

FEMALE PUPILS' PERSPECTIVE ON SOCIETAL FACTORS INFLUENCING THEIR PROGRESSION IN ADVANCED LEVEL SCIENCE SUBJECTS IN ZIMBABWE

by

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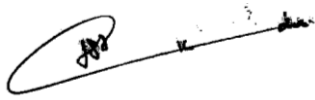
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All the references that I have used have been indicated and acknowledged by means of complete references.

I further declare that this work has not previously been submitted by me at another university or faculty for purpose of obtaining a qualification.

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To whom it may concern

I hereby confirm that I have proofread and edited the language of the following thesis, including the bibliography.

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THEIR PROGRESSION IN ADVANCED LEVEL SCIENCE SUBJECTS IN
ZIMBABWE

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2 March 2020

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DEDICATION

I dedicate my thesis to the rural female pupils persevering in education in general and Advanced Level science subjects in particular, despite the stumbling blocks they come across in the process.

ABSTRACT

The study is a gender-critical investigation into female pupils' progression in Advanced Level science subjects in rural secondary schools in seven districts of Matabeleland North Province, Zimbabwe. This study employed a multi-pronged theoretical framework approach in analyzing the research problem, formulating research questions, selection of paradigm and approach, deciding on methods, guiding on data interpretation and drawing answers to the main research question. A qualitative transformative study, where I was the chief tool aided by the literature method, critical policy analysis and interviews was used to generate data on the issue under investigation. The sample comprised of 45 purposively selected female pupils, of whom 20 were taking science subjects and 25 were not taking science subjects at the Advanced Level in secondary schools in the seven districts of the Matabeleland North Province, Zimbabwe. Data analysis consisted of a thematic approach where common themes were identified from the participants.

From my study, several findings arose, firstly that despite the existence of the concept of gender equality in various documents (the *Constitution of Zimbabwe*, the *National Gender Policy* and the *Education Act*); inequalities persisted in participants' progression in science subjects. Also, participants revealed that factors influencing their progression in Advanced Level science subjects were persistent and profoundly embedded in the patriarchal rigidity, cultural stereotypes, prejudices and discernments held by society. From the findings, it was noted that female pupils were brought up under distinctive parenting styles such as the autocratic style, which influenced their lived experiences. I, therefore, propose that besides the patriarchal system, the issue of parenting influences female pupils' progression in Advanced Level science subjects. In this context, female pupils with parents and guardians who offered supportive parenting had a better chance of progressing in Advanced Level science subjects at the Advanced Level compared to those with limited parental support.

This work suggests a need for cultural transformation in education in general and Advanced Level science subjects in particular, rather than giving attention to prescribed gender equality only. Strategies are needed to alleviate the barriers among them to set up a gender-neutral, gender-sensitive approach and an evidence-based policymaking process. I concluded that from the female pupils' perspective, their progression in Advanced Level science subjects was mainly influenced by societal factors grounded on barriers they had come across in this respect. This calls for a change of mind that allows for a process that runs concurrently with the patriarchal system until a time when female pupils are at par with their male counterparts in cognisance of their progression in Advanced Level science subjects. To add to the aspect of a gender-neutral, gender-sensitive approach, I move the notion of incorporating the concept of positive parenting when socialising children, without making differentiation concerning gender roles.

KEYWORDS

Advanced level science subjects, female pupil, gender policies, perspective, progression, societal factors, transformative

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CHAPTER 1: STUDY OVERVIEW

1.1 INTRODUCTION

Science and technology education the world over is considered a cornerstone through which scientific and technological knowledge, skills and values are transferred from one generation to another for the perpetual advancement and prosperity of society (Kola, 2013:225; Mohammad, Ebrahim, Aazam & Maryam, 2012:129; Mubika & Bukaliya, 2011:313; Mwanza, 2015:96; Nicolaidis, 2012:620; Podzo, 2016:28; Tsvara, Mapaire & Manzira, 2016:1; Wambua, 2013:125). In this context, I view scientific and technological advancement as a tool through which economically and socially side-lined female persons can be emancipated to fully take part in their societal activities (Musau, Migosi & Muola, 2013:34; Ranganath, Rao & Srinivas, 2011:325; Tambo, Munakandafa, Matswetu & Munodawafa, 2011:3897). As a result, secondary schools inculcate in pupils' knowledge, skills and enviable values, which play an imperative function in putting up a foundation for the economic growth and social enhancement of society (Morley, Leach & Lugg, 2009:56; Okorie, 2017:49). This can be used for the integration of the individual into society to attain self-realisation, foster national appreciation and strive for social, economic and political progression (Ansah & Kissi, 2013:172; Tshabalala & Ncube, 2012:1). In my study of the education system, I should, therefore, regard it as being geared towards producing a scientifically and technologically competent individual through nurturing versatile knowledge and skills, irrespective of one's gender (cf. Offor, 2013:409). This was brought about by the United Nations' thoughtful efforts to close the disparity gap between female and male persons in science education (Ifegbesan, 2010:29).

In this regard, the United Nations takes into account education as the paramount legacy that a government can give to its citizens; hence the need to advance gender parity in it, with special emphasis on bridging the inequality gap (Makama, 2013:116; UN, 1949:6; UNESCO, 2003:4). Examples of such efforts by the United Nations are the *United Nations Conventions on Eradication of all Practices of Unfairness against Women (1979)*, the *Beijing Platform for Action (1995)*, the *Millennium Development Goals (2000)* (specifically, Goal Three, which focuses on the eradication of gender inequality in the lower levels of education and in higher

and tertiary education by 2015), the Sustainable Development Goals 2030 (especially Goal Five and Africa's Transformative Agenda 2063: Opportunities and challenges [Goal 17], which advocates for full gender equality in all spheres through the provision of evenly balanced access to education and policymaking procedures). Thus, in this context, gender policies and various platforms to address gender issues, such as the dedication of the period 2010 to 2020 for the empowerment of African women, with much focus on their rights, were enacted (Chauraya, 2012:255; UN, 2016:4). In support of the earlier mentioned declaration by the United Nations, the African Union (2014:17), in its Agenda 2063, draws attention to the need for the accomplishment of gender impartiality by 2020, through eliminating all gender inequality in spheres such as education. This, in a sense, creates a platform for the promotion of the empowerment of females through riddance of all forms of discrimination and detrimental traditions in a patriarchal society, where women are side-lined in diverse domains of existence such as training and career aspirations.

From the consulted literature it was noted that several constructive advances have been made in women's contest for equal recognition, such as commitment to social justice through the signing and ratification of and assenting to several sub-Saharan African and international declarations and protocols (Asuagbor, 2016:3; Martin, 2013:14; Mawere, 2013:1078; Mutangi, 2016:281). Article 18(3) of the *African Charter on Human and Peoples' Rights* states that the "state shall ensure the elimination of every discrimination against women and also ensure the protection of the rights of the women as stipulated in international declarations and conventions" (African Union, 1986:1). Also, the *African Platform for Action* synthesises regional perspectives for the articulation of guidelines and the enactment of tangible and viable plans for females' progression in various spheres of life, such as education and training (Dziva, Makaye & Dube, 2013:51; SADC Gender and Development Monitor, 2016:7). Thus, all of the above supposedly guarantee the formation of a procedure that endorses and supports gender equality, justice, dignity and rights based on policies (Chisholm & September in Moletsane, 2005:80), which then legitimise the progression of females in different spheres, including that of education and science and technology. At least in terms of international and continental drive, on paper, strides have been made towards gender equity and subsequent equality.

Regionally, the *Southern African Development Community Protocol on Gender and Development* emphasises that it is fundamental to empowering women economically, politically and socially through gender-responsive acts, policies and programmes that foster gender equality at all levels (Kamwendo, 2009:4; Martin, 2013:10; Munalula, 2011:190; Mutangi, 2016:284; Zimbabwe Election Support Network, 2015:1). This was geared towards addressing the inequalities between the sexes (male and female) and challenging the normative political and socio-cultural understandings that bring about imbalances in different spheres such as education (Maphosa, Tshuma & Maviza, 2015:131). Yet, despite the aforementioned notion about states and despite global and continental attempts to bring about equality between the sexes through various initiatives (African countries, for instance, set aside 2015 as the Year of Women and Development), African countries such as those in sub-Saharan Africa generally continue to score lower on the Gender Parity Index (UN, 2016:4). For example, the Gender Inequality Index of Zimbabwe in 2017 was 0,534 and 0,563 in 2018; this has caused the country to be ranked outside the top 100 among the surveyed nations (National Gender Policy in Gudyanga, 2017:19; UNDP, 2018:40; UNDP, 2019:3). From my perspective, this was a cause for concern as it revealed the extent to which females were under-represented in various spheres such as education. It also explains the compulsion to increase the political will and commitment to stop discrimination against women through conformity to rights and prosperity laws and policies (UN Human Rights, 2014:8).

In response to the pronouncements by the Presidential Commission of Inquiry into Education and Training, the *National Gender Policy* was launched. The goal of this policy was, *inter alia*, to eradicate all undesirable economic, social and political policies and cultural and religious practices that hinder equality of the sexes (Republic of Zimbabwe, Ministry of Women Affairs, Gender and Community Development, 2004:3; 2013:iv). This was strengthened by the *2013 constitution*, through *Section 27(2)* that obligates the state to present women with the same education and training chances as their male counterparts (Zimbabwe National Statistics Agency, 2016:27). Thus it sanctioned an inclusive need to minimise the broadening gender inequality fissure in education and training through the interdiction of all types of gender inequality in learning activities (Hapanyengwi-Chemhuru, 2015:14). It is against this background that these policies placed much eminence on the

elimination of gender prejudice through the promotion of gender equality in all sectors such as education in general and science subjects in particular.

However, I view some of these laws, policies and initiatives merely as political symbolism instead of genuine transformation. Indeed, these were regarded by feminists as an 'add females and stir' approach, without taking into cognisance their vital concerns, hence advancing the oratorical acknowledgement of international, regional and national obligations (UNICEF, 2007a:13; Van der Vleuten, Van Eerdewijk & Roggeband, 2014:172). The subsequent paragraphs shed more light on my standpoint about the issue under investigation.

The reality in many parts of Africa, and Zimbabwe, negates the vision, which was set out in the World Declaration on Education for All in Jomtien and re-affirmed by the Dakar Framework for Action, of providing education to empower disadvantaged individuals (Chireshe, 2013:223; Mlyakado, 2012:246). Women continue to be relegated to a submissive position, burdened with their traditional roles, which can be seen as a reflection of male dominance in the socio-cultural, economic and political spheres (Kainuwa & Yusuf, 2013:29; Ntim, 2013:178). For example, in 2014, 276 female pupils in Nigeria were kidnapped from a secondary school in Chibok in Borno State, with the Boko Haram claiming responsibility. This terrorist group has been known to kidnap girls, whom they use as cooks, sex slaves and negotiating pawns in exchange for captured Boko Haram commanders who are incarcerated (Gwagwa, 2014:6; Linning, 2014:1). In Zimbabwe, some male congregants in the indigenous apostolic sect seize females of around nine years old and place them under the safekeeping of either their mothers or older wives until the inception of adolescence, when they take up their obligations as spouses. In line with their superstitious beliefs of hastening the sexual development of pre-adolescent girls, the grown-up spouses caress the young girls' breasts to activate their adolescence (Chikwature & Oyedele, 2016:31). The sect has been attracting attention about claims that it endorses and accepts the taking of child fiancées, which leads to a morally unacceptable high maternal mortality (Machingura 2011:197; Research Advocacy Unit, 2011:5). Unfortunately, it is difficult to stop these marriages, as the members of the sect are complicit and secretive (Chinyoka, 2014:294). This can be corroborated by the fact that no-one has ever been put on trial for perpetrating enforced marriages of minor girls

within the religious circle (Dodo, 2013:38; Mawere, 2012:16). This has therefore generated a podium that tends to side-line females through their exposure to backgrounds that look upon them as children, sexual objects and recipients (Mapuva, 2013:261).

From 1980, as a response to some of these cultural practices, the government of Zimbabwe, upon gaining independence, has been set up guided by democratic beliefs that underpinned the need for growth with equity (Mawere, 2013:444). In this context, education and training were acknowledged as fundamental rights through statutes, regulations and policies, which include the *Education Act of 1987* and the *Manpower Planning and Development Act of 1996* (Munjanganja & Machawira, 2014:10). As a follow-up, line ministries formulated policy circulars, statutory instruments and strategic plans for the removal of all forms of discrimination based on one's gender, for instance (Munjanganja & Machawira, 2014:11). However, in Zimbabwe, the Presidential Commission of Inquiry into Education and Training, in its findings, noted the persistence of gender disparities at different levels of education and training (Matope, 2012:691; Mupondi & Munyaradzi, 2013:486). These findings turned out to be the basis for the need to further implement reforms aimed at enhancing the education and training system of the nation. Indeed, activists for women's rights pinned their expectations on taking advantage of the momentous transformations in gender-related laws, policies and programmes, which stemmed from international, regional and national resolutions (Ero, 2014:118; James, Simiyu & Riechi, 2016:49).

It is under these circumstances that gender activists and organisations in Zimbabwe, such as Fay Chung, Prisca Dube, Priscilla Misihairambwi-Mushonga, Jessie Majome, Betty Makoni, Magodonga Mahlangu, Jane Williams, Women of Zimbabwe Arise, the Save Children Trust, the Justice for Children Trust, the Zimbabwe Women's Resource Centre, Women and Law in Southern Africa (Zimbabwe), the Association of Women's Clubs, the Musasa Project, the Young Women's Network, the Campaign for Female Education, have collectively initiated and participated in actions and strategies geared towards the emancipation and transformation of females' lives in different spheres (Chiome & Chindanya, 2015:181; Samkange, 2015a:1175; Zungura & Nyemba, 2013:205). Thus these activists, together with other subjugated groups, have put on their itinerary the need to interrogate the perceived discriminatory provisions in society, which are grounded in the socio-economic and socio-

cultural practices thereof, with the view to move the motion for the amendment of laws and policies to this effect (Olatunji, 2013:2).

The government's policies on the emancipation and advancement of females act as a principle to benchmark their empowerment in the context of a human rights agenda (Ushewokunze in Mutanana & Bukaliya, 2015:3). Large billboards declaring that Zimbabwe is a human rights country welcome visitors at the airports in Zimbabwe. Yet, despite the existence of these policies and the propagation of such messages, females have been victims of educational and social impediments, which push them into their expected cultural roles (Chinyani, 2010:241). It is thus difficult to pin down the use of the concept 'gender' as a basis for the transformation of equality within the human rights framework (Hastrup, 2015:5) (homosexuality is outlawed, for instance). Despite the Zimbabwean education system claiming to be liberating through policy and legislation provisions, the status of females has remained relatively low (Chilton, Chyatte & Breaux, 2007:263; Samkange, 2015a:1177) and gender equality remains a major concern in the endowment of prospects of progression in various spheres of life, such as education (Mutekwe & Mutekwe, 2012:193; Onsomu, Kosimbei & Ngware, 2006:7; Runhare & Gordon, 2004:2). According to Tambo et al. (2011:3897), it is in this context that the issue of equality in pupils' progression in Advanced Level science subjects at secondary school level should be regarded as crucial towards attaining the scientific and technological knowledge, skills and values for the perpetual advancement and prosperity of society that were introduced at the beginning of this section.

1.2 RATIONALE AND STATEMENT OF THE PROBLEM

In Zimbabwe, the secondary education is divided into lower secondary, with a duration of four years (Forms 1-4), ending with the national examination for the Zimbabwe General Certificate of Education at Ordinary Level, and upper secondary, with a duration of two years (Forms 5-6), ending with the Zimbabwe General Certificate of Education Advanced Level examinations (Iritani, Hyunsan, Rusakaniko & Mapfumo, 2016:303; Kazunga, 2016:31; Nkoma, Zirima, Chimunhu & Nyanga; 2013:124; Nuffic, 2015:6).

At Ordinary Level, pupils are considered to have passed and been able to proceed to the next level upon attaining passes in the core subjects, which include English, Mathematics, Science(s), History, at least one technical-vocational subject and any other subjects deemed necessary for the career choice (Mafa & Tarusikirwa, 2013:2481; Mapfumo, Chireshe & Peresuh, 2002:157; Mapolisa & Tshabalala, 2014:158). At the Advanced Level, pupils have the option to pursue science, arts or commercial subjects, and then take a combination of at least three subjects linked to these foci (Mlozi, Kaguho & Nyamba, 2013:175). For example, a pupil in sciences can choose to pursue a combination of any three of these subjects - Biology, Chemistry, Further Mathematics, Mechanics, Physics, Pure Mathematics and Statistics – to enable him or her to gain entree into higher learning ecologies (polytechnics, teachers' training colleges and universities) to take up science-related programmes (Kazunga, 2016:33; Masinire, 2011:41; Republic of Zimbabwe, Ministry of Primary and Secondary Education, 2015:38).

Progression to the Advanced Level is, however, not guaranteed, and the limited places for successful pupils at secondary schools, both in urban and rural areas, create an intense competition based on results achieved in the Ordinary Level General Certificate of Education examinations (Mlozi et al., 2013:175). This means that limited numbers of pupils end up at the Advanced Levels. Despite numerous policies to promote equality, including affirmative action and gender policies as discussed in the introduction (Mandina, Mashingaidze & Mafuta, 2013:184; Mavhunga, Madondo & Phiri, 2009:39; Tambo et al., 2011:3898), female pupils' progression in science subjects at Advanced Level remains limited (Ncube & Mudau, 2017:67; Masanja in Gudyanga, Mandizvidza & Gudyanga, 2016:3; Lauer, Momsen, Offerdahl, Kryjevskaja, Christensen & Montplaisir, 2013:30; Millennium Development Goals Report Zimbabwe cited in Matswetu & Chikuvadze, 2014:2; Riegle-Crumb & Moore, 2014:254). The Ministry of Higher and Tertiary Education, Science and Technology Development (The Republic of Zimbabwe, 2017) provides us with comparative numbers between the Ordinary and Advanced Levels, as displayed below.

Table 1.1: Enrolment on statistics of pupils in science subjects at the Ordinary and Advanced Levels in Matabeleland North Province secondary schools (Republic of Zimbabwe, Ministry of Higher & Tertiary Education, Science & Technology Development, 2017)

Year	Enrolments					
	Ordinary Level			Advanced Level		
	Total	(%) Male	(%) Female	Total	(%) Male	(%) Female
2015	1202	55,0	45,0	110	74,6	25,4
2016	1422	51,9	48,1	125	61,6	38,4
2017	1376	52,5	47,5	158	71,1	28,9

An analysis of Table 1.1 shows the skewed leaning towards male dominance in science subjects at the Advanced Level (Mabhandu, 2015:23; Pufall, Eaton, Nyamukapa, Schur, Takaruzza & Gregson, 2016:133; SADC Gender Protocol Barometer – Zimbabwe, 2015:53). In this report it can be seen that while there has been near gender parity in Zimbabwe’s lower secondary, as pupils move to the upper levels (Forms 5-6), parity remains a dilemma (Agu & Omenyi, 2013:518; Chikunda & Chikunda, 2016:12; Dube, 2015:282; Edzie, 2014:29; Reyley & Jewitt, 2014:137). Several authors (e.g. Gudyanga, 2017:19; Musau et al., 2013:34; Ombati & Ombati, 2013:116; Strachan, Whitehouse, Peetz, Bailey & Broadbent, 2008:323) emphasise that the poor rate of female pupils’ progression in Advanced Level science subjects results in fewer of them choosing science-linked careers at tertiary level. This results in their not playing an active role in scientifically and technologically related careers (Kainuwa et al., 2013:1; Laila, Chohan & Behlol, 2014:61; Mandina et al., 2013:183; Maphosa et al., 2015:130; Miller, 2014:455; Wekwete, 2014:87), which is a cause of concern (Chikuvadze, Matswetu & Mugijima, 2015:131; Mwanza, 2015:95).

The implication of the abovementioned trend, despite acts and policies targeted at the infusion of gender equality principles into education, is limited gender transformation in this sector (Chabaya, Rembe & Wadesango, 2009:235; Chauraya, 2012:252; Gudyanga, 2016:137; Hunt 2008:36; Østby, Urdal & Rudolfson, 2016:1). While the Zimbabwean Ministry of Primary and Secondary Education has directed through policy pronouncements that schools should treat the learning of science subjects as compulsory (Gudyanga, Kathija, &

Kurup, 2015:2; Mupa, 2015:133; Sunzuma, Zezekwa, Zinyeka & Chinyoka, 2013:19), a general insufficiency of gender-specific information and statistics makes it problematic to gauge progress and subsequent concerns (Aderemi, Hassan, Siyanbola & Taiwo, 2013:2012; China, Nweyilobu, Pepple & David, 2011:3; Tanyanyiwa, 2015:1065).

On top of the limited information and analysis in terms of gender, aspects of rurality linked with the progression of female pupils have not fully been studied. So far, studies undertaken in Zimbabwe are predominantly centred on the persistence of disparities and female pupils' inadequate participation and poor performance in learning activities (Chikunda, 2013:133; Gudhlanga, Chirimuuta & Bhukuvhani, 2012:4533; Gudyanga, 2016:135; Magwa & Chingombe, 2016:1; Mapuranga & Chikumbu, 2015:60; Ncube, 2013:1). Furthermore, most of these studies on why female pupils' show inadequate progression and poor performance in Advanced Level science subjects seem to be conducted mostly in urban and peri-urban setups, at the expense of the ostracised rural secondary schools (Bonga, 2010:2; Mawere, 2012:11).

I take heed of Islam, Jantan, Hashim and Chong (2018:1) and Machiridza et al. (2016:96) who point out those external factors, such as the economy, demographics and worldview in the society, influence education; thus, living in a conservative rural community surely must play a part in education. Yet, at present, it seems as though most actions to improve female pupils' progression in Advanced Level science subjects are centred on the introduction of policies, without dealing with the socio-cultural or socio-economic traditions that hinder their progression (Igbuzor, 2006:4; UNICEF, 2007b:39). Thus, information for the formulation of these policies and studies on factors influencing female pupils' progression in science subjects is sourced from pupils from mostly urban setups, parents or teachers (Dyson, Howes & Roberts, 2002:5; Mandina et al., 2013:183; Sithole, Manwa & Manwa, 2013:58), with the voice of rural female pupils being overlooked. It is remarkable that despite the enhanced interest inequality in science subjects in Zimbabwe, limited empirical inquiries have been conducted, particularly from the perspective of rural female pupils (Mazonde & Carmichael, 2016:2). Thus there is still restricted documentation covering the voice of the dormant rural female pupils on issues related to finding meaningful and feasible solutions to

issues related to parity and sharing knowledge on practices that may assist in achieving parity in Advanced Level science subjects (Mandina et al., 2013:186).

