongly Disagree	1	1		8	10		0	0		9	4.4	
I receive enough feedback to attempt assignments successfully	Disagree	15	15	16	32	39	49	1	4	4	48	23	28
	Agree	62	61		37	45		21	91		120	58	
	Strongly Agree	24	24	84	5	6	51	1	4	96	30	14	72
Frequency missing		21			10			3			34		

Table for Figure 6.21: Independence and control to students

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.4.7	Strongly Disagree	9	8.3		2	2		1	4		12	5.4	
I decide for myself what I will learn	Disagree	46	42	50	44	50	52	8	32	36	98	44	50
	Agree	46	42		37	42		14	56		97	44	
	Strongly Agree	8	7.3	50	5	6	48	2	8	64	15	6.7	50
Frequency missing		14			4			1			19		
8.4.2	Strongly Disagree	0	0		1	1		0	0		1	0.5	
I am responsible for what I get from the BML	Disagree	1	1	1	1	1	3	0	0	0	2	1	1
	Agree	35	34		23	29		7	32		65	32	
	Strongly Agree	66	65	99	53	68	97	15	68	100	134	66	99
Frequency missing		21			14			4			39		

Table for Figure 6.22: Importance of alignment

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.4.3	Strongly Disagree	0	0		0	0		0	0		0	0	0
Easier to learn when alignment is clear	Disagree	1	1	1	0	0	0	0	0	0	1	0.5	
	Agree	66	62		55	63		14	56		135	61	
	Strongly Agree	40	37	99	33	38	100	11	44	100	84	38	100
Frequency missing		16			4			1			21		

Table for Figure 6.25: Andragogical principles in the BML according to mode of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.4.4	Strongly Disagree	2	1.9		3	3		0	0		5	2	
Focus more on info that is applicable to my life	Disagree	17	16	18	12	14	17	2	8	8	31	14	16
	Agree	72	67		49	56		17	68		138	62	
	Strongly Agree	17	16	82*	24	27	83	6	24	92	47	21	84*
Frequency missing		15			4			1			20		
3.4.5	Strongly Disagree	2	2		2	2		0	0		4	2	
Must see relevance before I learn something	Disagree	26	24	26	11	13	15	1	4	4	38	17	19
	Agree	60	55		59	67		18	72		137	62	
	Strongly Agree	21	19	74	16	18	85	6	24	96	43	19	81
Frequency missing		14			4			1			19		

*Not all percentages add up to 100% due to rounding

Table for Figure 6.27: Elements that motivate respondents to learn

3.2		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
Motivate to learn when:	I find the lecturer supportive	43	44	28	32	4	16	75	36
	I work in a group	9	9.3	1	1.2	7	28	17	8
	I know I can do well	8	8.3	11	13	0	0	19	9.1
	I get personal satisfaction	37	38	47	54	14	56	98	47
Frequency missing		26		5		1		32	

Table for Figure 6.28: Agreement with growth experienced in the BML programme

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
8.4.1	Strongly Disagree	0	0		0	0		0	0		0	0	
I have experienced growth since I started with the BML	Disagree	4	4	4	0	0	0	1	5	5	5	2.5	2
	Agree	39	39		26	33		12	55		77	38	
	Strongly Agree	58	57	96	52	67	100	9	41	95	119	59	98
Frequency missing		22			14			4			40		

Table for Figure 6.29: Preferred learning activities associated with situated cognition

		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
3.1									
I learn most from	A lecture	14	14	10	11.5	3	12.5	27	13.0
	A discussion	33	34	18	20.7	11	45.8	62	29.8
	Real-life situation	26	27	34	39.1	8	33.3	68	32.7
	Writing an assignment	24	25	25	28.7	2	8.33	51	24.5
Frequency missing		26		5		2		29	

Table for Figure 6.30: Preference for learning activities

5.2.1		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
I prefer	Applying info to real-life	66	15.7	56	19	15	18.3	137	17
	Discussions	62	14.8	41	13.9	13	15.9	116	15
	Research	49	11.7	44	15	9	11	102	13
	Diary	14	3.4	5	1.7	1	1.2	20	3
	Listening to lectures	61	14.5	37	12.5	15	1.8	113	14
	Practicing skills	48	11.4	28	9.5	9	11	85	11
	Reading	41	9.76	35	11.9	3	3.7	79	10
	Summarising	33	7.9	24	8.1	8	9.8	65	8
	Watching video's	21	5	16	5.4	7	8.5	44	6
	Writing essays	25	6	9	3.1	2	2.4	36	5

Table for Figure 6.31: Preference for situated cognition according to modes of delivery

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.1.10	Strongly Disagree	2	2		0	0		0	0		2	1	
I can see how info are applicable to real life	Disagree	0	0	2	1	1	1	0	0	0	1	0	1
	Agree	44	40		32	36		13	52		89	40	
	Strongly Agree	63	58	98	55	63	99	12	48	100	130	59	99
Frequency missing		14			4			1			19		
3.1.11	Strongly Disagree	2	2		0	0		0	0		2	1	
Info must be linked to real-life situations	Disagree	0	0	2	0	0	0	1	4	4	1	0	1
	Agree	44	40		29	33		8	32		81	36	
	Strongly Agree	63	58	98	59	67	100	16	64	96	138	62	99
Frequency missing		14			4			1			19		