Indeed, from my personal experience as a boy who grew up in a remote area and also as a Biology educator working with both female and male pupils in rural secondary schools in Zimbabwe, I have sensed that even though females are trying to make their way up the societal hierarchy, there are concealed influences that seem to impede their progress in education and training. I have observed that patriarchy still plays a role in the day-to-day running of the societal activities in the rural Matabeleland North Province where my home is. In this context, I have observed that some female pupils' dreams of progressing in science, technology, engineering and mathematics career pathways are being wiped out due to numerous obstacles. Furthermore, as a father to my only child, who is an adolescent girl, and as a sciences educator to classes that are mostly dominated by male pupils in the remote rural parts of Zimbabwe, I have become immensely curious and concerned about gender parity in sciences. I have been wondering about the effect that living in a more conservative, traditional rural area has on this inequality, of which Ansell (2002:93) seems to be convinced.

It is against this backdrop that my study seeks to gain insight into female pupils' lived experiences in a male-dominated society and its connotation to their progression in Advanced Level science subjects (cf. Masinire, 2011:18). I wanted to comprehend rural female pupils' predicaments as far as the barriers they encounter in their social domain to pursue science education.

I believe my study was timeous, as Zimbabwe needs more scientists and technologists, regardless of their gender, to realise its developmental itinerary for it to be a science and technology cornerstone of advancement and affluence, regionally and internationally (cf. Gudyanga, 2016:137). Furthermore, the policy agenda clearly articulates the notion of female empowerment (Bisanda & Ming, 2019:27).

In this setting, there is consequently a need for a comprehensive and structured look at the influence of societal factors on rural female pupils' progression in Advanced Level science subjects from the participants' perspective (cf. Muriithi, Mwangi & Udoto, 2014:42; Sahin,

2014:61). Against this background, I, therefore, put forward the following main question: **How do societal factors influence female pupils' progression in Advanced Level science subjects?** Based on the understanding of the concerns undermining rural female pupils' progression in science subjects in secondary schools in Matabeleland North Province, my study provides insight into how the current situation can best be dealt with to attain parity.

Accordingly, my study strives for the generation of data, which will form an informational base from both primary and secondary data sources to gain insight into the influence of societal factors on female pupils' progression in Advanced Level science subjects within a rural context. As a result, the value of my study lies within the likelihood of not only underscoring the societal factors influencing female pupils' progression in Advanced Level science subjects but also providing recommendations that may facilitate their progression in these science subjects in the province (cf. Chikoore & Museva, 2014:558; Katsande, 2016:16). Thus, with my study, I look forward to stimulating a diagnostic discourse in defining what features need to be enhanced, transformed or eradicated from the education acts and policies to guarantee rural female pupils' progression in Advanced Level science subjects.

1.3 SECONDARY RESEARCH QUESTIONS

The focus of my contemporary study is encapsulated by the following secondary questions to provide the scaffold towards answering the main research question stated in 1.2:

1. What theoretical framework can be derived to analyse female pupils' progression in education and science subjects?
2. What is known about the influence of societal factors on female pupils' progression in education and science subjects in sub-Saharan countries?
3. How do laws and policies direct female pupils' progression in education in general and science subjects, in particular in Zimbabwe?
4. What are the main discourses among female pupils on their progression in education, in particular in the context of Advanced Level science subjects?

-
5. What critical comments can be provided on societal factors influencing female pupils' progression in Advanced Level science subjects towards policy improvement?

1.4 RESEARCH AIM AND OBJECTIVES

1.4.1 RESEARCH AIM

My study will provide insight into the societal factors influencing female pupils' progression in Advanced Level science subjects. This aim will be attained based on an understanding of the barriers undermining their progression, which will guide me to provide well-versed comments on what best can be done to attain impartiality in science education in the Zimbabwean context.

1.4.2 RESEARCH OBJECTIVES

In line with the secondary questions posed, specific objectives are stated. Each of the objectives will be responded to by using a particular method, as is listed in Table 1.2 (cf. 1.6 for detail).

Table 1.2: Research objectives and methods

Objectives	Method	Chapter
1. To derive a theoretical framework to look at female pupils' progression in education and science subjects.	Literature study	2
2. To review literature on how societal factors influence female pupils' progression in education and science subjects in sub-Saharan countries.	Literature study	3
3. To critically analyse Zimbabwean laws and policies that direct female pupils' progression in education in general and science subjects in particular.	Critical policy analysis	5
4. To expose discourses among female pupils on their progression in education, in particular in the context of Advanced Level science subjects.	Interviews and critical discourse analysis	6
5. To critically comment on societal factors influencing female pupils' progression in Advanced Level science subjects, towards policy improvement.	Synthesis and interpretation of the above	6

1.5 THEORETICAL FRAMEWORK

Several theories articulate how females are depicted and treated in the socio-cultural and socio-economic sphere, which has been spelt out grounded on diverse abstract contexts (Gutsa, Tom, Chihambakwe & Chideya, 2015:1173; Mapuva, 2013:262). In this study, my theoretical lens places the concerns under investigation in a framework that enables me to establish precisely the relatedness of concepts of gender inequality in the real world through preconceived points of view (cf. Henning, 2004:25). It is in this context that I propose to use the feminist, symbolic interactionist and human capital theories as a basis for gaining insight into female pupils' perspective on factors influencing their progression in Advanced Level science subjects.

Forming the theoretical lens, my study is guided by the feminist theories (liberal, radical, socialist and African) that recognise the pervasive influence of gender inequalities in various domains of life, such as education, and endeavours to comprehend the oppression and hierarchical structures of females in society that embrace this subjugation (cf. Kirai & Kobia, 2012:214; Onsongo, 2004:6). Feminist theories make a case for the prominence of putting the experiences of females at the core of the probe and then utilise the information spawned to comment on and contest the androcentric-based societies and procedures (Alabi & Alabi, 2014:7; Rhoades & Gu, 2012:737). This buttresses the need for equal gender rights in all spheres of life, such as education in general and science subjects in particular, for sustainable enlargement the world over (Kabote, Niboye & Nombo, 2014:90).

As society understands and uses symbols to create meanings for objects in their social settings, a 'mind' both reflective and reflexive emerges from their efforts to adjust to their environment (Turner, 2004:345). In this context, the symbolic interactionist theory is a judicious means to look into and comprehend how females express and underpin connotations in their societies, which can either buttress customs or aid in moving the problems of definite rules (Rhoades & Gu, 2012:739). Thus, in creating the basis for meanings, participants' experiences and memories are fundamental; this consequently calls for the inclusion of the symbolic interactionist lens through which I observe the concerns under investigation (cf. Dong, 2008:14). It is against this background that, in my study, I focus on the construction and intercession of meaning, generated and delivered by

participants as actors through interactions in their natural social context (cf. Mudzingwa & Magudu, 2013:35).

In my study, the issue of participants' welfare takes centre stage during the discourse, as I consider how they bear the costs of education and with what societal expectations. This calls for the inclusion of the human capital theory to form part of the theoretical lens through which I observed female pupils' perspective on societal factors influencing their progression in Advanced Level science subjects. My study is based on the belief that education enriches nationals through the acquisition of knowledge, skills and values for the improvement of their overall standard of living in society (cf. Kabote et al., 2014:90). It is on this basis that the human capital theory in this study assists me to elucidate some of the factors influencing the participants' progression in Advanced Level science subjects, which are not accounted for in the *educational acts and policies*. This then assists me, *inter alia*, to consider how rural society has created a parenting environment that allows or hinders female pupils to follow through on their potential in Advanced Level science subjects (cf. Heckman & Masterov, 2007:23).

The backdrops of the selected theories make it vital for me to emphasize issues of power within knowledge production, which inevitably will be viewed as being value-laden and influenced by intricately intertwined power relations in society (cf. Gaventa & Cornwall, 2001:70). Hence, combining the earlier mentioned theories accords me the opportunity to formulate the ontological, epistemological and axiological base on which my discourse on the participants' experiences and memories is grounded (cf. Allen, 2005:17). This requires me to properly situate myself socially in the interactions without influencing the power relations in an attempt to unpack the participants' lived experiences and memories (cf. Ramazonoglu & Holland, 2002:118).

According to Alabi et al. (2014:7), females tend to be disadvantaged politically, socially and economically, thereby creating inequality in different spheres of life, such as education. Hence, in my study, I view gender identities as being socially constructed, with society enforcing specific practices relating to being 'male' or 'female' (cf. Rind, 2015:4). Although these might not actively discriminate against female pupils, through an acceptance of

particular values and beliefs, their ability to participate actively in different spheres, such as education, is impeded (Khattak, 2011:78). For example, science subjects have been developed and operate within a male-dominated realm of experience, which propounds to be objective, logical and unemotional. It is against this background that I tend to presume that society needs to design an educational system that minimises those barriers that impede female pupils' progression in Advanced Level science subjects. Thus, communities parade underlying dominance interactions and resource disparities, resulting in incompatible concerns and perpetuating the male status quo by dulling female pupils into being obedient and subservient.

In rural societies, such as Matabeleland North Province, Zimbabwe, female pupils learn their gender roles during their socialisation, mostly at home or at school, where through a proximate culture; they acquire views on masculinity and femininity (Carter, 2014:245). Consequently, based on their experiences and the gender attributes of their culture and through observing their surrounding environment, they construct mental representations about that which defines females. Therefore, female pupils' interactions with the natural environment and other nationals influence their behaviour towards others, and this, in a way, might shape their aspirations in life. Under such a setting, I believe that to a larger extent, science subjects, which are mostly seen as 'masculine', perpetuate the existing and inherently unequal status quo of female pupils' subservient position. It is against this background that my study explores the influence of societal factors on female pupils' progression in Advanced Level science subjects from their perspective.

To explore the concerns under investigation, it is fundamental for me to bear in mind that nature and nurture influence female pupils' intentions; so their socio-economic standing in society is a creation of the environment in which they live (cf. Ogunshola & Adewale, 2012:231). This creates the need for me to consider the fusion of the feminist, human capital and symbolic interactionist theories into a framework to guide my study (cf. Andrew & Orodho, 2014:5). Therefore, in my study, I regard the feminist, symbolic interactionist and human capital theories as analytical of the gender inequality that female pupils experience in the male-dominated culture that guides society (cf. Maposa & Mugabe, 2013:5). This gives prominence to the importance of my study to bring together issues of injustices that have

historically progressed and are presently still occurring in different scopes, such as education in general and science subjects in particular (cf. Reid & Frisby, 2009:97). In such a scenario, the theories selected, place gender at the centre of its analysis, thereby regarding it as a primary organising feature in a society where female oppression seems to be accepted (Ropers-Huilman & Winters, 2011:668). Hence the need for me to have an all-inclusive theoretical approach to looking at gender inequalities and how they influence rural female pupils' progression in Advanced Level science subjects (cf. Nayak & Kehily, 2008:4).

From this discussion, it is noted that the derived framework offers the platform to generate self-reflective knowledge, which involves both understanding and explanation of domination in societal systems, thereby advancing emancipatory interest in female pupils' progression in Advanced Level science subjects. Thus this paradigm helps in setting free female pupils from the restrictions of the unreasonable and discriminatory constructs that restrain their self-advancement and strength of character (cf. Creswell, 2003:11). That is, I use this derived theoretical framework to uncover female pupils' erroneous contemporary social experiences and how these can be altered to transform the 'masculine' nature of Advanced Level science subjects.

1.6 RESEARCH DESIGN

In my study, the research design will encompass the framework for the conversion of research objectives (cf. 1.5.1) into a specified plan for data generation, analysis, interpretation and reporting (cf. Gray, 2013:164). Hence the need for me to select a relevant design on which my study was grounded to respond to the identified main questions (cf. 1.2) and the secondary research questions (cf. 1.3) under the guidance of a specific methodology and methods (cf. Bhattacharjee, 2012:35; Neuman, 2014:8). It is against this background that in this section, I give a pertinent elucidation of the methodology (approach and paradigm), methods, participant selection and data analysis, interpretation and reporting.

1.6.1 *METHODOLOGY*

Research is, beyond doubt, pluralistic and characterised by methodology and methods (Jackson, Drummond & Camara, 2007:23; Kellet, 2011:4). It is, therefore, crucial to delineate research design in a study as a ground plan and tactics of inquiry devised in a bid to find answers to the issue under discourse (Cameron, 2011:96; Lincoln & Guba, 1985:221). The following question guided the discourse in this section: "How shall I go about to generate data, analyse and interpret data, to make it possible for me to provide answers to my main question?" (Kivunja & Kuyini, 2017:28). This entails my looking closely at all aspects, from the rationale and statement of the problem, the objectives of the study, the research questions and selection of participants to data generation, analysis and elucidation in a way that permits extraction of individual experiences (cf. Demuth, 2013:35). Furthermore, in this segment, an exposition taking into account the pertinent approach, paradigm and methods are done.

First and foremost, there is a need to distinguish between the often entangled notions 'methodology' and 'methods'. In this case, I operationalise methodology as a way to use in approaching the problem in search of answers; under the guidance of selected ontological and epistemological beliefs (cf. Cohen, Manion & Morrison, 2007:83; Leonardo, 2003:75; Mason, 2002:52; Teddlie & Tashakkori, 2009:84). Hence the selected philosophical belief acts as a guiding light in the data generation, analysis and interpretation of the findings (Creswell & Plano, 2007:5). Ultimately, this reveals the theoretical stance about the nature of truthfulness in which my study is situated; on the other hand, methods only refer to tools to be used to generate the much-needed empirical evidence (Harding, 1987:2; Mertens, 2010a:35). This brings into context the need to scrutinise the rationality behind the selected methods about how they give a picture of and elucidate the issue under investigation. This calls for me to vindicate the inclusion of specific methods as I converse about the desired methodology for the issue under investigation (cf. LeeFon, Jacobs, Le Roux & De Wet, 2013:3; Muhammad & Supinit, 2016:463). In this regard, the methodology is taken as a coherent group of procedures that complement one another, with the competency to generate data, which can be presented, analysed and interpreted to provide answers to the raised research questions (Henning, 2004:36).

To determine and account for the participants' perspective on their experiences, voices and memories on the issue under study, I adhered to the qualitative approach tenets (cf. Blanche, Durrheim & Painter, 2006:563; Bridges, 2015:40; Denscombe, 2007:75; Merriam, 2009:22; Shank, 2002:5; Zakiya, 2008:86). This provided me with the road map to determine the participants' subjective perspective on societal factors that influenced their progression in Advanced Level science subjects, with specific reference to their experiences, voices, feelings and memories (cf. Creswell, 2014:540; Denzin & Lincoln, 2011:5; Leavy, 2009:6). With this in mind, I envisioned holistically making it possible for me to interrelate with rich citations, depictions and commentaries from selected participants to pick up connotations to the issue under investigation (cf. Chikutuma, 2016:646; Kothari, 2004:5). This brings to light the selected participants' perspectives on the issue of concern in a natural setting, resulting in its conception (Chinyoka & Naidu, 2014:225; McMillan & Schumacher, 2010:315).

Through the qualitative approach, participants are allowed an opportunity to express their lived experiences, memories, beliefs and values in their own words and intrinsic impediments (Abdullah & Surif, 2015:56). In support of this, Khan (2014:225) and Mason (2002:1) vindicate that through this approach, I am in a position to look at an assortment of societal facets, which includes the participants' comprehension of and thoughts about the issue under investigation. However, this will be augmented by the theoretical framework (cf. Section 2.2) to enable me to be in a position to open up a factual and accurate picture of the situation as it unfolds and proceed to advance the participants' emancipation (cf. Cohen, Manion & Morrison, 2011:46; Denscombe, 2007:75; Merriam, 2009:15). In this regard, I consider the participants' lived experiences and memories and how they interpret them as a significant source of relevant data in its own right (cf. Kriel, 2007:14; Merriam, 2009:5; Sheldon, Angell, Stoner & Roseland, 2010:161).

It is in this context that 'knowledge' construction in my study is based on the participants' subjective views about their lived experiences in science subjects (cf. Creswell, 2008:46), with specific reference to barriers that thwart their progression in these subjects. Also, my own lived experience as a rural Biology educator (at both Ordinary and Advanced Levels) and a part-time lecturer in the Department of Education at the Bindura University of Science Education is a well-thought-out, integral part of facilitating comprehension of the

phenomenon under investigation. All this is influenced by a robust impartiality and human rights itinerary, which is precisely aimed at the side-lined female pupils in their progression in Advanced Level science subjects (cf. Mertens, 2009:265). With this in mind, I intend to operate from a perspective where the participants' subjective experiences, voices and memories are regarded as genuine, engaged in entirety (ontology) and appreciated through interactions, with me taking note of what they divulge (epistemology). Thus, the participants' viewpoints that stress the endurance of fairness within complex, man-controlled power interactions will be regarded as the predominant hub of events that unearth issues not to be overlooked when looking at pertinent issues (cf. Mertens, 2010b:256). This calls for the incorporation of the transformative-emancipatory paradigm as a lens through which cultural responsiveness to dimensions of gender inequalities associated with power dynamics will be viewed with the prospect to transform the participants' status quo in Advanced Level science subjects (cf. Mertens, 2010a:1).

With this in mind, I, therefore, seek to comprehend how the participants make sense of their environment and varied experiences in science subjects (cf. Merriam, 1998:6; Mertens, 2008:74; Pring, 2000:58). This is centred on the perspective that their experiences are historically inevitable and persistently fluctuating, subject to traditional and dominance dynamics. In such a scenario, I shall not perceive 'knowledge' as being neutral, since it exhibits power and social connections of a patriarchal society. I believe that the 'knowledge' to be generated from my study will most likely provide a hand in confronting the inequalities that feature conspicuously in science subjects (cf. Gall, Gall & Borg, 1999:361; Walliman, 2011:13). This requires a paradigm that accords the participants an opportunity to expose their beliefs about what 'reality' and values they hold about their progression in Advanced Level science subjects (cf. Giddings & Grant, 2006:6).

In this context, I grounded my study in the transformative-emancipatory paradigm, which is orientated towards exposing oppressive barriers in female pupils' progression in Advanced Level science subjects and how these can be worked out (cf. Mertens, 2002:141; Mertens, 2005:17). In all this, much prominence will be accorded to experiences and inequality of power relations that exist in connection with female pupils' progression in Advanced Level science subjects (cf. Watson & Watson, 2011:139). Given this position, I shall work towards

the emancipation of disadvantaged rural female pupils through bringing to light the nature of oppressive barriers they encounter in their progression in science subjects (cf. Kraemer-Roy, 2015:1210). This will be done, taking into consideration the influence of historical, social, economic and political factors on female pupils' thoughts of and actions towards their progression in Advanced Level science subjects. Thus social reality in my study is not considered as being singular or objective; instead, it is influenced by the participants' voices, memories and lived experiences in bringing about various subjective elucidations of the issue under investigation. It is against this background that I acknowledge subjectivity through impartially interpreting the participants' voices, memories and experiences, with a view of avoiding bias in the perception of crucial issues in this discourse (cf. Mertens, 2009:141).

Hence I propose a particular context of thought regarding how I am to look at and address the issue under study (cf. Mertens, 2010a:39). Based on this and that which has been discussed earlier on, it calls for my study to be grounded in the transformative-emancipatory paradigm (cf. Mertens, Holmes & Harris, 2009:89). This is due to the notion that this paradigm prioritises the voice of marginalised, rural female pupils as it instigates the need to uncover patterns in experiences, voices and memories to best bring about the comprehension of findings (Johnson & Onwuegbuzie, 2004:17; Shah & Al-Bargi, 2013:261). It is against this background that I base my philosophical line of reasoning on the ontological belief that investigates and determines the multiplicity of reality from participants' lived experiences and memories.

This prompted me to consider and invite participants who were purported to be an outstanding source base and likely to offer worthwhile experiences relating to the issue under investigation (cf. Bogdan, 2007:143; Neuman, 2006:222; Polkinghorne, 2005:139). This requires the adoption of an epistemological belief that encourages me to get as near as possible to the participants to generate empirical evidence that is grounded in their lived experiences, voices and memories. From this complex picture, analysis and interpretation of the generated data are done through reflecting on how these findings put up a full portrait of the oppressive barriers experienced by the participants in their progression in Advanced Level science subjects (cf. Somekh & Lewin, 2005:275). However, the data to be analysed

and interpreted need to be generated accordingly, so the next section delineates apt methods.

1.6.2 METHODS

In my study, the points earlier discussed bring to mind that methods do not mean much in themselves; rather, they are more or less suitable for specific research and should be selected about the research questions being addressed. Against this background it is imperative to select appropriate methods that are in line with the secondary research questions of the study (cf. 1.3), rather than falling victim to being 'methodolatory' (cf. Holloway & Todres, 2003:345). By doing this, I would avoid being committed to the methods at the expense of key issues at stakes, such as the topic, research questions and the theoretical lens.

Keeping this in mind, I comprehensibly generated data through the literature review, critical policy analysis and interviews in the methodology section (cf. Merriam, 2009:23). It is important to note that each method, in this case, looks at the issue under investigation from its peculiar perspective so that comparisons and contrasts are made (Le Grange, 2007:423). Hence, the use of multiple methods enables me to comprehend the phenomenon under study in a more rounded and complete fashion (cf. Bryman, 2001:1; Denscombe, 2007:132). In this regard, data generation follows a rigorous, impartial, persuasive and subjective way to direct interactions with participants on a one-on-one basis or in a group situation.

1.6.2.1 LITERATURE REVIEW

A literature review is one of the methods to be used to retrieve data from secondary sources, such as conference proceedings, manuscripts and journals, on issues raised and concepts relevant for a study (Ansah et al., 2013:174). Hence, as indicated in Table 1.2, an analytical review of literature is carried out to derive a theoretical lens through which the issue under study can be observed. This brings about space for me to comprehend the nature and meaning of the identified problem in the context of the contemporary body of knowledge on gender inequality in education and training (cf. Fouché & Delport, 2005:123; Lin, 2009:179). In this context, the broader scholarly and historical circumstances demarcate

what is and what is not the scope of my study (cf. Boote & Beile, 2005:3). This calls for much more than a mere document analysis, as it requires the consultation of diverse sources (readings of material published earlier and unpublished material) concerning the issues under discourse in the study (Creswell, 2002:85). I have done this with the belief that these literature sources provide a basis for the formulation of a framework and would act as a point of reference when comparing and contrasting other findings (cf. Creswell, 2012:106; Creswell, 2014:29; Leech & Onwuegbuzie, 2010:62). Also, the setting of my study has been conceived and its rationale outlined to the readers through the identification of existing gaps that need to be filled (cf. Fouche et al., 2005:123).

1.6.2.2 CRITICAL POLICY ANALYSIS

Critical policy analysis is undertaken to comprehend the existing gap between the tenets of education policies and practice from a policy point of view (McMillan & Schumacher, 2001:545). It is through this method that I shall perceive the influence of laws and policies on female pupils' progression in education in general and Advanced Level science subjects in particular. This brings to light the domineering impression of policy and consequent difficulties that bring about gender inequality in the contemporary education system (Joo & Kwon, 2010:225). I undertake this with an unambiguous belief of showing a mental picture where impartiality and equality are uncompromised by the 'masculine' wishes within a patriarchal society (cf. Prunty, 1984:2). Against this background I shall scrutinise aspects of gender inequality in society and how these manifest themselves in female pupils' progression in Advanced Level science subjects.