Table for Figure 6.32: Learning from other students' experiences

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%		N	%		N	%		N	%	
3.1.9	Strongly Disagree	2	2		0	0	0	0	0	0	2	1	1
I learn when others talk about their experiences	Disagree	7	6	8	7	8	8	0	0	0	14	6	7
	Agree	55	50		41	47		13	52		109	49	
	Strongly Agree	45	41	92	39	45	92	12	48	100	96	43	93
Frequency missing		14			5			1			20		

Table for Figure 6.33: Openness to discourse

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
3.1.5	Strongly Disagree	2	2	2	0	0	0	0	0	0	2	1	1
I am willing to change my opinion	Disagree	10	9	11	7	8	8	1	4	4	18	8	9
	Agree	67	61	72	59	67	75	19	76	80	145	65	74
	Strongly Agree	30	28	100	22	25	100	5	20	100	57	26	100
Frequency missing		14			4			1			19		
3.4.8	Strongly Disagree	0	0	0	0	0	0	0	0	0	0	0	0
My attitude regarding various aspects has changed	Disagree	4	3.7	4	2	2	2	2	8	8	8	3.6	4
	Agree	45	42	45	34	39	41	15	60	68	94	43	46
	Strongly Agree	59	55	100	52	59	100	8	32	100	119	54	100
Frequency missing		15			4			1			20		

Table for Figure 6.34: Preference regarding receiving new material

		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
3.12		N	%	N	%	N	%	N	%
When confronted with new info	Prefer smaller chunks	63	58	67	76	21	84	151	68
	All information at once, I will organise it	45	42	21	24	4	16	70	32
Frequency missing		15		4		1		20	

Table for Figure 6.35: Preference for advanced organisers used in study material

5.1		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
Organisers	Table of Contents	46	19	27	16	13	23	86	19
	Learning outcomes	60	25	39	23	13	23	112	24
	Headings	42	18	26	16	11	19	79	17
	Activities	29	12	28	17	8	14	65	14
	Use a mind map	31	13	22	13	4	7	57	12
	Make my own organiser	30	13	24	14	8	14	62	13
	Own notes and highlighting NB points	0	0	1	1	0	0	1	0
	Do not use study guide	1	0.4	0	0	0	0	1	0

Table for Figure 6.36: Usage of different resources – Internet (1)

INTERNET									
5.3		F2F		Online		Modular		Total	
		N	%	N	%	N	%	N	%
	Never	0	0	1	1.23	0	0	1	0
	Rarely	4	3.9	5	6.17	0	0	9	4
	Occasionally	5	4.9	7	8.64	4	18.2	16	8
	Often	43	42	29	35.8	12	54.6	84	41
	Very often	51	50	39	48.2	6	27.3	96	47
	Frequency missing	20		11		4		35	

Table for Figure 6.36: Usage of different resources – Study guide (2)

STUDY GUIDE									
5.3		F2F		Online		Modular		Total	
		N	%	N	%	N	%	N	%
	Never	0	0	0	0	0	0	0	0
	Rarely	8	7.8	10	12.4	3	13.6	21	10
	Occasionally	27	26	33	40.7	5	22.7	65	32
	Often	43	42	24	29.6	10	45.5	77	37
	Very often	25	24	14	17.3	4	18.2	43	21
	Frequency missing	20		11		4		35	

Table for Figure 6.36: Usage of different resources – Other students (3)

OTHER STUDENTS									
5.3		F2F		Online		Modular		Total	
		N	%	N	%	N	%	N	%
	Never	3	2.9	3	3.7	1	4.55	7	3
	Rarely	25	24	29	35.8	5	22.7	59	29
	Occasionally	32	31	26	32.1	11	50	69	34
	Often	34	33	21	25.9	4	18.2	59	29
	Very often	9	8.7	2	2.47	1	4.55	12	6
	Frequency missing	20		11		4		35	

Table for Figure 6.36: Usage of different resources – Lecturers (4)

LECTURER									
5.3		F2F		Online		Modular		Total	
		N	%	N	%	N	%	N	%
	Never	1	1	0	0	0	0	1	0
	Rarely	4	3.9	0	0	0	0	4	2
	Occasionally	19	18	3	3.7	4	18.2	26	13
	Often	35	34	19	23.5	7	31.8	61	30
	Very often	44	43	59	72.8	11	50	114	55
	Frequency missing	20		11		4		35	

Table for Figure 6.37: Computer literacy

7.1		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
I am a	beginner computer user	6	5.9	6	7	0	0	12	5
	average computer user	54	53	47	60	18	81.8	119	59
	advanced computer user	42	41	26	33	4	18.2	72	36
Frequency missing		21		13		4		38	