Hence, through critical policy analysis, I intend to comprehend and determine the existing gender inequality in female pupils' progression in Advanced Level science subjects. This is made possible through an interrogation of the norms, values and legitimacy of some of these practices in the social and political context (Taylor, Rizvi, Lingard & Henry, 1997:20; Van Dijk, 2008:85). It is, therefore, my contention that policy analysis not only aids in grasping gender equality issues from an educational policy perspective, but also verifies the extent to which relevant policies are implemented in rural secondary schools. Therefore, the methods discussed earlier on in conjunction with the literature study will bring up to date my empirical evidence from various documentary sources. However, there is a need to

generate empirical evidence from the participants through interviews so that findings can be compared and contrasted for me to arrive at an informed conclusion of the issue under investigation.

1.6.2.3 INTERVIEWS

According to Friesen and Scott (2013:3), Janesick (2004:72), Jupp (2006:157), Nieuwenhuis (2007:87) and Walliman (2011:100), an interview is a two-way, discovery-orientated discussion. In this discussion, as the interrogator, I shall ask questions to an interviewee in a bid to generate data and to find out what her views and opinion on the issue under study are. These interviews are a follow-up on the data generated through the literature study (cf. 1.6.2.1) and the critical policy analysis (cf. 1.6.2.2).

In the interviews, semi-structured questions are posed to solicit rich and valuable information from the selected participants (cf. McMillan et al., 2010:360). Hence this is a well-planned, extendable dialogue, with the resolve to generate narratives of the participants' experiences and memories, with the conviction that their accounts contain in-depth information from which meanings can be derived subjectively on merit (cf. Alsaawi, 2014:150; Alshengeeti, 2014:40). In these interviews, participants who are assumed to be disadvantaged in science subjects and encounter barriers in their progression in these subjects are given a chance to truthfully and subjectively share their experiences and memories (cf. Einarsdottir, 2007:200). This, therefore, requires me to engage with the participants with an open-ended approach, asking them general questions, while the interviewees shape the possible responses (cf. Creswell, 2012:19). From the methods discussed in this section I believe that multiple realities can be generated. After that, an attempt is made to triangulate the information generated.

a) Selection of participants

Sampling in my study involves the selection of participants from the target population, following a corroborated criterion. In this context, I considered female pupils in rural secondary schools in the districts of Matabeleland North Province (Binga, Bubi, Hwange, Lupane, Nkayi, Tsholotsho and Umguza) as a susceptible group in society (cf. Brink, 2006:124; Saito, 2011:18). Against this background, I, as the researcher, together with the participants under the influence of their social location in the world, are seen as producers of accounts of our experiences about the issue under investigation (cf. Temple & Edwards, 2002:2). This viewpoint drove me to conduct a study with a focus on this side-lined group in the rural community as the target population.

In this perspective, a non-probability sampling procedure will be used for the selection of knowledgeable and experienced participants from those female pupils who chose to take science subjects and those who did not choose science subjects at the Advanced Level (cf. Barbour, 2008:52; Karanu, Murenga & Osamba, 2015:64). However, to enhance the richness and strength of this probe, other participants (e.g. Senior Ladies, Heads of Science and Mathematics Department and School Heads) will be included as sources of data (Etikan, Musa & Alkassim, 2016:2; Heale & Forbes, 2013:98). These will form part of the sample since one way or the other they supervise the application of policies and circulars to do with pupils' welfare and facilitate in learning activities at the school level. It is against this background that this promotes an all-embracing comprehension of their experience on the issue to allow for a better interpretation of the context of findings (Ames, Glenton & Lewin, 2019:4; Roberts, Dowell & Nie, 2019:66). Thus the participants with whom I share knowledge, memories and experience in Advanced Level science subjects learning activities are purposively selected (cf. Cozby, 2009:140; Kemper, Stringfield & Teddlie, 2003:279; Pandey & Pandey, 2015:53). This selection procedure enables me to shed light on and to intensify my understanding of the issue under investigation from multiple valuable sources of information (cf. Neuman, 2014:274).

In my study, a small, distinct group of participants is selected to enable me to have an in-depth understanding (cf. Moyo & Kawewe, 2002:25) of how societal factors influence female pupils' progression in Advanced Level science subjects. The number of participants is regulated by saturation of information, which means the point at which repetition of earlier generated data ensues; consequently, there is no specific number of participants (cf. Charmaz, 2014:213; Mandal, 2018:446).

b) Data analysis, interpretation and reporting

This is a systematic pursuit for deriving meaning from generated data through scrutinising, interrogating and critiquing it to bring about patterns, themes and interpretations, which can be communicated to others (Hatch, 2002:148; Ryan, Coughlan & Cronin, 2007:742). In this regard, for my study, data analysis is regarded as exploring the generated data in a well-planned manner from as many different perspectives as possible in a bid to find out what the intrinsic facts about the issue under investigation are (cf. Pandey et al., 2015:70). This basically involves the transformation of fragmented raw data from texts into expressive, abstract patterns through the use of replicable and acceptable means (Douglas, 2002:82; Elo & Kyngas, 2008:107; Polit & Beck, 2010:469). In this context, the data generated are compared in corroboration categories and patterns to emerge from the data, instead of being imposed on the data prior to generation (Creswell, 2012:557).

Data analysis involves the identification of recurring patterns or themes that characterise the data to derive findings (Merriam, 2009:23). This is done through reviewing, analysing and interpreting data generated through documentary analysis and interviews into themes and meaning to lay a foundation of codification. In my study, critical policy analysis is used together with parts of sentences and paragraphs of the interviews and field notes that have been studied. Thus, the coding process divides the transcribed data into themes, followed by an integrated interpretation to enable the data generated to complement one another in the discussion of the findings. Thereafter, critical discourse analysis is used to produce, point towards and scrutinise an inherently ensuing conversation and all forms of written texts focusing on how the participants express themselves verbally (David & Sutton, 2004:19; Denscombe, 2007:308; Hsieh & Shannon, 2005:1277) in their experiences in science subjects. Therefore, in reporting, critical policy analysis and critical discourse analysis provide

an in-depth understanding and an unambiguous explanation of the influence of societal factors on female pupils' progression in Advanced Level science subjects (cf. Boodhoo & Purmessur, 2009:4).

1.7 VALUE OF THE RESEARCH

It is anticipated that the findings from this study may expose some socio-economic factors influencing the progression of female pupils in Advanced Level science subjects. Thus, the identified factors will be brought to the attention of different role players in government to bridge the gap between the intention of the *National Gender Policy* and what is happening in society in as far as the progression of female pupils in Advanced Level science subjects is concerned. Therefore I hope that my study will affect readdressing and relocating the consideration of policymakers and gender activists to areas such as gender issues in Advanced Level science subjects, which have not previously been explored. Thus, the findings of this study will seize the attention of education policymakers and make them more gender-sensitive in the formulation of policies that favour female pupils' progression in Advanced Level science subjects.

Gender equality campaigners may be informed on the plight of rural female pupils, and this may lead them to use various platforms to fight for their cause through pushing for corrective action in different spheres such as education. There is a scarcity of documentation exposing the voice of the dormant stakeholder (female pupils) in education on issues associated with finding meaningful and feasible solutions to equality in Advanced Level science subjects in rural secondary schools.

1.8 ETHICAL ISSUES

As an outsider in the participants' self-contained space, I am mandated to possess respectable etiquette and a stringent code of integrities (cf. Stake, 2005:459). As a result, a course of action and behaviour will be put in place to keep in mind when scrutinising the issue under investigation. It is in this context that the methodology, methods and sampling all are exposed to ethical considerations (Gratton & Jones, 2010:121; Wisker, 2008:86). In support of this, Perkins (2011:51), Cooper and Schindler (2008:35) and Berg (2007:65) highlight that a study should be structured in such a way that it does not make the

participants experience humiliation or have an impression that their privacy has been entered into by force or discomposure through revealing unintended remembrances. Thus, in my study, care was taken in communicating the motive for the study, avoiding deceptive practices, respecting susceptible inhabitants, respecting native beliefs, not divulging sensitive information and camouflaging the identities of participants (cf. Creswell, 2012:554). The complex nature of concerns involved in my study prompted the need for me to be aware of the ethical obligations that are associated with data generation and the conveying of information to protect the civil liberties of participants.

Ethical clearance (UFS-HSD2017/1006) for my study was acquired from the Ethics Committee of the Faculty of Education. I then applied to the Secretary for the Ministry of Primary and Secondary Education for approval to conduct the research study in the selected province (cf. Appendix 1). In my study, the anonymity of the participants and any activity disrupting the flow of events at the site being looked at are considered, with the purpose of accurately reporting on the investigation (cf. Fouka & Mantzorou, 2011:6; Leedy & Ormrod, 2005:101). During the data generation, there should be no further marginalisation of participants, hence the need to respect and understand their differences in cultural experiences (Creswell, 2012:147). Discussions on gender inequality can be difficult to approach due to the possibility of probing on sensitively charged reactions, thereby extrapolating an unsuitable view about the phenomenon under study. Therefore the desire to circumvent misleading practices, respect the participants, maintain confidentiality and be prepared to provide answers to probable concerns should exist.

Another critical issue is the participants' right to have jurisdiction over the information about themselves (Pieterse, 2010:141). Crucial is the need for engaging in instinctive and thoughtful, principled practices during the data generation process (Mason, 2002:83). For example, a participant might feel uncomfortable to talk about her own experiences. In trying to learn intimate details of the participants' experiences in a patriarchal society, I have to keep in mind the possibility of opening old wounds (cf. Ford & Reutter in Fouka et al., 2011:5); this necessitates an approach of preventing intentional harm and minimising potential harm. According to Rose (2007:253), to minimise these issues and to respect the ethical procedures when researching with humans, assent should be obtained from the

participants. An assent form elucidates the nature of the research process, gives pertinent information explains the participants' basic rights and provides a chance to deliberate on the right to withdraw from the study at any given time, exclusive of any vengeance (Henning, Gravett & Van Rensburg, 2005:73). In my study, apprising the participants is done as a way of fortifying their intentional involvement in the data generation process.

1.9 DEMARCATION OF THE STUDY

This section elucidates the focal point of my study to facilitate the exploration of how societal factors influence female pupils' progression in Advanced Level science subjects in Matabeleland North Province, Zimbabwe. This discourse will be centred on defining the scientific and geographical boundaries of the study.

1.9.1 *SCIENTIFIC DEMARCATION*

For my study, I mainly concentrate on societal factors influencing female pupils' progression in Advanced Level science subjects. The study focuses on societal factors such as geographical and demographical, historical development, socio-political, cultural, philosophical, economic and religious factors, which are possibly among the key factors contributing to female pupils' progression in Advanced Level science subjects.

This study is demarcated into two sub-fields of education, namely comparative education and policy studies in education. In this context, comparative education tends to focus on an education system shaped by societal dynamism (social, economic, geographical, political, historical or religious) (Wolhuter, 2015:25). This lays the basis for the understanding of the Zimbabwean education system and, thereafter, to explain from a societal perspective the factors influencing female pupils' progression in Advanced Level science subjects. This concurs with Hans (in Kubow & Fossum, 2007:11), who postulates that the rationale of comparative education is to unearth general problems to pupils' progression in education with the view to facilitate the transformation of disparity continuance in 'masculine' science subjects. In this case, comparative education nurtures the understanding of norms and values that are moulded and entrenched within the societal matrix (Wolhuter, 2015:27). It is against this background that comparative education is regarded as a generative area for the

exploration of themes concerning gender and education and how education reinforces traditional status hierarchies in a patriarchal society (Stash & Hannum, 2001:354). It offers a starting point for refining our educational systems, where especially girls' education has been at the centre of discussion. It also prompts me to think largely about the link between indigenous practices and explore the intersecting values and social structures that buttress the education and training enterprises (cf. Hayhoe & Mundy, 2008:1).

The discursive framing of policy initiatives shapes our understanding of reality in our society (Monkman, 2013:63), through an appreciation of complex issues such as the challenges female pupils encounter in education. In Zimbabwe, since the attainments of independence, acts (*Legal Age of Majority and Equal Pay*) were introduced in 1982 to recognise that female and male persons were legally equal (Mahlaule in Gudhlanga et al., 2012:4534). After that, various acts and policies were put in places, such as the *Education Secretary's Policy Circular P36* (1990), the *Education Act* (1996), the *Education Act* (2004) and the *National Gender Policy* (2004), which meant to enhance pupils' rights in education. However, there is no explicit regulation for inclusive education (Mutepfa, Mpofu & Chataika, 2007:342). Despite this setback, many government policy issues articulate the intent of inclusive education at levels, with much emphasis on the need for 'gender-neutral' and 'gender-sensitive' education policies perceived as a means through which equality can be achieved. Inclusive education includes the detection and eradication of challenges to pupils' participating in conventional settings such as societies, schools, homes and places of work (Mutepfa et al., 2007:342). In my own opinion, the current policies remain focused on male persons and not gender (or females), and on easily quantifiable indicators (counting male and female pupils in schools or pursuing a particular field of study). Therefore this policy discourse does little to recognise that gender as a social process mimics or has the potential to confront social imbalances (Monkman, 2013:63).

On paper, these two sub-fields seem to be at variance, with one focusing on the education system and the other on policies pronouncements on female pupils' progression in education. The ultimate goal of merging the two will enable the creation of a basis for individual and collective consciousness transformation, resulting in society taking action against oppressive arrangements (Matope, 2012:691). It is against this background that the

two sub-fields comparative education and policy studies in education complement each other in a bid to explore factors influencing female pupils' progression in Advanced Level science subjects.

1.9.2 GEOGRAPHICAL DEMARCATION

Matabeleland North is a province in the western part of Zimbabwe, with the Midlands and Mashonaland West Provinces as its borders to the east and northeast respectively. Matabeleland South Province and the city of Bulawayo border the province under study to the south. The Zambezi River defines the northern border, which it shares with Botswana and Zambia.



Figure 1.1: Map of Zimbabwe (Country Study Zimbabwe, n.d.)

The Matabeleland North Province covers an area of 75 025km² or 19% of the total area of Zimbabwe and has a population of 747 017 (Zimbabwe National Statistics Agency, 2012:5). Due to harsh climatic conditions, the community is mostly involved in wildlife and subsistence farming for survival. The province has a diversified cultural and religious base, where the patriarchal system dominates family decision-making processes. The province offers education from Early Childhood Development to Advanced Level (Zimbabwe National Statistics Agency, 2014:1). My study is purposively centred on secondary schools located in the seven districts (Binga, Bubi, Hwange, Lupane, Nkayi, Tsholotsho and Umguza) of the Matabeleland North Province that offer science subjects at Advanced Level to either both female and male pupils or female pupils only.

1.10 CONCLUSION

This introductory chapter is indispensable to a fruitful investigation, as it makes available a robust footing upon which the entire investigation structure stands. From the literature reviewed, it is clear that there have been efforts to ensure the participation of female pupils in science subjects. Besides, these efforts seem to be addressing the policy aspect of dealing with the problem of the limited progression of female pupils' progression in Advanced Level science subjects, leaving out other necessary efforts such as describing and explaining societal factors that influence their progression. Similarly, little seems to have been studied to establish the societal factors influencing female pupils' progression in Advanced Level science subjects. My study, therefore, seeks to derive a theoretical framework to look at female pupils' progression in education in general and Advanced Level science subjects in particular. It will further critically analyse the laws and policies that direct education in general and Advanced Level science subjects in particular. A review of how societal factors influence education, and science education, for female pupils in the sub-Saharan countries, is done. Therefore transformative-emancipatory schools of thought will guide the study, which is orientated towards solving practical problems on female pupils' progression in Advanced Level science subjects. To accomplish my first research objective, the next chapter focuses on the theoretical framework used as a lens through which my study is viewed.

CHAPTER 2: THEORETICAL FRAMEWORK TO LOOK AT FEMALE PUPILS' PROGRESSION IN SCIENCE SUBJECTS

2.1 INTRODUCTION

In Chapter 1, an overview of my study was provided through the discussion of the rationale and statement of the problem underscoring its rationale. The current chapter outlines the theoretical and conceptual frameworks, which act as the basis on which all knowledge will be created derived from empirical evidence. In the study, the theoretical framework will be regarded as the logic of abstract configurations, which will aid in viewing; comprehending, elucidating and transforming the social world (cf. Connelly, Li, MacDonald & Parpart, 2000:53).

The theoretical framework will reveal the questions (cf. 1.3) to be responded to by my study and how logical procedures are manipulated to lay to rest the issues raised (cf. De Vos, Strydom, Fouche & Delport, 2005:35; Radhakrishna, Yoder & Ewing, 2007:692). In this way, my theoretical framework will consist of the selected theories and bind my thinking with respect to how I comprehend and map the relevant ideas in the topic under investigation (cf. Grant & Osanloo, 2014:13). This provides a theoretical lens that provides coherent elucidations of the overall position and relations concerning how female pupils' progression in science subjects is taking place (cf. Eisenhart, 1991:20). This lens will serve as a structure and support system for the identified rationale of the study; main research question and secondary research questions and a basis for the review of related literature, methods and analysis (cf. Grant et al., 2014:12).

The identified lens will turn out to be a transformative point of view to shape the nature of questions to be probed and make available an appeal for amendment in my study. The theoretical framework will relate to the philosophical basis on which the investigation takes place and configures connections between philosophical facets and the real-world parts of the phenomenon under study. The study is set out to explore societal factors influencing

female pupils' progression in Advanced Level science subjects. Since the underlying societal factors influencing the progression of females in education relate to the focus of most feminist perspective, based on this diverse feminist theories are employed. I do so with the full realisation that in most cases in point, these theories are produced in the Western context, so that they might be inconsistent with indigenous demands. In conjunction with this, I have based my argument on that, despite the existence of differences between Western-contextualised feminist theories and African feminism, and I shall focus these intersections in a bid for the rights of females in various spheres of life. In view of the fact that in my study the data were generated in an African set-up, it is of paramount importance to consider the conjectural reflection process compared to Western-contextualised feminist perspectives and their compatibility with the experiences of indigenous female pupils.

In addition, the inclusion of other theories, such as the human capital and the symbolic interactionist theories depicts an all-encompassing framework for societies working towards changing the subservient status of females in economic, political and social domains, which promulgates inequity. However, it is crucial for me to bear in mind that none of the embraced theories are without their fair share of criticism and none of them take into account all experiences; an amalgamation of the diverse intuitions tends to circumvent basic elucidations of the issue under study. Hence the need for my study to fuse together the abovementioned theories so as to configure a lens through which I endeavour to discuss and explain how societal factors influence female pupils' progression in Advanced Level science subjects.

In my study, Advanced Level science subjects are seen as a multi-disciplinary body of the knowledge, skills and values of biology, chemistry, mathematics, further mathematics and physics, aimed at preparing pupils through a pupil-centred, practical approach to be functional in the scientifically charged world (cf. Kasembe, 2011:316). This affords participants with the competencies relevant for pupils to perform assigned tasks, in groups or individually (Hapanyengwi-Chemhuru & Makuvaza, 2014:9). These science subjects have the primary goal of harnessing and developing pupils' capacities, consequently fulfilling their values and scholarly and pertinent needs to effectively contribute towards the general growth and advancement of the nation. This is done through the involvement of female

pupils in a set of planned activities designed to transmit particular forms of the desired scientific body of knowledge, skills and values at the Advanced Level (Mugweni & Dakwa, 2013:1). Hence the framework stems from the need to associate one concern to another in an endeavour to generate an all-embracing insight into female pupils' perception of the influence of societal factors in their progression in Advanced Level science subjects.

2.2 FEMINIST THEORIES

In this section, selected theories are discussed with a focus on inequality explanations concerning females' position in a patriarchal society. It is worth noting that females from all walks of life have, at one time or another, encountered some obstacles of marginality and inequity, which seem to be the thread that binds them in their pursuit of equality (Robinson, 2012:14). Thus, the division between sexual and social categories in everyday life is concealed as communally governed positions of femininity and masculinity, regarded naturally as imposed requirements (Pearson, 2007:6). With this in mind, liberal, radical socialist and African feminist theories form part of the lens that is used to explore unequal opportunity structures and the conditions thereof as directed by direct power relations between the sexes. The discussion on this part of my study centres on elucidating on some thoughts about gender and feminist theories.

Gender is often taken to be a set of behavioural outlooks that society come to have power over, based on the roles and responsibilities allotted to a particular sex (Chaudhry & Rahman, 2009:174; Mohammed, 2014:231; Wharton, 2005:7). In addition, Uwameiye and Iserameiya (2013:219) accentuate gender as all traits, expected comportment and obligations that are ascribed to females and males in a given society. Therefore, in this discourse, gender is grounded on the social construction of differences between the sexes, which customarily emerge as a most unconscious, persistent and most basic learnt classification, thereby influencing social interactions in societies (cf. Anderson, 2010:282; Scantlebury & Baker, 2007:258; Taiwo, 2013:5244; Yazilitas, Svensson, De Vries & Saharso, 2013:34). It is crucial to note that sex is "a bodily difference concerning being a man and a woman, while gender is a more or less within society, fabricated disparity amongst females and males" (Enemu in Awofeso & Odeyemi, 2014:106, De Satgé, 2002:xix). Thus, the feminist concepts of masculinity and femininity are used to signify the social outcomes of

being male or female (Ezekwe & Uchechukwu, 2019:4). From the above discussion I put forward the argument that gender can be comprehended in terms of the characteristics that not only depict females and males, but also tends to give males added advantage over females, thereby delegating the later to a subservient standing (McDermott & Hatemi, 2011:90). In this context the word gender has picked up new inference of social features as contrary to bodily features (Rahbari & Mahmudabadi, 2017:1; Qarakhani, 2007:75; Oyewumi, 2002:1).

The concept 'gender' is difficult to define, as different individuals assign distinctive meanings to it. Gender depicts variances between females and males based on communally demarcated thoughts and opinions of what it means to be a boy or a girl. It is important to note that sex implies an individual's multifaceted interaction of genes, hormones, structure, environment and comportment, with loop-back consequences, while gender portrays a person's social distinctness and a set of connections between females and males (Lorber, 2010:16). According to Awofeso and Odeyemi (2016:106), gender is an outcome in respect of how a given community interprets and then scrutinises connections relating females and males, influenced by various dynamics, among them the morals of society. Therefore, in my study, the concept of gender is used to mean the social and cultural form of roles, obligations, traits, prospects, rights, position, approach to and jurisdiction over the means and assistance between females and males in a particular society. Gender identity is usually a fundamental characteristic of an individual's appreciation of the self as female or male, which is the inner understanding of belonging to a gender (Endendijk, Groeneveld & Mesman, 2018:877). Accordingly, gender works as a social classification in most cultures, as each culture advances an abundant grid of links that encircles its beliefs of masculinity and femininity (Schmitt, Leclerc & Dube-Rioux, 1981:122). It is in this context that gender is reflected as a means through which social customs are ordered (Connell, 2005:1804). On the other hand, pupils within a culture may perhaps be at variance with regard to how they make use of cultural delineations in comprehending and categorising masculinity and femininity (Schmitt et al., 1981:122).

Sex is the genetic or procreant classification of an organism; on the other hand, gender goes beyond this, as it refers to the roles society deems suitable for an individual according to her sex (Franklin, 2012:1; Scantlebury & Baker, 2007:258). Sex, in other words, is a birth right; nevertheless, responsibilities allotted in communities in most instances are influenced by the social ethos (Rank, 2010:7). However, in ordinary life, this difference among the sexual and the cultural categories is indistinct, since communally controlled gender responsibilities are taken into account as intuitively commanded inevitable (Pearson, 2007:6). In this way, sex is seen as an ascribed condition, since one is born with it; on the other hand, gender is reflected as an attained status, for it must be taught (Owen, 2000:221). This conveys emotional implications, as demonstrated by children's intensity of commitment to doing what females or males are assumed to do (Leaper & Friedman, 2007:563; Witt, 1997:253). This, in a way, is influenced by society, which is organised in a complex interplay of dominance, as female subjugation is continually concealed in the sexual roles. This brings to light what it means to be female or male in a patriarchal society. In this context, gender, in my study, refers to the traits and deeds suitable for females or males, which entail the characteristics of manhood and womanhood based on a specific culture.

Feminism, in my study, is taken into account as a set of social beliefs and dogmatic practices that are critical of the historical and contemporary interactions that favour males as a faction in the social order (Kvasny & Chong, 2006:1171). This is believed to be a collection of belief systems and theories that pay particular thought to females' rights advancing for their equal progression in all domains – economically, politically and socially (Alabi & Alabi 2014:7). Therefore feminist theories place gender at the core of their analysis, implying that it is the fundamental organising feature in society (Ropers-Huilman & Winters, 2011:668). Thus, I will have multi-feminist theories to look at inequalities and prop up various approaches to dealing with barriers to female progression in society.

In this way, feminist theories points towards defining, protecting and bringing about equal rights and prospects for females and males through crusades against gender-based inequalities and to provide them with information to free themselves from gender-based intolerance within their environs, traditions and societies (Arndt, 2002:30; UNESCO, 2015:9). To the contrary, Weatherall (2002:138) argues that feminism is “not just about equal rights

but one seeking to raise consciousness about a diverse range of issues in relation to identity and hierarchy". It is an obligation to economic, social and political impartiality of females that has enticed and initiated a multiplicity of pressure groups, beliefs and crusades (European Commission, 2010:17). Thus feminism calls for an end to patriarchy and for uncovering, criticising and exterminating all of the innumerable individual, socio-cultural, socio-economic and dogmatic traditions that tolerate gender disparity and discrimination in the patriarchal society (Amina, 2011:2).

As an analysis, feminism contests patriarchy as a masculine structure of influence that coerces females within political, economic and social establishments (McLean & McMillan, 2003:96). Therefore feminism can simply denote a traditional, economic, cultural and dogmatic standpoint, where an individual is committed to transforming the status of females in different contexts of life through bringing up awareness about their subjugation. Feminists have used different theories to explain these disparities and have supported diverse ways of rectifying inequities. Feminist theories focus on the patriarchal structure as the root gulf in society between the superordinate and the subservient parties.

I noted from the above discourse that feminist theories enlighten the circumstances under which females have methodically been degraded and subjugated in indigenous communities. It is against this background that feminists are placing much emphasis on the issue of gender parity as a being inevitable for sustainable social advancement for the common good. In order to modify gender imbalances, feminist theorists declare that key societal transformations must ensue so that females' contributions can be understood and valued (Ropers-Huilman & Winters, 2011:678). Thus feminists advocate for a clear social and political commitment to strengthen the voices and experiences of the silenced and marginalised females in different spheres such as education (Ellis-Sloan, 2014:133). It is in this context that in my study, feminism is used in the context of a force that seeks to liberate females from diverse varieties of domination that impedes the accomplishment of their capabilities in different spheres of life, such as education in general and Advanced Level science subjects in particular.

Feminism was born out of the oppressive patriarchal system, where power relations assign females a subservient, ancillary position in relation to males in decision-making processes and scholastic opportunities at all echelons. In this sense, females have lopsided access, proprietorship and jurisdiction over economic, cultural and political means at all family and communal levels. Therefore feminism contends that females occupy a subordinate position, which should not be perceived as an outcome of intellectual mediocrity compared to males, but nonetheless, a social-structural experience. In the modern world, feminism exists in diverse ways and, in most cases, due to differences in conceptual sources. From my own perspective, the existence of multiple feminist standpoints can be a flaw in the fight of pressure groups against the subjugation of females in different spheres of life, such as education in general and Advanced Level science subjects in particular. However, this should not overshadow the indisputable strengths of feminism and the democratic quest thereof of questioning canonical knowledge and values in society (Pilcher & Wheelehan in Mushibwe, 2009:65).

Feminist theories present dynamic avenues for partnership with other theories, such as symbolic interaction, in their declaration that well-thought-out societal disparity is maintained by ideologies that are frequently accepted by both the advantaged and the subjugated (Lindsey, 2011:12). Thus these gender inequality theories in my study point towards the comprehension of the nature of disparities through looking at female pupils' lived experiences in a patriarchal society. While these theories, in general, agree that society logically plays a part in the existence of disparity among females and males in terms of access to power and opportunities, theorists differ on approaches to confront gender-related inequality and oppression (Samkange, 2015a:1173). In support of Samkange (2015a:1173), Awofeso and Odeyemi (2014:106) argue that the goal of feminism was to pressure groups involved in the fight against females' subjugation as an ideology to guide them, work towards impartiality for females and put an end to chauvinism in all forms. It is in this context that I regard 'feminist' as an adjective, which can be used to refer to an assortment of customs pointing towards the female outfit and autonomy in different dominions of life, such as education in general and Advanced Level science subjects in particular (Oyewumi, 2001:1).

In other words, feminism gives a picture of various platforms, where intolerable behaviour against the advancement of females in different spheres of life, such as education in general and Advanced Level science subjects in particular, are deliberated to their logical conclusion in unfavourable environments. It is in this context that I noted that feminists have instituted structures that can be applied in a bid to bring to an end the endurance of the subservience of females in society. This has exposed the existing patriarchal structures in different spheres of life. As a result, guiding principles, such as equal opportunities at the place of work and learning institutions, were enacted as responses to gender inequalities (Mushibwe, 2009:64).

Feminism, in its innumerable types, advances to the society the understanding of the value of impartiality in bringing about an end to patriarchal tendencies in different domains such as education (Amina, 2011:9). It is against this background that I use feminism in my study to signify the emancipation of female pupils from different forms of coercion that impede their progression in Advanced Level science subjects. Thus, feminist theories form part of the framework to be used as a base for connecting the many diverse principles of liberation movements (Ugwu, 2018:5). In my opinion, feminist theories will contribute to a broadening of the understanding of how the diverse settings of gender for females influence their progression in scientific inquiry.

The selected feminist theories are used to discuss different understandings of how much of the underrepresentation of females in science can be explained by nature and nurture respectively to shed light on the phenomenon under study. Feminists have a number of diverse concerns about and viewpoints on science (Stanford Encyclopedia of Philosophy, 2015:1), as they critique the downgrading and handling of females in ways that mimic gender-normative labels. Hence, in my study, various gender inequality theories are used to mirror how female pupils visualise disparities in their progression in education in general and Advanced Level science subjects in particular. The following section makes an effort to shed light on sensitivities from different female experiences collectively in a bid to bring into being new ways of understanding and terminating female coercion. This will be made possible through the fusion of selected gender inequality theories, which will be used to

clarify various variables within the Matabeleland North Province community that influence female pupils' progression in Advanced Level science subjects.

2.2.1 LIBERAL FEMINISM

Liberal feminism rests on the premise that biological sex should not rule out the rights, which are accorded to individuals in society (Greer & Greene, 2003:3). It is in this context that feminism considered being one of the forerunners in the fight against overt unfairness and/or systemic circumstances, which take away females' rights and wellness. This is done on the basis of the liberal feminist belief that the gender imbalance in different domains of life was due to females' limited access to civic rights (Giddens, 2001:692). According to Chilisa and Ntseane (2010:622), liberal feminism focuses on the subservience of females through lopsided prospects, entrenched in different set-ups of society, such as economic, social, legal and political formations. Thus it looks for no exceptional rights for females but merely petitions that one and all receive equal concern without being prejudiced based on sex (Rosser, 2006:14). It is in this context that liberal feminism in my study aids in interrogating what it means to female pupils in Advanced Level science subjects in the rural context of Matabeleland North Province societies in terms of discrimination and socialisation, equal opportunities and sexual labelling.

Liberal feminism advocates for an equitable status for females in an open society, accorded through the advancement of impartiality as a way of recognising their legal rights and de-gendering different spheres of life such as education (Abbey, 2011:263; Arnot & Dillabough, 2006:167; Usman, 2014:4). Based on these ideals, it is liberal feminists' belief that barriers that prevent females from progressing equally in Advanced Level science subjects can be minimised through the provision of equality – socially, economically and politically. For me, therefore, feminist liberals in this discourse form part of the lens to be used to depict how rural female pupils delineate their diverse experiences and memories in education in general and science subjects in particular, with the view of transforming their current status (cf. Hague, 2016:205).

Liberal feminism is assumed to be rooted in the promotion of individual self-sufficiency and the advancement of one's own rights above the common good (Ford, 2002:21). Thus, liberal feminism focuses on equal prospects in defiance of sexual discrimination, sexual socialisation and sexual labelling; hence the belief of liberal feminist theorists that social systems, such as education, can be used to promote a liberal agenda for society (Lewis, 2012:2; Lorber, 2010:9). In this context, liberal feminism sheds light on the presence of gender-related inequalities in society. I concur that it is the responsibility of the concerned individual to mend this state of affairs within the current societal structure.

The liberal perspective is largely perceived to be the influential, consistent posture on feminism, which is pertinent to mainstream women who are recognised as being feminist in some way but do not upset the status quo in their bid to establish enhanced or equal conditions for females (Pilcher & Whelehan, 2004:49). This movement strives to accomplish parity through on-going, unrestricted transformation as opposed to radical feminism, which supports confronting patriarchy from the core. From the liberal feminist perspective, gender disparity is an aspect that affects both the feminine and the masculine; nonetheless, more attention is paid to the elucidation of the subservient status of females in different domains such as education.

Hence, from a liberal feminist perspective, no distinctive opportunities should be demanded on behalf of females; instead, they advocate for the eradication of all forms of discrimination, resulting in a situation where everyone gets the same consideration (Adawo, Gikonyo, Kudu & Mutoro, 2011:7). It is against this background that the objective of liberal feminists is the eliminating of all obstacles that thwart female pupils' access to particular subjects such as Advanced Level science subjects. Thus, their key aspirations are gender parity in the public sphere, equal participation in education and the eradication of gender exclusion, chiefly through permissible transformation. Liberal feminism stresses that females ought to have autonomy to establish their responsibilities in science education. Based on the liberal feminist perspective, in 2004, Zimbabwe gazetted the *National Gender Policy* delineating actions to address, among other concerns, disparities in the education of female pupils. On a negative note, I have noted the inability of the liberal feminist theory to address how deep-rooted gender inequities centred on the methodical subservience of females in a

structured society can be addressed. This calls for the inclusion of the socialist feminist theory to form part of the lens through which the influence of societal factors on female pupils' progression in Advanced Level science subjects is observed in a bid to minimise the identified limitations.

2.2.2 SOCIALIST FEMINISM

From the above discussion, not much was addressed in terms of power issues among the feminine and the masculine in society. Therefore it is upon the perspective under discussion to pose questions on the power dynamics that act mutually and meticulously with financial benefits to hold females in a subservient standing in society (Stromquist in Emirie, 2005:16). The socialist feminist perspective sees the subjugation of females as a product of a patriarchal system, where males form the ruling class and females the subordinate class (Mushibwe, 2009:89). Thus society is deemed a proxy that acts mutually and meticulously with socio-economic welfare to keep females in a subservient spot.

Distinct from the perspective discussed earlier on (cf. 2.1), the socialist feminist perspective, with limitations, regards progression in Advanced Level as constructive. In this instance, it regards education as a vehicle through which contemporary, unjust contexts are replicated through backsliding administration and nurturing a sexist culture (Emirie, 2005:16). According to socialist feminists, sexist notions are integrated into the science education framework through the perpetuation of inclinations of gender inequality in society (Emirie, 2005:16). This was strengthened by Bowles and Gintis (in Yokozeki, 2000:47) when they highlighted that although education is aimed at reproducing social classes, it does not propose a unitary structure.

From a social feminist perspective, Advanced Level science subjects and their societal influence have frequently been abstracted under conditions that favour males, exclusive of females (Adawo et al., 2011:7). It is against this background that education is regarded as accountable for the endorsement and augmentation of the advancement and welfare of females and society in general (Aleman & Renn, 2002:14). Hence socialist feminism does not necessarily address gender disparity in education directly, since most of its efforts are directed towards policy analysis, with limited or no use of empirical analysis in research.

Consequently, the focus of the current study on societal factors influencing female pupils' progression in Advanced Level science subjects renders the socialist theory pertinent.

2.2.3 RADICAL FEMINISM

According to Wajcman (2010:146), radical feminism views females and males as being primarily different, and females' supremacy, beliefs and preferences are looked upon as having been methodically regulated and subjugated by males who operate within patriarchal establishments such as homes. It is against this background that radical feminism is used in my study as one of the feminist theories to explain the interplay between femininity and female progression in Advanced Level science subjects, in the sub-Saharan African society. In this context, radical feminism is seen as fighting the culture of domination by mostly males in terms of politics of sexual categories in different spheres of life such as education in general and Advanced Level science subjects in particular (Emirie, 2005:17; Solanke, Ogunjuyigbe & Shobanke, 2014:122).

Radical feminists view society as being oppressive to females, with institutions such as the home and the school seen as conduits through which male pupils tower above female pupils, giving rise to gender subjugation in education in general and Advanced Level science subjects in particular. In such circumstances, it is assumed that patriarchy and male dominance orchestrate the subjugation of females, both within the education system and the expansive setting of the society. Based on this, I note with concern that males as a social group control females and utilise the term 'patriarchy' to refer to this system of supremacy and subservience. It is, therefore, understood that the social systems that are the imperative source of the subjugation of females should be contested for its total eradication (Skelton, 2001:167). In support of this view, Kambarami (2006:2) reveals that the masculine nature of society in terms of customs, establishments and ethos confines females to subservience. I note that radical feminism accepts Advanced Level science subjects as a vehicle through which female pupils can be released from subservience. However, it is my argument that the contemporary education and training system, to a large extent, has limited capacities to meet the requirements needed in order to fulfil this resolution.

It is critical to highlight that the radical feminist perspective has connections with the earlier-discussed perspective (cf. 2.2.2). This is based on the way it views the influence of the societal values in rural learning ecologies. For instance, from the radical feminist perspective, science subjects are a true reflection of how females are being omitted from the power dynamics of the broader patriarchal society (Khattak, 2011:74). Radical feminism emphasises that patriarchy and power facilitate the subjugation of females in the broader spectrum of society and Advanced Level science subjects in particular. In view of this, Gutsa et al. (2011:24) highlight that due to males' access to means of production; they can initiate and uphold patriarchal structures, which make females serve their interests. In this regard, schooling is viewed as an integral component of the patriarchal system, where female pupils' thoughts are belittled by their male colleagues in their Advanced Level science subjects (Acker in Khattak, 2011:74).

According to Sinnes (2006:48), liberal feminism, in principle, propounds that female pupils are capable of applying the same scientific principles with the view of contributing towards scientific and technological advancement, provided their learning ecologies maintain an appropriate consistency on the application of gender equality principles. With this in mind, it is crucial for me to point out that through socialist and radical feminist perspectives, deep-seated transformation of the current science education and training system is possible. This is based on the limited belief that both the radical and the socialist feminists have on the existing education system that is assumed to be monopolised in order to serve their interests. In principle, these feminist theories acknowledge the notion that female pupils have been kept away from progressing in science due to an assortment of influences external to their progression in Advanced Level science subjects (Howes in Sinnes, 2006:48). Although there might be some differences in these feminist theories, they seem increasingly in agreement with what is experienced by female pupils in their progression in education in general and Advanced Level science subjects in particular.

Since society based on patriarchal dominance has accepted the disparity between females and males as normal, it is my opinion that this set-up needs to be confronted. It is against this background that insincere resolutions that seek to inspire female pupils' progression in Advanced Level sciences are cast off. If I look at my study through the lenses of liberal, radical and socialist feminism, all of these challenge the view of science education as only being accessible by male experience, which treats this experience as the norm. Thus feminist theories query how the unnoticed and otherwise dominated rural female pupils can be empowered (Cohen, Manion & Morrison, 2005:36) to enable them to progress in Advanced Level science subjects. As a result, from a feminist perspective, it will be of much significance to accord female pupils the opportunity to unrestrictedly express their own experiences and their thoughts pertaining to their progression in Advanced Level science subjects.

My study scrutinises how societal factors influence rural female pupils' progression in Advanced Level science subjects, bearing in mind that the liberal feminist perspective centres on economic alignment, with radical feminist thought having a socio-political positioning in their quest for the emancipation of females for their contemporary status. In addition, I would like to highlight that the socialist feminist perspective merges the socio-political and economic dynamisms. It is expected that by merging these theories, it would contribute towards the formulation of a lens through which societal limitations that hinder social transformation in the interest of females will be exposed. However, the discussed theories fail to notice erstwhile foundations of gender gaps such as indigenous culture (Mushibwe, 2009:92). This calls for the inclusion of African feminism to form part of the lens through which my study is observed.

2.2.4 AFRICAN FEMINISM

According to Goredema (2010:34), African feminism is reflected as an epistemology and an outline of rhetoric that makes available the line of reasoning to corroborate African females contrary to the conventional feminist discussion. In my study, African feminism is regarded as an ideology that incorporates liberty from subjugation, grounded on the cultural, economic, political and social manifestations of sexual partialities, so as to produce a society that views females first and foremost as humans with full rights rather than as sexual beings

(Steady, 1987:8). It is vital to note that although the word 'gender' has been universalised, its construal is not a unanimous sisterhood; hence the discourse in this section is centred on culture-specific norms of gender. Against this background, African feminism is fused into the framework to form a lens to bring about a particular discourse in the Zimbabwean context by questioning traditional cultures without denigrating them (Mekgwe, 2003:7).

According to Lyons (2004:3), Western feminist theorists are criticised for suppressing African females in the very speech intended to set them free from subjugation. For instance, African feminists are discontented about the portrayal of being female on the basis of linguistic configurations, concepts and simulations through Western feminists' experiences (Chilisa & Ntseane, 2010:618). I therefore argue that most of the criteria used to gauge the level of gender equality in African societies are derived from Western cultures and these are not socially and politically compatible with indigenous context (Arnfred, 2002:10). It is against this background that African feminists were driven by de-colonisation and re-visioning objectives to bring forward their own perspective concerning gender equality. Stressing circumstantial and cultural intricacy and the necessity for sovereignty are regarded as an indispensable remedy to the conventional advancement rationale (Sethi, 2005:6). Hence, the need for the African feminists to front inequalities through the use of indigenous approaches in articulating their defiance, which, in most instances, tend to go against the paradoxical types of masculine dominations (Chilisa & Ntseane, 2010:169). Against this background, Nicolaides (2015:200) made the contention that feminism is virtuously a foreign (Western and/or European) phenomenon inflicted on the African belief system.

The tendency of importing Western gender theories, which generalise the conditions of African females and males without seeking awareness of specific contexts, cultures and people, was critiqued and rejected by African feminists (Chilisa & Ntseane, 2010:619). Unlike Western gender inequality theories, which stand separated from the realities of African life as these are felt by Africans (Muwati, Gambahaya & Gwekwerere, 2011:2), African feminism is based on the lived experiences of the African society (Reed in Hudson-Weems, 2004:xviii). Against this background, the African feminist epistemology affords contentions to substantiate the experiences of African females in the mainstream feminist discourse.

African feminism disputes Western feminist conceptions as exceptional rather than the norm (Mohanty in Fennell & Arnot, 2009:6), as these countries have different historical paths; they have created distinct interpretations of gender and gender interactions. African feminism fills a vacuum that has kept females languishing on the peripheries of the Western world (Ntiri-Quenum, 2007:315). Therefore African feminists contend that hegemonic Western-contextualised gender inequality theories create their own knowledge in distant geographies, but are universalised to traditionally marginalised societies such as sub-Saharan Africa (Fennell et al., 2009:3). It is against this backdrop that the struggle of African females against diverse forms of patriarchal dominance is most likely to go undetected.

In the same manner, African feminism urges intellectuals to discover and underscore theories in those gaps not reckoned by the Western-contextualised scholastic point of view (Saavedra & Nymark, 2008:258). Therefore, the African feminist theory has the potential to make meaningful contributions to the discourse on female pupils' progression in Advanced Level science subjects (cf. Hudson-Weems, 2007:295). I have selected the African feminist theory to form part of the theoretical lens as it explores gender equality in education in general and Advanced Level science subjects in particular. Like Western feminist theories (liberal, radical and socialist), it makes female pupils cognisant of influences that contribute to their subjugation in society, with the anticipation of transforming these circumstances through education.

Dillard (2009:278) implores the need to employ a theoretical framework that is heterogeneous to form its own standpoint and to validate that indigenous culture can offer concrete ways to orate or revisit the existing circumstances in sub-Saharan Africa. This, in my opinion, divulges the inclination of Western-contextualised feminists, who signify themselves as the foundation of knowledge and compel thoughts conceived in their own scenery on sub-Saharan African occurrences. For instance, African females are depicted as incompetent and incapable to control themselves in terms of the changes desired in their lives and to manage processes to bring about these transformations (Kumah, 2000:5). Hence, the African experience is erroneously cast aside, ensuing in misrepresentations and disorientations of indigenous practices and beliefs (Oyewumi, 2002:5). For this, Lilian Ngoyi,

Albertina Sisulu, Margret Ekpo, Sally Mugabe, Mafuyana Nkomo and Funmilayo Anikulapo-Kuti, among many others, battled against colonialism as well as patriarchy through objection (MsAfropolitan, 2013:2). Against this background, belittling and discriminating conceptions about the situation of African females, whether educated or illiterate, in rural or urban set-ups, have resulted in African feminists revolting against inequity and the oppression of females in different spheres of life.

According to Nicolaides (2015:202), most African women regard their culture as an essential attribute that influences their identity in society. Thus, in sub-Saharan Africa, women play a significant role in recapturing traditional beliefs, where their roles in the social structure are valued and make up for males in the social context. In this context, African feminists reject gender disparity and fight unfair dogmas against females in public and private spheres (Udokang & Awofeso, 2012:159). According to Hudson-Weems (in Yaa Asantewaa Reed, 2001:175), African feminists claim that scaffolding for a society at liberty from subjugation exists in the indigenous belief systems; nevertheless, women must fight for it. In my study, African feminism, on this basis, forms part of the framework through which societal influence on female pupils' progression in Advanced Level science subjects is explored.