Table for Figure 6.38: Computer confidence

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
7.6.1	Not at all confident	0	0		0	0		0	0		0	0	
work on a computer	Slightly confident	5	5	5	5	6	6	0	0	0	10	5	5
	Confident	35	34		36	46		15	68		86	42	
	Very confident	62	61	95	38	48	94	7	32	100	107	53	95
Frequency missing		21			13			4			38		
7.6.2	Not at all confident	2	2		0	0		0		0	2	1	
Find information on Internet	Slightly confident	10	10	12	3	4	4	1	5	5	14	7	8
	Confident	41	40		40	51		15		73	96	47	
	Very confident	49	48	88	36	46	96	6	95	100	91	45	91
Frequency missing		21			13			4			38		
7.6.3	Not at all confident	1	2		3	3		0	0		4	3	
Deliver a Powerpoint presentation	Slightly confident	6	13	15	13	17	20	0	0	0	19	13	16
	Confident	21	43		25	33		12	57.1		58	40	
	Very confident	20	42	85	34	45	80	9	42.9	100	63	44	84
Frequency missing		75			17			5			97		
7.6.4	Not at all confident	6	6		6	8		0	0		12	6	
Work on excel	Slightly confident	12	12	18	12	15	23	1	4.55	5	25	12	18
	Confident	38	37		34	43		14	63.6		86	42	
	Very confident	46	45	82	27	34	87	7	31.8	95	80	39	82
Frequency missing		21			13			4			38		
7.6.5	Not at all confident	0	0		0	0		0	0		0		

Use a computer to complete assignments	Slightly confident	5	5	5	1	1	1	0	0	0	6	3	3
	Confident	31	30		28	35		10	45.5		69	34	
	Very confident	66	65	95	50	63	95	12	54.6	95	128	63	97
Frequency missing		21			13			4			38		
7.6.6	Not at all confident	7	7		0	0		0	0		7	3	
Communitating online	Slightly confident	14	14	21	4	5.1	5	2	9.09	9	20	10	13
	Confident	35	34		33	42		13	59.1		81	40	
	Very confident	46	45	79	42	53	95	7	31.8	91	95	47	87
Frequency missing		21			13			4			38		
7.6.7	Not at all confident	1	1		0	0		0	0		1	0	
Sending e-mail	Slightly confident	5	5	6	1	1.3	1	0	0	0	6	3	3
	Confident	24	24		20	25		6	27.3		50	25	
	Very confident	72	70	94	58	73	99	16	72.7	100	146	72	97
Frequency missing		21			13			4			38		

Table for Figure 6.39: Attitude towards technology

		FACE-TO-FACE			ONLINE			MODULAR			TOTAL		
		N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %	N	%	Cumulative %
7.9.1	Strongly Disagree	72	71		64	81		18	82		154	76	
One can survive in the workplace without technology	Disagree	25	24	95	14	18	99	3	14	95	42	21	97
	Agree	5	5		0	0		1	5		6	3	
	Strongly Agree	0	0	5	1	1	1	0	0	5	1	0	3
Frequency missing		21			13			4			38		
7.9.2	Strongly Disagree	74	73		64	81		17	77		155	76	
One can survive without knowing where to find info	Disagree	27	27	100	14	18	99	5	23	100	46	23	99
	Agree	0	0		1	1		0	0		1	0	
	Strongly Agree	0	0	0	0	0	1	0	0	0	1	0	1
Frequency missing		22			13			4			39		
7.9.3	Strongly Disagree	84	82		65	82		19	86.4		168	83	
I avoid computers	Disagree	15	15	97	10	13	95	2	9.09	95	27	13	96
	Agree	1	1		2	2.5		0	0		3	1	
	Strongly Agree	2	2	3	2	2.5	5	1	4.55	5	5	2	4
Frequency missing		21			13			4			38		
7.9.4	Strongly Disagree	84	83		63	81		19	86.4		166	82	
I am interested to learn more from computers	Disagree	15	14	97	12	15	96	2	9.09	95	29	14	97
	Agree				3	3.9		1	4.55		4	2	
	Strongly Agree	3	3	3	0	0	4	0	0	5	3	1	3
Frequency missing		21			14			4			39		

Table for Figure 6.40: Access to technology

7.2		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
Access	Computer at work	97	79	78	85	22	85	197	82
	Computer at home	88	72	78	85	21	81	187	78
	Internet access at work	86	70	68	74	22	85	176	73
	Internet access at home	51	41	79	86	18	69	148	61

Table to Figure 6.41: Possible utilisation of technology in the BML programme

7.7		FACE-TO-FACE		ONLINE		MODULAR		TOTAL	
		N	%	N	%	N	%	N	%
	Provide info on modules	88	13	70	13	20	16	178	13
	have up-to-date information	80	12	69	13	18	14	167	13
	provide additional information	88	13	69	13	19	15	176	13
	Enhance communication between students	78	12	65	12	14	11	157	12
	Enhance communication among lecturers and students	90	14	71	13	17	14	178	13
	Improve current learning	77	12	62	11	14	11	153	12
	Receive better feedback	81	12	64	12	13	10	158	12
	Have a more interactive learning experience	75	11	67	13	10	8	152	12