Although selected feminist theories (liberal, radical, socialist and African feminist) attack the issue of gender equality from different angles, however, they have a shared vision on the need to empower females through the elimination of obstacles, which impede them from accessing equally the socio-cultural, political and economic spheres. The African feminist theory also allows African females a prospect to link with one another and build power from their shared circumstances in exploring the links that bind them, leading to cohesion (Mangena, 2013:8). Although feminists have diverse theories to account for disparities with different approaches to correct the imbalances, they are united by the understanding that the position of females in society is lopsided to that of males and society is organised in a way that benefits males to the detriment of females (Alabi & Alabi, 2014:7).

This shows the need for my study to be guided by the beliefs of feminism, considering the influence of inequality on silenced female pupils' progression in Advanced Level science subjects. Hence the need to combine African and Western feminist theories to enable my study to explore how gender disparity manifests itself in science education and explain how gender-sensitive societal factors influence rural female pupils' progression in Advanced Level science subjects. The diverse feminist theoretical standpoints are a critical indication of female pupils' experiences that come together on concerns about their subservience in patriarchal societies (Morgan, Heeks & Arun in Chabaya & Gudhlanga, 2013:92). In this context, these theories were selected as recognising the pervasive influence of gender-related partitions of social life and critiquing these social relations.

2.3 SYMBOLIC INTERACTIONIST THEORY

The previous discussion (cf. 2.2.4) opened up the need for me to work towards understanding the behaviour of the individuals involved in my study through valuing the connotations they assign to symbols during interactions within their society (Hashash, Abouchdid & Abourjeily, 2018:3). In this study, society is perceived as an unending conception of human interfaces, rather than as a motionless and deterministic formation structure (Mayr, 2018:11). Hence the need for the inclusion of symbolic interactionism in looking at the formulation and implications of female pupils' experiences from the actors' perspective in a given social context (Barros, Cappelle & Guerra, 2019:44). Of note is that symbolic interactionism is a sociological point of view, substantiated in the pragmatic philosophies of Pierce, James, Dewey and Mead that scrutinises how individuals interrelate with one another, focusing on the conception of their own uniqueness through relations with others (Smit & Fritz, 2008:92). In addition, Dunn (2010:6) highlights that symbolic interactionism depicts societies as miniature groups of human beings, intermingling grounded on numerous means, in which they interpret innumerable ethnic symbols such as verbal, inscribed and non-verbal language. This theory claims that evidence is grounded on and guided by symbols, as it looks at meanings coming from the mutual interaction of human beings in the social environment (Aksan, Kisac, Aydın & Demirbukan, 2017:902). This, in my study, forms part of the theoretical lens to assist me in interrogating the relationships of the participants in their context.

Participants' actions are a result of their elucidations of the circumstances that antagonise them in their everyday lives (Athens, 2010:92). In this context, symbolic interactionism in my study focuses on the construction and mediation of meaning through interaction (cf. Mudzingwa et al., 2013:35), with emphasis on how the characters and views of female pupils are influenced by societal expectations. Therefore, in the study, the spoken and non-verbal cues with which society communicates with female pupils are seen as inflicting an intense influence on their progression in Advanced Level science subjects (cf. Katsande, 2016:17). In this context, individuals are assumed to be actors who socialise either formally or informally in a social setting through interaction with others, derive meanings from these exchanges and act on them.

The interaction that takes place during socialisation in society leads to gender schemas through which female pupils develop their self-concept and personality (Franks, 2003:794). Thus symbolic interactionism deals with how society is crafted and upheld through continual interaction among individuals through the use of language and important symbols in their exchange with others. It places major value on subjective meaning, sentiments, interface and communication within a community context (Visagie, Linde & Havenga, 2011:111). Symbols and meanings are created in a process that is not a neutral medium in which social forces play out their game during interaction among individuals (Turner, 2004:345). In an attempt to get accustomed to their natural world, individuals use these symbols and meanings in the process of thinking and communication (Ashworth in Nilgun, Buket, Mufit & Sumeyra, 2009:903). Since all occurrences are exceptional, symbolic interactionism will allow for a thick description and have a socially centred understanding of the experiences of the selected participants. My study explores how these symbols and meanings influence rural female pupils' progression in Advanced Level science subjects.

According to interactionists, the foundation of symbolic interactionism is the approach in which an individual is linked to the social arrangement and the probable relationship between an individual and others (Auguste, Briggs & Vreeland, 2014:11). These individuals interrelate in terms of shared meanings – the meanings ascribed to one another's actions and circumstances in which such interactions take place. In this scenario, meanings in my study are both acquired from others and to some extent moulded or remodelled in their

social setting, using symbols (Dong, 2008:14). Therefore, the labelling of females and males by society as particular kinds of individuals with specific and different behaviours, qualities, and scholastic and social capabilities propagates the gender dogma, resulting in their having different expectations about themselves in various spheres of life. This implies that an individual's responses and perceptions are a direct result of the actions and conduct of the individuals around them (Mudzingwa et al., 2013:35). According to Visagie et al. (2011:112), this is the basis of understanding multiplicity – the self becomes defined and choice of action becomes elucidated. Hence, individuals often find themselves acting in a manner society has deemed fit for them, whether it is at home or at school (Machiridza et al., 2016:96).

Machiridza et al. (2016:96) contend that women encounter a lot of pressure in striving to balance their socially accepted family responsibilities as mothers and companions and their obligations at the work. From this, children learn how their society delineates the roles of males and females and then internalise these unchallenged primary beliefs, which are mostly unchanging. In my study, symbolic interactionist theories will be used to explore female pupils' experiences, how these are defined and how they make sense of female pupils' progression in Advanced Level science subjects. According to Visagie et al. (2011:111), symbolic interactionism offers insight into and direction on how gender disparity perseveres in Advanced Level science subjects through comprehension of conditions, processes and consequences of inequality. This ultimately leads to the description and reconstruction of the reality that exists in the minds of female pupils who take Advanced Level science subjects. In this context, the picture of female pupils relating with one other provides them with ideas, and the surrounding environment then utilises the implications as a starting point for decision making on whether or not to proceed in Advanced Level science subjects. Therefore it is my assumption that gender performs a persuasive task in female pupils' development of self-concept due to social experiences from exposure to a gendered environment.

From the symbolic interactionist viewpoint, individuals have figuratively, socially and culturally structured their own interpretations and implications through interactions with others, as they live their lives within society and carry out their roles. From this viewpoint, the constructed connotation is the subsisted experience that influences their actions and conduct. It is, therefore, the aim of my study to explore female pupils' subsisted experiences in a natural situation of the social-cultural environment as they progress in Advanced Level science subjects.

The central character in common of the selected theories is that they advocate for equality of prospects and the eradication of chauvinism and discrimination against females in science education for them to fulfil their full potentialities, competencies and ambitions (Dzimiri & Chingombe, 2015:167). In my study, the human capital, symbolic interactionist and feminist theories are fused together to centre the attention on the imbalanced power relations in a society where males dominate females in most activities. Thus the feminist theory accounts for ways to empower female pupils through expounding affiliation between the labels of 'feminine' and how these females are judged by peers and by themselves (Lindsey, 2011:12). My study is grounded on the fusion of the abovementioned theories to describe and explain the societal factors influencing female pupils' progression in Advanced Level science subjects.

2.4 HUMAN CAPITAL THEORY

According to Worlu and Onyinyechi (2016:38), Goodwin (2003:1) and Sharpe (2001:3), the human capital theory underlines how education upsurges the production and proficiency of the workforce through the escalation of their intellectual abilities and capital venture in human beings. In support of this view, Marimuthu, Arokiasamy and Ismail (2009:266) and Adriane and Scott (2005:ii) premise this on the basis that the individuals who make up a society are a form of capital that can be invested in, in a similar manner as is done in physical assets. Hence, education is looked at as a capital good, placing emphasis on the acquisition of knowledge, skills and values by pupils in their progression in different learning activities (Zivengwa, Hazvina, Ndedzu & Mavesere, 2013:399).

The human capital theory advocates for education that imparts valuable knowledge and skills to individuals in order to, in turn, increase their productivity and proceeds (Becker cited in Fugar, Ashiboe-Mensah & Adinyira, 2013:467). According to this perspective, the theory contends that the acquisition of knowledge, skills and capabilities weighs in the development of a productivity capital base (Harding, Morris & Hughes, 2015:64). In support of this view, Kiss (in Potaliene & Tamasauskiene, 2013:56) highlights that capital and all activities fused in an individual as knowledge and skills with the view of increasing productivity can be accounted for as an investment. Consequently, the empowerment of the human capital can create changes that enable them to act in contemporary approaches in diverse spheres of life such as education (Coleman, 1988:100). Accordingly, this theory contends that investing in human beings through education could result in returns, which can be reflected through the earnings of those who are skilled and knowledgeable (Chinomona & Maziriri, 2015:838; Klasen & Lamanna, 2009:91). In trying to formulate a lens through which my study can be observed, the human capital perspective acts as the basis to describe the essential conviction that venturing into children's education presents enhanced returns (Olaniyani & Okemakinde, 2008:157; Schultz in Mushibwe, 2009:73). According to this theory, individuals are seen as rational beings that can make choices that should be understood on the variable ground of the expectations, perceptions and beliefs in society.

According to Mitra and Singh (2007:1228) and Kwesiga (2002:8), the human capital theory brings about the conviction that progression in Advanced Level science subjects generates resources with knowledge and requisite skills, geared towards increasing output. This brings to the fore the notion that having access to education and training permits an individual to be successful in society (Robeyns, 2003; Unterhalter in Otto & Ziegler, 2006:1). It stresses the ever-increasing level of intellectual standards among the populace in general through the endowment of quality science education (Kabote et al., 2014:89). Therefore industrious human capital can be attained through equipping both females and males with prevailing knowledge and skills. However, the absence of the ability to scrutinise interactive differences in the conversion of initial raw material, which is unable to read or write, into one with respective competencies to progress in education point towards the existing low levels of human capital empowerment (Baah-Boateng, 2013:38; Sen in Otto & Ziegler, 2006:2). This implies that whether female or male, all pupils have an equal capability to

progress in Advanced Level science subjects. The assumption in the human capital theory is that decrees, for example whether to educate a girl or a boy, are taken only on the basis of economic efficacy (Robeyns, 2006:80). In my opinion, traditional thoughts that are focused on males rather than females due to beliefs that postulate that the education of females is an inferior venture influence parents' decision to educate boys based on the notion that they might have better financial returns for the family.

In the human capital theory, preference development, socialisation, intangible forms of bias and the influence of norms should not be taken as insignificant matters but analysed candidly (Olaniyani & Okemakinde, 2008:158), as they raise the intrinsic value of female pupils' progression in Advanced Level science subjects. However, connecting females' education with social impartiality, as it is in approaches to human rights and human skills, involves regarding education as a means of social transformation and achieving freedom (Sen in Manion, 2011:1). It determines what is imperative when appraising social understandings, well-being and freedom, but to relate it to existing situations, such as female pupils' progression in Advanced Level science subjects, one needs to complement it with other social theories linked to gender inequalities (Robeyns, 2003:68). This is particularly vital for anxieties with regard to gender inequality in Advanced Level science subjects, as employing the human capital theory in a policy issue, grounded on a very thin justification of gender discrimination, and may result in diverse suggestions on policy (Unterhalter, 2003:17). However, in my study, this challenge is regarded as a positive matter, as it forces me to make use of an explicit underlying framework of gender inequalities in studying the influence of societal factors on female pupils' progression in Advanced Level science subjects.

The human capital theory postulates a frame with theoretical, pragmatic and normative implications that allows for the review of educational concerns (Otto & Ziegler, 2006:1) such as gender disparities in science subjects in a rural setting in Zimbabwe. It is essential to perceive that in most instances, education as a process through which society can formulate its own tenacities makes plans for its own ways and direction, in which it aspires to move with determination. In such a setting, the human capital theory will put emphasis on the necessity for policymakers to apportion considerable resources, acts and policies as driving

forces in the development of educational systems, especially in disadvantaged areas (Gillies, 2014:34). In this context, the human capital theory contributes towards the clarification of the connection between investing in schooling and societal considerations influencing pupils' progression in Advanced Level science subjects. As this theory highlights the education and training of human capital, it is gender-sightless with regard to concerns linked to gender disparity in science education. Thus the focus on economic deliberations is plainly apparent in the human capital theory, as is the almost complete concealing by economic obligations of the social, political and cultural scopes of advancement.

In trying to address the problem of inequality in power distribution in different spheres of life in Zimbabwe, affirmative action has been tried as a way to correct inequalities among individuals. Despite the existence of policies, gender disparities still continue to pervade all aspects of human advancement and interface in Zimbabwe. Hence the need to use the human capital theory, which accentuates the significance of Advanced Level science subjects in building human competencies that are essential for production, which, in turn, brings about growth at all echelons of society (Kabote et al., 2014:89). Thus, for the society to have viable businesses and products the human capital inclusive of females need to be trained and there should be no barriers to their employment in various sectors of the economy (Klasen & Lamanna, 2009:94). Against this background, the human capital theory forms part of the lens through which the influence of societal factors on female pupils' progression is perceived in my study.

According to Meulders et al. (2010:10), decisions made by female pupils, are based on the accumulated stock of human capital corresponding to their investment in education and formation. Thus, pupils should be free to decide their own progression (Nussabaum, 2000:87), based on the assumption that a respectable life results from undisputed, self-made selection, instead of a selection made under the influence of someone (Sen in Otto & Ziegler, 2006:4). In my study, the human capital theory gives an understanding pertaining to the significance attributed by society to female and male pupils and how it influences their decision making with regard to which child to educate. Although statistical pointers, such as the number of pupils in an institution and the extent of their performance in assessments,

are significant in education (Walker, 2004:4), these cannot give us the whole description of how well pupils are doing in education.

The human capital framework is criticised for its inclination to view education as something like an engine, with pupils entering and exiting it with their knowledge and skills aptly topped up (Unterhalter in Deneulin & Shahani, 2009:211). Despite this criticism, the human capital theory has been irrepressible and still remains the basic theoretical construct of thought that agrees that education is one of the ventures that pays dividends, in the individual, societal and national arenas (Fugar et al., 2013:467). Against this background, I infuse the human capital theory, which focuses on the benefits of education for society, into the theoretical framework to be used as the lens through which societal factors influencing female pupils' progression in Advanced Level science subjects can be explored. The theoretical framework for my study thus is a fusion of the feminist, symbolic and human capital theories to form a lens through which female pupils' social experience is explored in view of describing and explaining their progression in Advanced Level science subjects.

2.5 DISCUSSION

In this section, the conceptual framework that came about after deliberation on how it addressed my main question (cf. 1.2) and secondary research questions (cf. 1.3) is enlightened. This should give the reader a clear appreciation of my conceptual line of confrontation of the issue under investigation (cf. Maxwell, 2005:123). In the context of my study, it brings about the need to open up prospects to shed more light on what is known traditionally relating to gender inequality in Advanced Level science subjects in rural secondary schools in the Matabeleland North Province through interaction with female pupils' realities of the world.

I noted that the selected theories were worthwhile in providing detail on how societal factors influence female pupils' progression in Advanced Level science subjects. For my study, the conceptual framework is based on the acknowledgement of both females and males being equal before the statutory laws of the nation and recognises the function of socialisation (cf. Ejumudo, 2013:59; Iwuchukwu, 2013:81; Ojo, 2013:139) in shaping their decision on whether or not to proceed in Advanced Level science subjects. It is also critical to

note that feminists struggle against the notion that progression in Advanced Level science subjects is inherent to male pupils only (Muzvidziwa, 2013:245). This brings to the fore the patriarchal structures and exclusionary habits that have barred and side-lined female pupils (Mhembwe, 2019:67) from progressing in Advanced Level science subjects.

The framework of my study is based on the consideration of female pupils' position in education in general and Advanced Level science subjects in particular. My choice of framework is not accidental but a manifestation of imperative, subjective thinking and comprehension of the nature of knowledge, how it exists, the role I have to assume and the instruments to be used in data generation in the study (cf. Grant et al., 2014:13; Lysaght, 2011:572). I therefore opted for a conceptual framework that includes the feminist, symbolic interactionist and human capital theories to methodically link up and position each one of them in a bigger perspective.

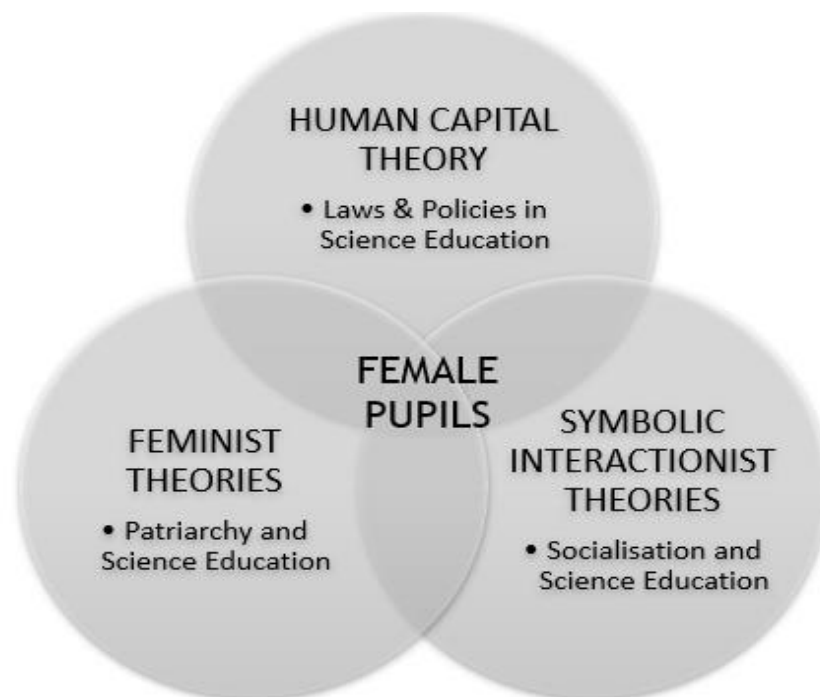


Figure 2-1: Interaction of patriarchy, socialisation, laws and policies in science education for female pupils

In this framework, I endeavour to set apart precise features (cf. Hoy & Miskel, 1996:396) that single out female pupils from their male counterparts in their progression in Advanced Level science subjects. This gives me the opportunity to deliberate on circumstances that

influence female pupils' progression and dynamics in Advanced Level science subjects. I am therefore at ease that the abovementioned theories point to satisfactory and convenient lenses to look at the issue under investigation.

An analysis of societal factors influencing female pupils' progression in education in general and Advanced Level science subjects in particular will flow from different positions showing the thrust of the identified lens as shown in the diagram. My framework was derived as a coherent argument based on proven realities anticipated in elucidating the issue under inquiry. Hence, an attempt is made to explore the extent to which the feminist, symbolic interaction and human capital theories can effectively be linked to societal factors influencing female pupils' progression in Advanced Level science subjects. Although each theory is unique, they all offer alternative ways of looking at emancipating oneself from the institutionalisation of subjugation through empowering and liberating spaces (Ali, Zakuan, & bin Ahmad, 2018:49; Enns & Sinacore, 2002:469).

At the centre of this discourse are the marginalised female pupils and how their progression in education in general and Advanced Level science subjects in particular is influenced by patriarchy, socialisation and policies. Hence, the crossing point of these three critical components has the scope to influence the frame within the respective circle (Pati, 206:5). Against this background, my study will be looked at from the participants' perspective as a way of acknowledging their opinion pertaining to their progression in education in general and Advanced Level science subjects in particular, which so often is not documented (cf. Hanvey, 2012:162). This intersectional methodology is used to show how sociological, anthropological and economic facets interconnect in the concerns of gender inequality in a patriarchal society (Olatunji, 2013:2).

In my discourse I set out those concerns that were unique to the setting of rural female pupils, thereby interrogating their accustomed beliefs, devoid of demeaning them, and accepting that these may possibly be seen in a different way by the participants (cf. Mekgwe, 2003:7). The truth about the feminine experience in Zimbabwe is in one way or the other the same as those of others the world over, as the suppression of their rights though culture, sexism and what is regarded as 'female manners'. It is believed that together, females and

males have assisted in putting together and upholding the so-called customary understanding of what it means to be a female in general and a Zimbabwean female in particular. This reflects a patriarchal focus on finding forces that act on humankind, instead of looking at the ways through which they interact and co-operate with one another in different spheres of life, such as education (Neuman, 2014:118). The selected theories of gender inequality are concerned about the issue of females regarded as being on a par with their male counterparts while at the same time being dynamically discriminated against in various spheres of life, such as education (cf. 2.2).

According to Ifemeje and Ikpeze (2012:52), gender discrimination has established wide gender gaps, with destructive social, economic and health consequences for females who are side-lined and suppressed to the background. Against this backdrop, this discourse focuses on how the selected feminist theories can be fused to form part of the lens through which the influence of societal factors on female pupils' progression in Advanced Level science subjects is viewed. With the aid of the liberal feminist (cf. 2.2.1) ideal, I shall seek to elucidate how social and cultural thoughts influence the socialisation of females in a patriarchal society (cf. Giddens & Sutton, 2013:653); hence the need for me to bear in mind that it is crucial to provide females with the same prospects through equal progression in education so as to mentor them to occupy a variety of societal and professional standings. However, this turns out to be an issue as females are mostly consigned to the secluded sphere of influence, while dominant males are seen in the public sphere. Against this background, liberal feminists view gender inequality as manifesting itself in instances where roles are designated according to sex, both in the private and public spheres of endeavour. Hence, in the context of my study, liberal feminism seeks to make sure that female pupils are exposed to the same constitutional rights; prospects and conduct in their progression in Advanced Level science subjects (cf. Lorber, 2001:27; Tong, 2009:2; Zalewski, 2000:5).

Although liberal feminists (cf. 2.2.1) acknowledge that the general position of females has significantly improved, as they now have legal equality, they are yet to attain a parity position with males (it stands assumed that males, due to their superior standing, lead and females trail behind) (Aja-Okorie, 2013:272; Panigrahi, 2013:28). This concurs with what is obtaining on the ground that sciences, although they are seen as a valuable tool in the battle

for pupils' rights to social impartiality or parity, female pupils' progression in Advanced Level science subjects is still low (Zvobgo in Mutekwe & Mutekwe, 2012:136). Of importance is that feminists argue against the discrimination of female pupils' progression in Advanced Level science subjects, which is antagonistic to human dignity (Ifemeje & Ikpeze, 2012:52). On the basis of their sharing a similar rational human nature as males, female pupils should be accorded equal opportunities to progress in Advanced Level science subjects. This goes along with the human capital theory, which contends that females share integral rights, which craft productive individual choices as males, through being accorded similar opportunities to participate actively in education in general and Advanced Level science subjects in particular (Enns & Sinacore, 2002:470). Therefore, with liberal feminist ideals, female pupils can give them the power to acquire emancipatory mindfulness, which makes it possible for them, to raise beyond the commonly held patriarchal belief systems towards their progression in education. It is in this context that liberal feminism will be used to explore how pupils' socialisation brings about gender inequality in their progression in Advanced Level science subjects.

According to Carinci and Wong (2009:526), liberal feminists concede that although society is structured in some ways, it should not stand in the way of females' progression in the so-called male-dominated areas of social and professional endeavour. In this regard, liberal feminists advocate for reforms in different spheres of life, so as to promote gender equality through the enactment of gender-sensitive legislation. However, the liberal feminist theory in this discourse may perhaps not sufficiently critique the problematical tiered societal groupings in which Zimbabwean female pupils find themselves, as it inclines towards Western females' way of socialisation (Beddoes & Borrego, 2011:285). In this context, the radical feminist theory comes into play in the discourse so as to reinforce the basis from which the issue under investigation can be looked at.

Radical feminists (cf. 2.2.3) advance the notion that all societal undertakings ensue from specific limitations and duress (Vukoičić, 2013:35), which, in turn, influence female pupils' progression in Advanced Level science subjects. According to Nicolaides (2015:192), radical feminists acknowledge the existence of gender disparity in Advanced Level science subjects and endeavour to improve this by confronting the patriarchal hegemony of knowledge. Supported by Nicolaides (2015:192), I argue that due to the patriarchal indications to which females are exposed in society, they inevitably accede to masculine values that confirm males as being fully human instead of feminine values that tend to associate them with their environment and secluded being.

In addition, radical feminists place emphasis on the subservience of females, revealing how masculine influence is put into effect and then buttressed through routines such as education, child rearing, housework and marriage. According to Mudeka (2014:84), Lyons, Luekker and Nhongo-Simbanegavi emphasise the endurance of gender interaction in various spheres of life, such as education, entrenched in patriarchal beliefs, expressing females as perpetual minors and, hence, too incompetent to engage in critical concerns. They are of the opinion that patriarchy can be defeated if females acknowledge their own value and strength to confront oppression critically in various spheres of life, such as education (Gordon in Mutekwe & Mutekwe, 2012:135). From a radical feminist perspective (cf. 2.2.3), it can be noted that gender disparity is institutionalised in both public and private spheres; hence it is not possible to achieve equality through legal means. Its clarion appeal is to eliminate patriarchy, to uncover critique and to eradicate all traditions that tend to support gender disparity (Nicolaides, 2015:192). And so, in my study, the radical feminist perspective is employed to look at how patriarchy spreads its web through pupils' progression in Advanced Level science subjects.

Socialist feminists (cf. 2.2.2), on the other hand, argue that the origin of the oppression of females lies within the social system that makes them naturally passive. As a result, they are not expected to progress in Advanced Level science subjects. Socialist feminism is based on the belief that traditions form part of a robust basis through which females' socialisation influences their key household roles (Rege, 2003:288). During gender socialisation, both females and males learn expectations associated with their sex. In Zimbabwe, being a

gendered society, culture and traditional values, depicted by Mwamwenda (2005:375) as transmissible from parents, are therefore, passed on from generation to generation through learning. This affects all aspects of daily life and individuals' self-concept and social perceptions in progression in Advanced Level science subjects. Female pupils' progression in Advanced Level science subjects is reinforced whenever gender-linked behaviour receives approval or disapproval from agents of socialisation such as family, peers, education and religious training (Chapman & Gorski, 2010:4; Skinner, 2009:294).

The African feminist theory advocates (cf. 2.2) for the need to create an occasion where females link with one another and build strength from their shared conditions in exploring the societal factors influencing their progression in Advanced Level science subjects (Stanford Encyclopedia of Philosophy, 2015:1). I selected the African feminist theory to form part of the lens I used in pursuit of gender equality, as African feminism, similar to Western feminism, influences females to be mindful of the dynamics that account for their subjugation in diverse scopes. This drives them towards the realisation of how education in general and science subjects in particular can transform their current status. In addition, through African feminism (cf. 2.2.4), I can discuss native cultural customs and educational acts so as to weigh up whether they are relevant to females in as far as their progression in Advanced Level science subjects is concerned.

Thus, African feminism depicts an enduring process of self-definition and confrontation to falsifications by Western feminism (Akin-Aina, 2011:66), as well as attempts to patch up the power dynamics in females' progression in different spheres of life such as education. This will result in their filling a vacuum created by their disassociation from other crusades that foster disparity to keep them suffering in society (Ntiri-Quenum, 2007:315). This is a suggestion that African feminism (cf. 2.2.4) in my study is depicted as a pathway through which females are calling for impartiality and legislation of their experiences, given the influence of oppression and culture in their lives. In this context, I shall incorporate African feminist scholarly scrutiny in my study, pointing towards propping up a virtuous context, which will then allow me to be a transformative analyst, while relating with disadvantaged rural female pupils (cf. Chilisa & Ntseane, 2010:619).

With the aid of the African feminist perspective (cf. 2.2.4), I shall stretch my analysis of comprehending gender inequality in education to how educational acts, policies and plans enacted to do away with these inequalities in Advanced Level science subjects. This will place much emphasis on restorative approaches so as to transform the participants' experiences about oppressive barriers encountered in their progression in Advanced Level science subjects. In my opinion, all this calls for me to be insightful and to pay attention, with concern and affection, to their life experiences and memories during discussions. Under such circumstances in my study, the African feminist theory will have the potential of making meaningful contributions to the discourse on the influence of societal factors on female pupils' progression in Advanced Level science subjects (cf. Hudson-Weems, 2007:295). From an African feminist perspective, females are presented with not only a prospect to talk about their experiences but also a chance to display their potential. However, understanding Zimbabwean female pupils' experiences in progression in Advanced Level science subjects might be weakened due to localised experiences that are inherent to a given social setting in particular. In my study, the focus is specifically on the influence of societal factors on female pupils' progression in Advanced Level science subjects in the Matabeleland North Province.

African feminists (cf. 2.2.4) disagree with the viewpoint of Western feminist theories about indigenous communities' beliefs and inclinations towards spreading their perspectives to all continents of the world, Africa included. As my study reports on sub-Saharan Africa-based research, I include this discussion as a means of incorporating African understanding and elucidation of how societal factors influence female pupils' progression in Advanced Level science subjects. However, it is difficult to address the diverse realities of female pupils' progression in Advanced Level science subjects under a single rubric, as there is no simple way of representing their diverse struggles in a patriarchal society. Although the Western feminist and African feminist theories might have different views, they intersect in that there is a disparity between the progression of males and females in Advanced Level science subjects.

From a feminist perspective, society is male-dominated (a patriarchal society) and is based on conflict between the sexes. Through their theories, feminists (cf. 2.2) concede the persistent influence of gender divisions in social life to which females are subjected, whether subscribed to them or not (Kirai et al., 2012:214; Witt, 2011:47). Furthermore, feminists endeavour to comprehend their subjugation and the structures that embrace this coercion and subservience in society (Kirai et al., 2012:214; Witt, 2011:47). Against this background, females have historically been deprived; males, on the other hand, have more dominance in the patriarchal society. In this context, feminists are of the assumption that in the indigenous society, there are concerns with regard to gender inequality, which needs to be transformed. Although diverse feminist perspectives (liberal, radical, socialist and African feminist) are in existence, it is critical to acknowledge that in their diversity, they have something common, which is, looking at the disparities among males and females and, thereafter, attempting to find solutions to the obstacles identified.

These gender inequality theories focus on comprehending the nature of inequality through scrutinising females' lived experiences and commenting on power relations in a patriarchal society, with the notion of advocating for transformation in their customs (Ussher in Flick, 2009:68; Ioanna-Vekiri & Chronaki, 2008:1394). Thus, feminists believe that females are being suppressed in a male-dominated society, where education is used as a proxy to secondary socialisation to put into effect patriarchal beliefs. It is on this basis that the feminist theories form part of the framework through which the oppressive discourses with regard to the education of female pupils, in the context of Advanced Level science subjects in particular, are observed.

Criticism of the feminist theories is taken as an alert in my study to guarantee that I do not over-emphasise the status of females in the Matabeleland North Province society. Although feminism brings about the idea that females should have political, social and economic rights equal to those of males, they remain deprived of full and equal opportunities in education (David, 2015:20). Despite the denigration of inequality theories, these are regarded as pertinent, since they shape the basis that human beings are at par, ought to be regarded equally and existing prospects should be transparent to everyone, irrespective of gender. Thus it takes into account the contemporary experiences and concedes the connotation of

permitting the side-lined female pupils to define and clarify barriers that hinder their progression in Advanced Level science subjects. In this context, the selected feminist theories subsidise to the gender-social construction lens in scrutinising the influence of societal factors on female pupils' progression in education (Marshall & Young, 2013:209).

In my study, I shall regard the selected feminist theories (cf. 2.2) to be critical of gender as a determinant of prospects, bearing in mind that females feel the pain of the incongruity of their sex (cf. Mackinnon, 1991:37). This presents a lively opportunity for the alliance of feminist theories with other theories, such as symbolic interaction, in their affirmation of a well-articulated societal incongruence that is sustained by dogmas habitually acknowledged by both the privileged and the suppressed (Lindsey, 2011:12). In this case, feminist theories account for ways to empower female pupils through an illustrative connection between the label of feminine (symbolic interaction) and how these females are judged by peers and by themselves (Akanbi, 2012:576). It is within this context that during interaction, female pupils share their experiences (cf. 2.3) on societal expectations according to gender and gender roles. Hence, my study is conducted in an eclectic manner drawing from among another range of frameworks, including the symbolic interactionist theory, to view the patriarchal nature of the Zimbabwean society and its influence on female pupils' progression in Advanced Level science subjects.

According to Cohen et al. (2005:25), the symbolic interactionist theory tends to focus on the subjective meanings and symbols that are generated and epitomised in the world the participants live in. It accentuates meanings and the relevance of these in policy formulation and implementation (cf. 2.3) as a means to make sure that the experiences of groups in a subordinate standing, such as females, are perceived as meaningful (Carter & Fuller, 2015:7). Thus, societal qualities, such as selection, levels of taking part in education, mind-sets and norms, shape pupils' views (Patrikakou in Katsande, 2016:17) towards progression in Advanced Level science subjects. In these circumstances, female pupils put up their social reality through interface rather than being insisted on by an exterior societal system (Haralambos in Samkange & Samkange, 2013:456). These interactions and dynamics activities create the need to gain insight into how they influence female pupils' progression in Advanced Level science subjects. This results in female pupils making decisions on

whether or not to proceed in Advanced Level science subjects (Blackledge & Hunt in Mutekwe & Modiba, 2012a:135).

In seeking answers to the issues raised, symbolic interaction (cf. 2.3) and feminist theories (cf. 2.2) are fused to form part of the framework that centres its attention on unfair power relations between females and males to enable the examination of societal factors influencing female pupils' progression in Advanced Level science subjects. It is against this background that my study seeks to fuse the symbolic interactionist theories (cf. 2.3) to be part of the lens through which the influence of societal factors on education and Advanced Level science subjects for female pupils in sub-Saharan countries is explored.

Although the human capital theory (cf. 2.4) is a Western thought in this context, it will aid to bring to light core elucidation on why not much attention is being paid to female pupils' progression in Advanced Level science subjects (Ntim, 2013:182). Against this background, human capital in my study, not only is regarded as the exclusive enlightenment pertaining to the scarcity of gender equality in education, but also addresses various barriers that influence female pupils' progression in Advanced Level science subjects. This has intensified determinations to bring about consideration for human advancement, but females are still invisible in Advanced Level science subjects (Chilton et al., 2007:263). Thus, the human capital theory recognises the existence of benefits, which build up a person, consequent to the investment in education (cf. 2.4). According to Chikunda et al. (2016:11) and Mushi and Makauki (2010:1), financial profits, which schooling confers are not restricted to upper or lesser construction outlays, instead comprise interrupted addition to prospects of well-being, as these empower females to enhance their concerns and battle mistreatment.

In this case, education is seen as both consumption and venture capital in the economy, as it is presumed to be of immense significance to the decline of destitution and the advancement of equality (Madrid-Aris, 2000:2). However, with such benefits, at times, parents might advance male pupils' opportunities for progression in Advanced Level science subjects at the expense of females. Such interpretation might be widespread in Matabeleland North Province societies, where the progression of female pupils in Advanced Level science subjects is not appreciated. In my study, no assumptions are made pertaining

to what is going on concerning female pupils' progression in Advanced Level science subjects in rural secondary schools in the Matabeleland North Province.

This necessitates the need to fuse the theories mentioned earlier to form a lens that will help me in gaining insight into female pupils' invisibility and their experiences in Advanced Level science subjects, which seems to be lacking, as some researchers tend to conceptualise gender as an individual trait rather than from a social setting (Nystrom, Brotman & Moore in Hussenius, 2014:257). It is my assumption that the derived framework provides a basis for the generation of substantial thoughts and information for the creation of a platform to accord female pupils with equal prospects through affirmative action and gender-linked policies. The inclusion of these theories in the framework will enable me to explore how patriarchy, socialisation, laws and policies (cf. 2.2; 2.3; 2.4) influence female pupils' progression in schooling in general and Advanced Level science subjects in particular.

In turn, this lens will be used to describe, analyse, interpret and critique gender inequity customs as inscribed in texts and articulated words to bring to light gender prejudices in Advanced Level science subjects and how these are instigated, sustained, reproduced and act as barriers to gender-responsive traditions in education (cf. Chikunda et al., 2016:15). Hence, this lens is engaged in my study, which will enable me to critique all varieties of subjugation experienced by female pupils in education and how these have an influence on equality in their progression in Advanced Level science subjects (Abbey, 2011:216). Consequently, this framework advocates for the acknowledgement of female pupils' ascending voices and capabilities in their impetus towards equal prospects in Advanced Level science subjects. With this in mind, the derived framework forms a relevant basis to bring into being an argument that pupils, female or male, are of equal standing and should be exposed to equal prospects. Hence the need for this discourse to draw attention to the intimate connection between the selected theories in establishing how societal factors influence female pupils' progression in Advanced Level science subjects in the Matabeleland North Province from female pupils' perspective.

2.6 CONCLUSION

This chapter presented the theoretical framework to be used as a lens through which the study is looked at. Feminist theories, the symbolic interactionist theory and the human capital perspective were discussed. This was followed by a discussion on how the integration of identified theories (theoretical framework) is related to the study. The next chapter presents the influence of societal factors on female pupils' progression in education in general and Advanced Level science subjects in particular.

CHAPTER 3: SOCIETAL FACTORS AND FEMALE PUPILS' PROGRESSION IN EDUCATION IN SUB-SAHARAN COUNTRIES

3.1 INTRODUCTION

The review of related literature in this section points towards providing a clear-cut understanding of the framework and inference of the issue under investigation. Discussions and explanations of what precludes females from progressing in various fields of science and technology in sub-Saharan countries from related literature can be viewed through the derived theoretical framework. In this context, concepts of clear-cut gender inequality, which have been reflected upon in the previous chapter, strengthen the framework underlying the phenomenon under investigation. This helps to reduce possibilities of opting for irrelevant information.

In Zimbabwe, some inquiries on females' progression in a number of domains have been made by scholars (e.g. Essof, 2013:36; Masvaure & Wamwanduka 2008:28; Nyamwanza, Mapetere, Mavhiki & Dzingirai, 2012:100; Van Eerdewijk & Mugadza, 2015:12), but there is inadequate information on the influence of beliefs and societal structure on their progression in education (Mazonde & Carmichael, 2016:2). It is in the context of this discourse that gender evolves in response to changes in the economic, social, political and cultural setting and is acquired through the socialisation process (Kaimenyi et al., 2014:121; Wilson, 2011:32). Hence these social establishments and traditions can play a protagonist role in creating gender inequality, with females spending most of their time trying to behave in accordance with the created identity in a patriarchal society (Sadker & Sadker in Chikuvadze & Matswetu, 2013:5287; Quinn & Lyons, 2011:225). In my study, the term 'society' is used contextually to refer to the entire sum of individuals in Matabeleland North Province who are so intimately linked to one another by common origin, dialect, belief system or history so as to form a distinct people who are organised as a community (Fenton, 2010:13). This brings to light the notion that in this area, there are several common

attributes, such as common morals, relationships, vernacular and religious belief systems (Smith, 1991:14).

Against this background, gender inequalities in sub-Saharan Africa, Zimbabwe included, have traditionally been prominent in the political, economic and social spheres of influence (Mavhunga & Bondai, 2015:9). In this context, this chapter looks into the influence of the previously mentioned factors on female pupils' progression in education in sub-Saharan countries. However, research on this issue proliferates, in the first-world countries in particular, enlightening female pupils' progression in science and mathematics at institutions of learning. This therefore forms the basis for the need to look closely at how the marginalisation in the education of females in sub-Saharan countries is influenced by socio-cultural, socio-economic and legislative priorities (Dignard & Havet, 1995:69; Donkor & Justice, 2016:82; Ndlovu & Mutale, 2013:72). This, in turn, sheds more light on the issue under investigation through a critical review of studies from previous publications that have been done on the influence of societal factors on female pupils' progression in education. The discussions in this chapter are structured into sub-sections, scrutinising the nature of societal factors influencing female pupils' progression in education in sub-Saharan countries.

3.2 CONCEPTION OF GENDER DISCRIMINATION IN EDUCATION IN SUB-SAHARAN AFRICA

This section acknowledges that despite the progress made in terminating disparities, most countries in sub-Saharan Africa endure circumstances where females are left out of some domains of life, such as education (Mhembwe, 2019). This concurs with the feminist thoughts (cf. 2.2) that claim that injustice against females is a reflection of hindrances encountered in the social, economic and political spectrums of a patriarchal society. Against this background, I strive to gain a better comprehension of discrimination in the context of female pupils' progression in education, through the conceptualisation of this concept from regional level down to the Zimbabwean context.

Discrimination is seen contextually in this section so as to have an appreciation of how the discourse unfolds around this concept (Adisa, Cooke & Iwowo, 2019:2; Czarniawska, 2006:234). First and foremost, in this discussion, society and discrimination are defined separately at first, which aids to determine how discrimination transpires in the society contextually. Accordingly, a society is regarded as a group of individuals sharing a defined culture in a social structure that endures patterns of behaviours and relationships through interactions. These direct the individuals' everyday way of life, culture, religion and economic status in the society under investigation (Kasirye, 2009:1; Otinche & Nnabuenyi, 2015:30). By discrimination, I refer to those instances where females are accorded limited attention and opportunities in their quest to progress in their education (cf. Huston, 2007:83). Through the comprehension of discrimination, I am provided with the direction through which responses to the secondary questions (cf. 1.3) will be generated.

Gender discrimination is exhibited most in the developing world, such as sub-Saharan Africa, which consists of 42 states on the African continent to the south of the Sahara and the six island nations close by (Ombati & Ombati, 2012:115). In most of these nations, the relationships between females and males are guided by patriarchal belief systems, which disadvantage the former to the advantage of the latter (Omotosho, 2015:93). In these circumstances, historically and currently, the male dominance is exercised over their female counterparts in various areas of human undertakings, thereby bringing into being a gender gap in fields such as education (Mavhunga & Bondai, 2015:9; Ombati & Ombati, 2012:123). In this context, this section aims to bring to light the general historical background of the underlying disparities female pupils experience in their progression in education.

According to Abbott, Tyler and Wallace (2005:60), in almost all societies females, are bestowed a lop-sided portion of social, political, economic and cultural influence. With this mentality, females tend to take up their 'feminine' standing in society, where they see themselves as less important in different spheres of life, such as education in general and Advanced Level science subjects in particular (Galpin, 2006:1282). Resultantly differential treatment on what they as females do and how they see themselves, from early ages will come to reflect labels (Halford & Leonard, 2001:11). The inculcation of information concerning these oppressive customs of what is acceptable and adverse relating to female

pupils' conduct in society is passed on from one generation to another through socialisation (Abbott et al., 2005:60). Thus, in females' lives, during interfaces with their environments, parents or contemporaries, they are subjected to and participate in activities that encourage the advancement of inequalities in terms of beliefs and prospects (Gruce & Hastings, 2007:2; Leaper et al., 2007:162). In a way, this can be seen as a form of articulating belief systems, hegemony and struggle, which maintains masculinity-femininity customs in a society (Ferree & Hall, 1996:935).

In most countries in sub-Saharan Africa, females live in deprived circumstances, which destroy their capabilities, resulting in doing away with their self-actualisation, ultimately exposing them to pre-existent male chauvinism, irrespective of their level of technological advancement (Akafor, 2016:2; Rotich, Rono & Mutisya, 2014:51). In such scenarios, females are obliged to tolerate the burden of oppressive cultural beliefs that limit their progression in various spheres of human endeavours, such as education. All of these occur in a patriarchal society characterised by one-sided power relations between the sexes, with females playing subservient roles in an expression of inequality (Slee in Rutoro et al., 2013:1). For example, in the Zimbabwean context, belief systems equate females' astuteness to the light of stars, which cannot light far, thus restricting them to less intellectually demanding domestic spheres (Mapuranga & Chikumbu, 2015:62; Mawere, 2015:58).

In this context, customary beliefs and ethnic defiance on the subject of the position of females in society are still predominant, and those who are part of this system find it challenging to dislodge, themselves from tradition for fear of being ostracised (Kirai & Kobia, 2012:214). Accordingly, for meaningful advancement to take shape, a profound transformation of mind-sets and fully engaging every structure in creating a social structure geared towards the elimination of gender discrimination are critical. Through the literature review, a question to link my standpoint with regard to the earlier stated main research question (cf. 1.2) came to mind: Can female pupils, against this background, progress in Advanced Level science subjects?

With this question in mind, I noted with concern that due to various factors, huge numbers of female pupils in sub-Saharan Africa do not progress beyond primary education. In this regard, the issue of gender equality has become an issue of interest to various stakeholders (Kasirye, 2009:1; Okafor, 2016:2). This is true, despite the hue and cry towards legislative reforms related to gender equality in patriarchal societies (Morna in Tuwor et al., 2008:367). From the literature it is clear that the relationship between female pupils and their progression in Advanced Level science subjects can be multifaceted and cannot be appreciated in terms of one factor (Saraga & Griffiths in Jacobs, 2005:384). Therefore this scenario, without an in-depth insight into the persuasive factors from a socio-cultural background, might influence the elucidations of how to advance female pupils' progression in education in general and Advanced Level science subjects in particular (Trauth, Quesenberry & Huang, 2008:7). It is in this context that the following question has been asked: Who is better positioned in the Zimbabwean context to articulate and generate knowledge on factors influencing female pupils' progression in education than themselves? (Ekpenyong, Ibiam & Agha, 2015:4; Shizha, 2006:31). It has motivated the need to look at the phenomenon from a wider understanding of the social factor setting that influences females' progression in Advanced Level science subjects. In accordance to this, recognised inequalities are deliberated in the next section.

3.3 BELIEF SYSTEMS AND FEMALE PUPILS' PROGRESSION IN EDUCATION

In most instances, education closely mirrors predominant social patterns, resulting in it being perceived as a societal factor reflecting the beliefs of a given community. Hence the prime goal of education in this sense can be that of safeguarding cultural permanency in that particular society. Against this background, the issue of culture is given sound consideration in this section in a bid to comprehend the scope of and circumstances under which customs and religious practices influence female pupils' progression in education in general and Advanced Level science subjects in particular. According to Hofstede (2011:3) and Alvesson (2002:3), culture is a system of a shared way of life, ideals and behaviours that a given society applies to deal with its life world and the collective programming of minds to distinguish one category of people from another. In addition, Ratele (2007:65) describes it as a non-generic, variable and perpetually partial procedure of experiences and undertakings

people (in these case, females) come to know over time and exploit to transverse various domains. In this way, it can be regarded as the totality of socially propagated beliefs, customs and the typical way of thinking that offers individuals in a given society a common way of existence and values (Beckmann & Prinsloo, 2007:240; Brettell & Sargent, 2005:185). In this context, belief systems are seen as a crucial aspect in delineating and regulating gender interactions and the interests and position of females in societies under investigation (Hadebe in Chitando & Hadebe, 2009:10; Robsan, 2014:6). Against this background, the next section seeks to gain insight into how socialisation shapes gender identity in females.

3.3.1 SOCIALISATION AND THE INFLUENCE THEREOF ON FEMALES' GENDER IDENTITY

For the continual existence of any given society, there is a need for its proxies to transmit females' way of life and tenets from one generation to the next. This requires a deep understanding of diverse scopes of gender socialisation and the influence thereof on young females in their search of identity construction. The issue calls for an all-inclusive and coherent orientation of females into the actual realms of a particular community.

In the Zimbabwean context, a family is considered to be an influential driving force in the enhancement of the interactions of their progeny through the integration of their experiences into social interfaces (Haralambos et al., 2008:93). In line with this notion, as essential information and life skills are transmitted from one generation to another, customarily, parents bestowing prominence to males places them in a position to play a discovery role as they interact with their environment at the expense of females (Abara, 2012:8; Akintan, 2013:58). This is a clear indication of gender preference by the patriarchal society, as dictated by cultural values, which are inheritable from one generation to the next through education (Akanbi, 2012:576; Mwamwenda, 2005:374). In this context, society perpetuates particular behaviours among human beings, with females being placed in submissive positions through the way they are brought up (Ezenwa-Ohaeto, 2015:60; Mapfumo et al., 2002:156).

In sub-Saharan Africa, females from a young age often undergo a socialisation process, where they are taught to be docile and lenient, subsequently causing society not to expect them to excel in education in general and in the so-called masculine subjects in particular (Gasva & Moyo, 2014:124; Igbinedion, 2011:227). This negative stereotype about females' (in)competences in Advanced Level science subjects persists, as they are seen as not suitable to be involved in scientific work, which is regarded as better for males (Hill, Corbett & Rose, 2010:361). All of these instances are believed to occur in a society where cultural belief systems have an influence on how events are set up and why these should happen accordingly (Maasik & Solomon, 2003:475). In this instance, gender roles act as an organising principle due to the cultural meanings given to being female and their work at home and in the wider community. This is better epitomised by the treatment of females in a patriarchal setting where males are believed to be born with natural capabilities, skills or geniuses that enable them to pursue challenging activities in various spheres of life, such as education, as opposed to females (Mapfumo et al., 2002:156). Accordingly, culture is often called upon for the infringement of females' civil liberties, exposing entrenched patriarchal constructs, despite a great deal of legislation around the rights of females being embedded into the *2013 Constitution of Zimbabwe* (Erossa in Hulton & Furlong, 2001:4; Mazonde et al., 2016:2).

In addition, Mudeka (2014:84), Ndungu in Uwameiye et al. (2013:221) and Akanbi (2012:577) are of the opinion that females' reproductive roles often place them at the bottom of the social ladder, incapable of being involved in thoughtful issues. This concurs with Gudyanga et al. (2016:5) and Chikunda and Chikunda (2015:17) in their argument that as in any other patriarchal society, inequality in Zimbabwe is profoundly set in the entire socialisation process, which has skewed power relations from family, education and adult life. This happens in a society with shared belief systems, such as regarding, for instance, science to be a 'masculine' subject and thus not a suitable choice for female pupils (Hofstede, 2011:3). This mis-socialisation can, in one way or the other, significantly influence females' views about their social position in a given area of persuasion, and susceptibility may lead to their being underestimated in particular spheres of life, such as education (Ntim, 2013:181). For example, in Kenya, gender roles and male domination restrict females to the periphery in the decision-making process and progression in secondary education (Omenga et al., 2010:327). Similarly, enrolment statistics in Zimbabwe show that female pupils still lag

behind in terms of their progression in Advanced Level science subjects (Gudyanga, Gora & Moyo, 2019:3; UNGEI, 2008:4). This acts as the basis for my study, in its pursuit to contribute to the empirical evidence on how gender codes can be barriers in female pupils' progression in education in general and Advanced Level science subjects in particular (cf. Ford, 2002:19).

According to Ngesu, Wachira, Mutisya and Kivuli (2014:890), male and female children, as they develop, are socialised contrastingly, with females being taught submissive values and males being equipped with the belief that they dominate in all spheres of life. This creates cultural constrictions that incline towards obstructing and predisposing females' accomplishment in education (Yeba, 2015:183). For example, in the Masai community in Kenya, the difference between a female and a male child is marked from birth, as when a girl is born, she is received with jubilation – “Enkai Aomon Entomon” (Lord, I pray for maternity) (Yara et al., 2012:221). Consequently, such expectations place unlimited constraints on the gender role socialisation of males as compared to females, as females are provided with insignificant prospects for making their voices heard (Modupe, 2013:5246; Ngorima, 2001:4). This generates erroneous beliefs in a patriarchal society relating to the place of females in society, bringing about gendered misconceptions about the scholarly make-up of males and females (Rutoro in Chikunda et al., 2016:13). In this context, the next section discusses the influence of traditional customs on female pupils' progression in education.

3.3.2 INFLUENCE OF TRADITIONAL CUSTOMS ON FEMALE PUPILS' PROGRESSION IN EDUCATION

Matabeleland North Province is regarded as a society composed of an organised group of human beings who are bound together by common cultural, political, economic, historical and geographical purposes, which in one way or the other, influence parts of an individual's life (Asimeng-Boahene, 2006:4). Thus it has a common culture with mutual dogmas, morals and customs that the society uses to deal with its circumstances in their day-to-day interfaces (VanLeuvan, 2004:249). In this context, when deliberating on issues of gender inequality, it is of paramount importance to place emphasis on how gender customs in a social context are put together to compel females to take on their customary roles (Simonen, 2009:29). Accordingly, culture is seen as a creation of the Matabeleland North

Province society that connects almost every socio-cultural and socio-economic feature in all spheres of life, such as education (Haralambos & Holborn, 2008:858).

According to Matondi in Mazonde et al. (2016:2) and Matswetu (2008:23), in Zimbabwe, the subjugation of females is evidenced by their obscurity in roles and obligations in society, such as mostly being mothers and wives. Furthermore, 72% of the family circles in Zimbabwe are controlled by males, which are considered as a spot-on reflection of the patriarchal nature of the Zimbabwean society (Mboko, 2008:308). In a patriarchal society, culture, during socialisation, makes known some gendered misconstructions about femininity. As a result, this influence how individuals view females' competences in different spheres of life, such as education in general and Advanced Level science subjects in particular (Rutoro, Jenjekwa, Runyowa & Chipato, 2013:2). Hence, parents in a patriarchal society are seen as unimpeded stakeholders in the lives of their children, where they play crucial roles in socialising females according to their expected roles (Laila et al., 2014:60). This can be supported by Agbalajobi (2010:75), who outlines that there is a general conviction that females are and should play subservient roles in different spheres of life, such as education, and that the division of employment opportunities according to gender is within acceptable limits in a patriarchal setting.

From a social feminist perspective, in patriarchal societies, education systems mostly fortify the gender identities that females attain in social settings such as the family and the community (Wolpe in Matswetu, 2008:25). This is a clear indication that the belief systems that exist in these social settings seem to influence female pupils to learn at an early age their feminine identity in relation to a wide range of issues, such as their roles in the family and occupational aspirations (Chikunda et al., 2016:12). In this way, the allocation of roles according to gender prepares female pupils from an early age to adopt critical principles that are linked to their feminine identity in relation to overt or covert features, as they manifest themselves in everyday life in areas such as the family and education. It is in this context that my study seeks to delve into how socio-cultural factors influence female pupils' progression in education in general and Advanced Level science subjects in particular.

Patriarchal traditions entail a totality of the norms, an ethos and a code of socially acceptable conduct presumed to uphold the interests of males over those of females (Alesina, Paulo & Nathan, 2011:4; Soetan, 2001:15). Through this line of cultural thought, sub-Saharan societies view females as only worth being involved in matrimonial or child-bearing activities, with little opportunities for career advancement (Atekyereza, 2001:117). This has been made possible through traditional and religious beliefs that give rise to male dominance in the social structures through an imbalanced association between male and female (Makama, 2013:116). This inequality, which customarily favours males, confers females a subordinate standing, as the power relations influence their being side-lined and ultimately overshadowed in numerous spheres such as education (Goetz & Gaventa, 2001:73; Kibui et al., 2014:23).

In patriarchal societies, everything regarded as 'masculine' is highly esteemed, such as sending boys to pursue an education, with girls under these masculine values being relegated to subservient positions in the home (Amadi, 2013:71; Safilios-Rothschild in Mukoro, 2013:133; United Nations in Stillman, 2005:14). In my view, this requires attention if gender transformation in science subjects in the Zimbabwean context is to become a reality. This is based on the notion that society defines an individual, and the same community delineates tenets and beliefs that are to be upheld by the individuals in a society (Matavire, 2012:219). This calls for my study to look at how female pupils progress in science subjects in a culture that confines females to domestic chores according to the proverb 'umuzi ngumama or musha mukadzi' (Manyonganise, 2010:16). It is in this context that my study seeks to reveal how this 'unhu/ubuntu' way of life (umuntu ngubuntu ngabantu), which is submerged in Zimbabweans' religion and cultural belief systems (cf. Bondai & Kaputa, 2016:37; Mugumbate & Nyanguru, 2013:84; Museka & Madondo, 2012:259; Ndondo & Mhlanga, 2014:3; Nussbaum, 2003:21), influences female pupils' progression in Advanced Level science subjects.

According to Rank (2012:2) and Sottie, Dubus and Sossou (2013:384), from an early age, parents support children's cognitive, affective and social development through participating in learning activities so as to acquire knowledge, skills and values in line with their 'masculine' or 'feminine' roles. In this regard, it is the responsibility of fathers to coach their sons on how to fix things, while mothers on the other hand put their daughters through their paces of going about domestic chores. Therefore children, as they grow, need to be consistent with gender prospects and adopt socially acknowledged responsibilities in line with their sex (Skinner, 2009:294). These cultural dogmas in patriarchal societies openly emphasise gender inclinations and stereotypes, which show disinclination towards female pupils' progression in education (VSO Baseline Information Report cited in Yeba, 2015:197). As culture is said to be one of the key factors that guide the following of activities in a patriarchal society (Giddens in Panigrahi, 2013:28), it is against this setting that my study will scrutinise how it influences rural female pupils' progression in Advanced Level science subjects in the Zimbabwean context.

It is of paramount importance to note that traditions and values in sub-Saharan Africa differ considerably according to tribal alliances; however, females' subservient position in these societies where power relationships are inflexibly delineated according to sex is similar (Kardam, 2005:5; Mushibwe, 2009:41). This brings to light the issue of whether female pupils' progression in 'masculine' science subjects can be possible in a set-up where the education system is expected to imitate the predominantly patriarchal social patterns and to mirror the culture of the community it serves (Woolfork in Asimeng-Boahene, 2006:5). This set-up where culture and traditions in social institutions tend to reward and reprimand its associates based on gender, creates a gap where females are disadvantaged in various spheres of life, such as education (China et al., 2011:12; Ngesu et al., 2014:889). This tends to be contrary to feminist ideals that advocate for equal liberties and equal treatment of females in all spheres of life, including education. This creates an immense gap that hinders female pupils in their progression in education in general and Advanced Level science subjects in particular. It is against this background that my study critically looks at the influence of oppressive barriers in female pupils' progression in Advanced Level science subjects in the Zimbabwean context.

According to Stillman (2005:17), the prevailing power dynamics in patriarchal belief systems favour the existence of inequalities between the sexes through cultural norms that tend to assign subservient roles to females. In this case, females' voices are, without a doubt, silenced owing to persistent belief systems and power relations in a 'masculine' society (Kiragu, Swartz, Chikovore, Lukalo & Oduro, 2011:262). This concurs with Oriahi, Uhumuavbi and Aguele (2010:192), who in their study, explore whether equality in science subjects can be provided for through the mere existence of education acts and policy circulars in societies where females' low standing is entrenched in traditions, values, ambiguities and precepts. This connection to cultural heritage has an influence on roles and responsibilities, which act as a form of social organisation where females are not valued. From a symbolic, interactionist standpoint, this influences how females formally or informally acquire their distinct roles, responsibilities, values and customs during the socialisation process (Haralambos et al., 2008:688). Against this background, my study investigates how cultural beliefs in the rural context influence female pupils' progression in Advanced Level science subjects.

In sub-Saharan Africa, due to the fact that some belief systems have been practised since time immemorial, they are now entrenched in the societal view, almost as a legitimate tradition (Olateru-Olagbegi & Afolabi in Ifemeje et al., 2012:54). This brings about the supremacy of traditions, which are used as an endorsement of thriving praxis based on the biased thinking that males are the vanguard and females lag behind in all spheres of life (Abara, 2012:5; Kwesiga, 2002:57; Ngcongo in Panigrahi, 2013:28). In support of this notion, females in a patriarchal society are socialised into gender-biased roles and responsibilities that bolster their tradition of silence in decision-making processes at family and community levels (Egbo, 2005:153; Ngorima, 2001:67). This corroborates the feminist line of reasoning that females' methodological subjugation is deeply rooted in institutions where, due to patriarchal dogma, they assume the position second to males in various spheres such as education (Bourdieu in Mutekwe & Mutekwe, 2012:195; Macionis & Plummer, 2008:649; Marysia, 2000:12). It is against this background that my study will critically look at how feminist tenets advocate for equality in female pupils' progression in Advanced Level science subjects. This notion premises the need to scrutinise in what way these traditions and beliefs

filter through societies, influencing females' progression in different spheres (Hussenius, 2014:256; Mushibwe, 2009:104).

Asimeng-Boahene (2006:4) and Oriahi et al. (2010:193) consider socio-cultural factors, such as family prospects, societal images and gender labels, to be the root cause of inequalities that extensively barricade females' progression in various spheres such as education. For example, in Kenya, parents leave their sons in the care of relatives who ensure that they attend school, with the parents moving around with their daughters from one place to the next in search of pasture for their livestock (Yara & Ndirangu, 2012:222). In addition, in Nigeria, girls, in a bid to acclimatise to their roles and responsibilities, emulate those functions that enable them to be subservient and peaceful, with their male counterparts being involved in training that is appropriate for adult life, such as taking up the so-called challenging Advanced Level science subjects (Oriahi et al., 2010:193). In such scenarios, traditional norms and values are presumed, for the most part, to oversee, in general, the social and cultural life either at family level or in the larger society (Hossain, 2011:1). This is a clear indication that females' roles and responsibilities in a patriarchal society are established through multifaceted socialisation processes through which their rights are openly infringed on the pretext of adherence to cultural doctrine (Solmon & Lee, 2008:229). Against this background, my study seeks to explore how cultural factors influence female pupils' progression in Advanced Level science subjects from their own perspective.

According to Haile (2012:1) and UNESCO (2010:20), female pupils' progression in ostensibly 'softer' subjects in rural secondary schools has been high, against policy aspirations aimed at improving their progression in Advanced Level science subjects. In this case, Advanced Level science subjects, which are seen as 'masculine', supposedly send the wrong message, which drives female pupils away from these subjects, as society believes they do not have the natural intellect and skills to match the high demands of this field (Odejide, Akanji & Odekunle, 2006:553). This concurs with Mukoro (2013:133) and Bush and Oduro (2006:361) who, in their studies, highlight that in a patriarchal society, the choice of which progeny to invest in is prevalently governed by belief systems that do not subscribe to inspiring females to proceed in education in general and Advanced Level science subjects in particular.

This is supported by the World Bank (in Yara et al., 2012:225), which outlines that in Northern Nigeria, Gambia and Zimbabwe, as a matter of tradition, parents are worried about the possible impregnation of their daughters at boarding secondary schools – a clear instance of gender intolerance. Therefore, the decision to pursue a particular career path by female or male pupils is often induced by direct or indirect pressure from society. Parents' unwillingness to send their adolescent daughters to school encourages cultural aggression, which is based on the conjecture that gender inequality in various spheres is socially constructed. This set-up can be perceived as a mechanism of fulfilling societal expectations when it comes to female pupils' gender roles and responsibilities as future mothers or wives. Against this background, the current study seeks to explore how religion as a belief system in sub-Saharan Africa influences female pupils' progression in education.

3.3.2 RELIGION AND THE INFLUENCE THEREOF ON FEMALE PUPILS' PROGRESSION IN EDUCATION

According to Kibui et al. (2014:24), it is imperative to note that in contemporary society, religion is taken to advance a platform for humanity to be integrated as a united family with a common vision, as spelt out in the Scriptures. Despite the discourse on freedom from strife and conveying unlimited devotion to humankind during sermons in various religious groupings, females still dwell in the subservient echelons in society. In this regard, religion is not spared by the patriarchal belief systems that tend to incline towards the fortification of deep-rooted customs that look down upon females in different spheres of life, such as education (Human Rights Monitor in Kambarami, 2006:5). I believe that religion, in one way or another can play a protagonist role in side-lining females as they are granted a mediocre status in the decision-making process in society (Afolabi in Ifemeje et al., 2012:55; Uhumuavbi, Oriahi & Olusi in Oriahi et al., 2010:193). Due to their low status in society, females will not be well versed with regard to issues pertaining to civil rights, leading to their solitude and barriers in male-dominated spheres, such as Advanced Level science subjects (Rashid, 2001:10).

The seclusion of females perpetually influences inequality between the sexes, as demonstrated by the Muslim culture with its unique mind-set towards the subservient female position in society (Alumode in Mukoro, 2013:133). In this regard, religion has a crucial function in defining gender norms and fundamentalist views throughout the continuum of religious convictions menacing or repudiating females their constitutional rights in institutions such as, *inter alia*, the family (Bradshaw, Castellino & Diop, 2013:7). Therefore, in a patriarchal society, females' belief systems are often perceived in essence to be influenced by ethos, which is spiritual and theistic (Edwards & Quinter, 2011:85; McElwee & Al-Riyami, 2003:346). This is in contrast with the human capital theory (cf. 2.4) which advances the notion that national development lies squarely on the enhancement of the inhabitants (Okoli, 2012:659). From the discourse above it can be highlighted that traditional and religious customs have had much influence on the subjugation of females in the patriarchal society in most spheres of life, of which education is one (Alabi & Alabi, 2014:11; Iritani et al., 2016:10). These underlying supra-factors are reflected in dogmas and belief systems pertaining to females' roles and responsibilities (Logan & Beoku-Betts, 1996:219; Olufade in Matswetu, Kagaba & Chikuvadze, 2017:11).

Social beliefs that are likely to restrain the progression of female pupils in various spheres, such as education for instance, and uninterruptedly condemn them to submissive and docile responsibilities in societies, still exist (Plan International, 2016:54). Consequently, this remains a disputed issue, demanding continued mediation from the family level to societal structures. It is, therefore, my belief that these gender inequalities in society can be discussed through an understanding and discernment of the relating patriarchal cultural practices. Against this background, my study seeks to examine how female pupils' progression in Advanced Level science subjects is influenced by the patriarchal traditions and customs in the Zimbabwean context. The discourse in the next section is centred on exposing the politics of the past and the current governance system as one of the other key factors influencing female pupils' progression in education.

3.4 POLITICS AND FEMALE PUPILS' PROGRESSION IN EDUCATION

In this discourse, the concept of politics is applied in a delimited impression that entails self-determination, decision-making procedures and social impartiality. Each society has its own past, which, through its education system, shapes its goals, objectives, actions and future. Therefore it is crucial to recognise that everyday life in the contemporary Zimbabwean society is defined by its past as a colonised people. In light of this, Bedford (2013:4) and Shizha and Kariwo (2011:13), in their discourse, hold forth that in imperialism, the power relations between males and females in society have been important historical factors that shaped the education system. This set-up was propped up by a restrictive master-servant colonial legal system, which colluded with the long-established patriarchal gender order that confined females' prospects to secluded spheres, such as the communal areas, while imparting males with the knowledge and skills to work for colonial white masters (Gordon, 1996:220; Masinire, 2015:622). Hence the next section seeks to explore how politics during the colonial era manipulated females' decision making in line with their progression in education.

3.4.1 *THE COLONIAL EPOCH AND FEMALE PUPILS' PROGRESSION IN EDUCATION*

In my opinion, during the colonial epoch in Zimbabwe, dividing lines of gender have been engrained in the guiding principles of employment, which have made possible the enlistment of males in mining, industries and farms, a tradition that went hand in hand with females' segregation from remunerated labour. When colonialists moved into Zimbabwe, they claimed the fertile land, which females had attended to and ploughed, thereby estranging them from what had for long defined them (Parpart, 1986:4). This made them more reliant on men, which led to an impression of male hegemony and authority and the forfeiture of their identity. As a result, the need has arisen to scrutinise the male and female power relations in the pre-colonial era and during the colonial era and how these shaped the post-colonial education system in Zimbabwe. This forms the basis for my fully comprehending and appreciating the influence of past events in terms of the influence of power relations on female pupils' progression in education.

According to Shabaya and Konadu-Agyemang (2004:413), sub-Saharan Africa, prior to colonialism, engaged in colloquial education entrenched in traditions, which accorded females subservient roles and responsibilities in society. It is in this context that most societies have a history that has been imitated through the education system, as it influences the aims, objectives and activities thereof. It should be implicit that traditionally, education in sub-Saharan Africa was available only for males, thereby marginalising females in gaining knowledge, skills and values (Alabi et al., 2014:8). This disempowering 'ideology of domesticity' was embraced by the 'housewifization' tradition, in which females had a long historic antecedence in inequality in power relations in societies (Amadi et al., 2015:13; UN Women, 2014:vii). Consequently, this section scrutinises the influence of historical background on female pupils' progression in education.

3.4.2 FEMALE PUPILS' PROGRESSION IN EDUCATION IN THE POST-COLONIAL ERA

From the previous discussion (cf. 3.4.1), I noted that the contemporary socio-political environment in sub-Saharan countries was an invention of their colonial past (cf. Morell & Lindegger, 2012:15). Thus, when Zimbabwe gained independence in 1980, the citizens had many expectations, as it had been a patriarchal society based on cultural norms that hindered equality in diverse spheres of life, such as education (Kagaba, 2015:574; Mlambo, 2013:20). I have to consider whether all of these expectations of equality in different spheres, such as education, had been transformed into reality. In line with this thought, Zvobgo (in Shizha et al., 2011:13) perceives that Zimbabwe, in restructuring its education system in line with expectations, had encountered barriers that were partly embedded in the colonial legacy where females had no influence in policies and political decisions. This scenario gave less prominence to female pupils' progression in education; hence the need for this study to delve into barriers and colonial interventions that were implemented to promote unequal practices in education.

According to Assié-Lumumba (2006:13), the colonial legacy in sub-Saharan Africa was rooted in the master-servant spirit, which in the contemporary societies, has re-emerged in the form of gender inequality in different spheres of life, such as education in general and science subjects in particular. From the abovementioned, it can be noted that although most sub-Saharan nations are politically independent, their reforms are still being conceived and implemented within the framework of conditions given by the former colonial powers; hence they do not make much progress in developing and fostering their own ideas (Rotich et al., 2014:52). For instance, most countries in sub-Saharan Africa are failing to achieve universal secondary education despite their being signatories to various regional and international undertakings (Sang, Koros & Bosire, 2013:248).

However, historically, the subdued involvement of females in national and regional gender-related policy-making process in education has resulted in different rules, norms and values being enacted with the belief of promoting females' progression (Ogunlela & Mukhtar, 2009:25). For example, the designed policies and programmes in the Benin Republic did not address the concerns of females as they were neither involved in policy making nor openly asked to enunciate their demands in education (Malina in Ogunlela et al., 2009:25). In view of that, my study seeks to examine how power relations are decisive fundamentals for comprehending the influence of gender barriers on efforts to eliminate discrepancies in female pupils' progression in education (Bedford, 2013:4; Meena in Chigona & Chetty, 2007:1).

In sub-Saharan countries, inequality divides across most spheres of life, such as education, where females tend to lose the fight for the consistently impartial right of entry and progression in upper secondary education (Chigona et al., 2007:1; Franklin in Ogunlela et al., 2009:25). As a result, the current circumstances seem to portray an impression that supports the progression of male pupils in Advanced Level science subjects, while the progression of females remains significantly subdued. For example, in Nigerian schools, from the primary to the tertiary level, females do not receive substantial consideration and are downgraded to being mere agents of household activities with extensive reproductive responsibilities (Omoregie & Abraham, 2009:2). Against this background, my study seeks to investigate how

the social inequality dimension historically influences the progression of female pupils in education in general and in Advanced Level science subjects in particular.

From the reviewed literature (cf. Chikunda et al., 2016:12), it has been noted that the previously discussed cultural and historical factors have a far-reaching influence on females' progression in different spheres of life, such as education. These lived experiences will offer me a window of understanding into the persistence of the gendered nature (cf. Masinire, 2015:621) of progression in Advanced Level science subjects in the selected rural secondary school from the female pupils' perspective. Against this background, based on historical and cultural experience, the question of how these factors influence females' progression in different spheres of life arises (Barton, 2005:321). In light of this, my study further aims to determine how economic factors bring about a better understanding of how the prevailing female pupils' position in society disempowers and marginalises them in education in general and in Advanced Level science subjects in particular.

3.5 ECONOMIC FACTORS INFLUENCING FEMALE PUPILS' PROGRESSION IN EDUCATION

According to Bush et al. (2006:360) and Ainley, Graetz, Long and Batten (in Considine & Zappala, 2002:92), one's socio-economic status can be influenced by domains such as level of education, occupational status and level of income. Society is presumed to be split into distinct layers grounded on the possession of social and economic resources (Okoji, 2013:5163). Morrish (in Okoji, 2013:5163) and Farooq, Chaudhry, Shafiq and Berhanu (2011:2) are of the view that this hierarchical order in one way or the other brings about inequality in society in terms of power relations and status. Based on these grounds, in this section of my study, I analyse the influence of socio-economic factors on female pupils' progression in education in general and Advanced Level science subjects in particular.

Keeley (2007:29) notes that through the acquisition of relevant knowledge, skills and attributes, one's formation of personal, social and economic welfare can be accelerated. This concurs with the portrayal of the human capital theory that education is highly influential in increasing productivity and employee effectiveness through aggregation of the level of cognitive stock of economically productive human capability and physical capital (Kingdon,

2002:3). This brings to light the major concern that in the current set-up in the Zimbabwean context, it can be applicable in an education system where a gender gap in science subjects in the upper secondary level seems to be a drawback to female pupils, with no provision of improving their context (Smith, 1991:11).

Socio-economic experience is regarded as the virtual standing of a family in a society based on its income, power, background and status (Gouc in Igbo, Okafor & Eze, 2014:1). According to Farooq et al. (2011:3) and Colorado (2007:4), in most societies in sub-Saharan Africa, the family and its make-up form the hierarchal social structure that performs a significant role in pupils' progression in education. For instance, the relative location of the family has an influence on adolescents who grow up in urban areas, as they have added chances to associate themselves with individuals who are most likely to positively influence their conduct in education (Colulota, 2007:33). Therefore a family's socio-economic background, which can fall into the high, middle or low category of socio-economic standing, may have an impact on pupils' progression in education (Lareau in Okioga, 2013:39). This generated interest in my study to examine the extent to which socio-economic factors influence female pupils' progression in education from their own perspective.

In line with the thoughts of Watkins (2000:39), family background is influenced by socio-economic factors, which, in turn, has a bearing on female pupils' progression in education. Thus, low socio-economic status and a poor educational background negatively influence pupils' progression in education through limited access to vital resources, thereby creating additional stress at household level (Kainuwa & Yusuf, 2013:3). In this context, in most sub-Sahara African countries in cases of harsh economic settings, which can both be direct or hidden in terms of costs to a family, sending girls to school can be seen as an unreasonable expenditure to the family. This study elucidates how socio-economic factors influence female pupils' progression in education in the rural Zimbabwean context.

According to Dills (2006:33), Juma and Simatwa (2014:169) and Ntim (2013:182), most societies in sub-Sahara Africa are influenced by patriarchal belief systems inclined towards spending capital on the education of male children at the expense of females. This inclination is based on the belief that male children are being prepared, through education, to assume the responsibility of looking after their parents in adulthood, compared to

females who will most likely benefit their spouses' families. In this context, gender inequality is aggregated by the purported powerful economic basis entrusted in the education of males, while that of females is seen as less valuable in patriarchal societies (Uzoma, 2013:275). Therefore, my study spells out the barriers encountered by female pupils in their progression in Advanced Level science subjects in the Zimbabwean context.

In their findings, Mike et al. (2008:3) express that parents' level of education has an influence on their children's education, with children who have educated parents being more likely to progress further with their studies. In support of this, Garzon, Kahlenberg and Kirkup (in Farooq et al., 2013:3) and Okioga (2013:40) highlight that families with a high socio-economic status can mobilise the means to support their children's progression in education, with limited barriers. As a result, socio-economic status is assumed to place female pupils at a disadvantage that starts at household level (UNGEI, 2008:7; Watkins, 2000:155), especially those with parents who have a low level of education and a poor socio-economic background in terms of their progression in education. With most parents in the Matabeleland North Province falling into the category of earning a low income, this has prompted me to investigate how their current socio-economic status influences their progression in education in general and Advanced Level science subjects in particular.

From their research, Chenge, Chenge and Maunganidze (2017:87) and Considine et al. (2002:95) put forward that parents' education level and socio-economic position (either high or low) seem to be factors influencing children's progression in education. Kainuwa and Yusuf (2013:3) indicate that there is a general belief that in most societies, when parents are educated, the chances are high that they are concerned about their daughters' progression in education and, as such, monitor and supervise their studies. However, nowadays, where parents seem to be unconcerned about the gender of their children, they do not evenly endow in education for all, as they occasionally become gender-biased (Shahidul & Zehadul-Karim, 2015:26). For example, Ntim (2013:82) explicitly mentions that females in rural areas have fewer opportunities for progressing well in education.

From another angle, Uwameiye et al. (2013:221) and Mike, Nakajjo and Isoke (2008:3) note that in some parts of Nigeria, girls are involved in hawking or vending food items to ease the financial burden on their family; hence, allowing them to proceed with education becomes economically unwise for their parents. A closer look at these findings offers my study the background against which I shall scrutinise this issue with specific reference to the extent to which rural family circumstances influence female pupils' progression in education. In addition, the IRIN (2011:1); Lacour and Tissington (2011:552) and Uwaifo (2008:122) postulate that the family's background, in one way or the other, can create an enabling or hindering environment for female pupils' progression in education in the rural context. Therefore, by providing empirical evidence for the issues raised in this section, the next section exposes how the identified societal factors influence female pupils' progression in education in general and Advanced Level science subjects in particular.

3.6 DISCUSSION

My interest in the connection between gender and progression in education among females stems from their under-representation in Advanced Level science subjects in rural secondary schools. This brought the need for me to contextualise the main research question (cf. 1.2) through establishing knowledge gaps to be filled through the provision of answers to the secondary research questions (cf. 1.3). It is crucial to take note of the fact that (mostly elderly) women in patriarchal societies are entrusted by the belief systems to pass on their subservient role and the supreme status of males from one generation to the next (Suter, 2017:9). This happens in a setting with common cultural values, patterns and dogmas, within which there is a cauldron of unseen hindrances that are side-lining and subjugating females in different spheres of life, such as education. This is deeply rooted in the patriarchal belief system that regards the female role as being subservient in society, bringing about gender inequality and discernment (Tuwor & Sossou, 2008:367). Hence the need for my study to examine the seldom-considered oppressive influences that institutionalise female subjugation in spheres such as education in general and Advanced Level science subjects in particular.

Since their origin, the African belief systems have, through everyday interactions, looked down upon females, positioning them in an acquiescent status that is epitomised by the treatment they experience in different spheres, such as education (Chikuvadze et al., 2013:5285; Mavhunga et al., 2015:11; Moyo et al., 2002:164). Under these conditions, during socialisation, females become subservient, subjugated and systematically conditioned to operate in ways that are acceptable in a patriarchal society and its institutions. For instance, in most sub-Saharan countries, females still remain a minority in science fields compared to other parts of the continent (Kibui & Mwaniki, 2014:22). Against this background, my study pursues how socio-cultural factors influence female pupils' progression in education in general and Advanced Level science subjects in particular.

Many writers have considered how in the mind-set of a patriarchal society, the notion lingers that females are not competent in Advanced Level science subjects (Asimeng-Boahane, 2006:4; Chikunda et al., 2016:12; Morganson, Jones & Major, 2010:169). Consequently, the ancient standing of females in the societal order suggests to society that progression in Advanced Level science subjects necessitates fortitude due to cultural views concerning the 'masculine' nature of these subjects (Gudyanga, 2016:159). This, in one way or the other, can be viewed as impeding female pupils' progression in education on an equal footing as their male counterparts (Ifemeje et al., 2012:52). This is the case, despite education being regarded as the most powerful route through which females can be empowered to have more control over their lives (Kwesiga, 2002:5).

According to Uwa, John, Daudu and Oyindamola (2018:24) and the Global Campaign for Education (2012:3), in sub-Saharan Africa, females continue to be deprived of their rights – their right to education for instance – through inequality in terms of admission, progression and experiences in institutions of learning. In light of this it can be noted that although there are diversities in feminist thinking, they assent to the idea that it is not acceptable to believe that gender inequality is influenced by biological factors (Gwajima, 2011:48). It can be noted that enrolment figures in the upper levels of education, with specific reference to science subjects, tend to favour males (Amin & Fonkeng in Yeba & Meno, 2015:181; Omenge & Nasango, 2010:327). This is against the background that in Zimbabwe, patriarchy has acclaimed itself, and the meaningfully constitutional will to address gender inequality has

diminished rapidly, being substituted by the aspiration to dominate females in different spheres, such as education (Essof, 2013:x).

The reflection in the above discussion is antagonistic to ideas of the feminist theorists (cf. 2.2) who advocate for equal privileges for both females and males in various spheres of life, such as education. Accordingly, the elimination of gender inequality and female empowerment are among the major difficulties presently faced in the world (Annan in UNICEF, 2007b:vi). For instance, females in rural ecologies continue to face the full range of patriarchal customs, such as low income, limited access to schooling and restricted political opportunities (Mhembwe, 2019:66). Based on this, I claim that females have remained neglected, as in most cases in sub-Saharan countries; they are subjected to economic and political injustices. This creates an environment that contributes to their subjugation in spheres such as education. In light of the above reflections, my study seeks to conceptualise gender discrimination in sub-Saharan Africa as the basis to delve into the influence of socio-cultural, socio-political and socio-economic forces on female pupils' progression in education in the Zimbabwean context.

3.7 CONCLUSION

This chapter presented a review of related literature by various scholars and researchers on what is known about how societal factors in sub-Saharan countries influence female pupils' progression in education in general and Advanced Level science subjects in particular. A discussion on how these can be linked to the phenomenon under investigation followed. After that, information generated from various sources was presented under the following subheadings derived from the sub-objectives of the study: conceptualisation of gender discrimination; belief systems and female pupils' progression in education; politics and the influence thereof on female pupils' progression in education; and economic factors influencing female pupils' progression in education in general and Advanced Level science in particular. Chapter 4 will concisely show the research methodology embraced in the study.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 INTRODUCTION

In exploring the societal factors that influence female pupils' progression in Advanced Level science subjects, the previous chapters described at length the theoretical framework (cf. 2.5) derived to form the lens used to look at the issue under investigation. It can be noted from the previous discussion that the derived lens acted as a framework to guide me in the selection of the methodology and methods and determining how to present, analyse and interpret the data generated. The research design (methodology and methods) is often linked to the derived theoretical lens, implying that it enlightens the study. This is made possible by making a case of and rationalisation of the procedure the study uses to gain insights into the issue of concern. It requires a clear and comprehensive understanding of methodologies and methods to enable in-depth comprehension of the issue under study, instead of merely pursuing the outright truth (Mertens, 2010b:11). This is the basis for the selection of the approach, paradigm, methods and means of data analysis, discussed in the subsequent sections.

The selected approach is applied together with a suitable paradigm and methods to ensure the fulfilment of set research objectives (cf. 1.4.1). This chapter is structured as follows: a preliminary illumination of the research design, covering the approach and paradigm, outlining the framework within which the study takes place, is given. In addition, Chapter 4 justifies the inclusion of the sampling procedure and how data generation is embarked on. Of significance is that this section also looks at the link between this chapter and the conceptual framework (cf. 2.5) pertaining to the data analysis and research integrity (trustworthiness and ethical issues) (Rosenthal, 2016:514). Thus, this chapter concerns itself with the 'why, what, from where, when and how' of data generation, presentation, analysis and interpretation (cf. Scotland, 2012:9).

4.2 RESEARCH DESIGN

This section focuses on the conceptual blueprint that addresses the ‘why’ and ‘what’ that links, among other things, the research rationale, secondary questions, empirical data generation, analysis and interpretation (Babbie, 2010:121; Bloomberg, Volpe, Rowley & Yin in Ponelis, 2015:539; Kothari & Crag, 2014:29; Terell, 2012:258; Tobi & Kampen, 2018:1211; Yin, 2011:76). Through this design, a position is articulated on the methodology to be used in gaining insight into the issue under investigation (Glatthorn & Joyner, 2005:97; Kothari, 2004:31). This calls for the study to be immersed into a pertinent philosophical basis to guide the data generation, analysis and interpretation, thereby providing answers to the secondary questions (cf. 1.3) (Gunasekare, 2015:364; Ladbroke, 2009:72; Staiton-Rogers, 2006:109). The design for a study is derived from the identified problem and methods, which then guide the sampling procedure, data generation, presentation, analysis and interpretation (Cooper & Schindler, 2008:156; Creswell & Clark, 2017:53; Van Wyk, 2011:2).

This calls for methodical data generation, presentation, analysis and discussion (Lewis, 2015:75; Mertens, 2005:2; Winberg, 1997:14), so as to conceptualise the issue under investigation (cf. 1.2). In turn, this provides the foundation for the provision of answers to the secondary questions (cf. 1.3). Against this background, the qualitative approach and transformative-emancipatory paradigm are proposed to form part of the design that gives direction to the investigation. The next section deliberates on the approach employed to scrutinise the phenomenon under study.

4.2.1 *TRANSFORMATIVE-EMANCIPATORY PARADIGM*

A research paradigm is a pattern of beliefs and practices that provides a frame through which the main and secondary research questions (cf. 1.2; 1.3) are viewed and eventually answered (Iacob, Popescu & Ristea, 2015:248; Kivunja & Kuyini, 2017:26; Willis, 2007:8). Hence, the paradigm is not only seen as a vital belief system in the selection of methods but is but linked with the ontological and epistemological axioms that guide the study (Esterby-Smith, Thorpe & Lowe, 2002:3; Morgan, 2007:49). These define the postulation of the paradigm about reality and knowledge as manifested in its methodology and methods (Sarantakos, 2005:51; Scotland, 2012:9). This acts well to justifiably intersect participants’

expectations, experiences and views that orientate their thoughts about the issues under investigation (Babbie, 2010:33; Bogdan & Biklen, 1998:22; Cohen & Manion, 1994:38).

My study is located within transformative-emancipatory worldview that places female pupils' lived experiences and tensions encountered in the conservative patriarchal system at the centre of the discourse (cf. Creswell, 2012:9; Greene in Mertens, 2012a:3; Tracy, 2013:38). My conviction that transformation and emancipation are crucial, serves as the philosophical basis as the study seeks answers to the concerns about inequality in Advanced Level science subjects in rural secondary schools in the Matabeleland North Province.

The discourse throughout the study focuses on understanding female pupils' under-representation in science and technology. This requires the use of an approach that scrutinises the influence of power relations on female pupils' decision about whether or not to proceed in Advanced Level science subjects (Mertens, 2007:212; UN Women, 2015a:51). This is done through the establishment of an interactive link between the selected participants and I in a bid to explicitly discuss the influence of power relations in their progression in Advanced Level science subjects (cf. Romm, 2015:416).

My study insists on a comprehensively structured paradigm of interconnected praxis and thoughts in line with the way the study defines reality and how truth is known (cf. Antwi & Hamza, 2015:218). This brings out the pertinence of the transformative-emancipatory paradigm to the study as a lens of inquiry to elucidate how the low rate of female pupils progressing in science subjects can be transformed. With this, the ontological belief puts in the picture the epistemological suppositions that subsequently enlighten the methodology, and all this give rise to the methods of data generation (Antwi & Hamza, 2015:219; Kellet, 2011:4; Kim, 2010:5; Mack, 2010:6; Mertens, 2016:6). This, calls for the study to purposively employ strategies that allow me to address the issue from the current political, socio-cultural and economic reality (cf. Kravia & Pagliano, 2015:102). In principle, this methodology aligns methods that generate data, and it influences the analyses and interpretation of data, thereby giving rise to comprehension of the participants' experiences (Carter & Little, 2007:1320). My study makes some attempts to connect its findings to the broader issues of gender inequality in the society under investigation (cf. Mertens in Romm, 2015:412). Thus, in discussing methodology, it is not only about deliberating on the methods

but it also tries to reflect on the logic behind these in relation to the issue under investigation (Kothari, 2004:8). It is against this background that my methodology (ontological and epistemological assumptions) is associated with the conceptual framework outlined in Chapter 2, which was used to closely look at the intricacies under investigation.

According to Kim (2010:5) and Mack (2010:5), ontology talks about a close look at assertions made about the nature of social realities, what it looks like and how these interact with one another. This concurs with Erickson and Kolavainen (2008:13), as they delineated that ontology concerns the thoughts about the existence of and relationships among individuals, society and the world in general. In this conjecture, my study mirrors it through the lens that recognises the existence of diverse forms of inequalities in the participants' progression in science subjects, with the likelihood of transforming the oppressive nature thereof (Mertens, 2016:10).

The discussion is based on the impression that there are numerous truths that are explored in critiquing prejudiced customs and the advancement of transformative amendments in education acts and policies in general and science subjects in particular (Osborne, 2008:127). On this basis, through the ontological assumption, my study points out the issue under investigation by placing it within a number of perspectives in a political, cultural and economic value system to understand how female pupils are disadvantaged in their progression in Advanced Level science subjects (cf. Mertens, Bledsoe, Sullivan & Wilson in Mertens, 2012a:5; Romm, 2015:413). In this context, these ideas lay down the basis on which to scrutinise truth, knowledge and enlightenment on why this paradigm is valuable to my study.

A particular thought is set on concerns related to the power dynamics, rights and voice within the participants' social and historical settings (Shannon-Baker, 2016:328). This is made real by looking at the numerous forms of empirical evidence from the participants' experiences, which relates to the concerns under discourse. In my study, what is taken to be 'real' is indispensably scrutinised to ascertain what has remained unaccounted for in the experiences of the participants, with the view of transforming their status quo (cf. Mertens et al., 2010:198). In this regard, my study acknowledges that knowledge is not neutral, since it exhibits power and social relations that aid inequalities in the participants' progression in

Advanced Level science subjects (cf. Sweetman, Badiee & Creswell, 2010:442). This generates a need to unearth what the participants perceive to be barriers in their progression in Advanced Level science subjects (Walliman, 2011:16).

According to Krauss (2005:758) and Newall (2005:1), epistemology addresses the concerns of the following questions: Where do we get knowledge from? How do we know if it is trustworthy? What do we regard as knowledge? In this context, it relates to what 'knowing' amounts to and how associations with the participants are established (Romm, 2015:413; Tuli, 2010:99). Therefore, in this case, 'knowing' is to some extent put up within the society through participants' interactions with one another and their surroundings (Chilisa & Tsheko, 2014:223; Oun & Bach, 2014:252). This compelled me to get as close as possible to the participants in an endeavour to draw empirical substantiation of their experiences in Advanced Level science subjects. Against this background, this axiological postulation creates awareness on the need to redress inequalities through the provision of evenly balanced credence to the voice of the female pupils in Advanced Level science subjects. This is done through a considerable engagement in my study to generate and analyse data and interpret findings with the minimum preconceived notions on my part as the chief data generation tool (cf. Gudyanga, 2016:141; Mertens, 2002:141).

The previous discourse shapes the need to craft unambiguously an interactive link with the participants since the issue under study is of cultural intricacy and power dynamics (Mertens, 2007:216). In this context, this focus was more on bringing about rapport between the participants and me, which would allow for their voices to be heard during the interaction, analysis and interpretation. This was done within the confines of respect for the participants' cultural norms and values, which I regarded as imperative to the transformation of social inequalities (cf. Mertens, 2012a:3). This brings forward the need for the inclusion of the transformative-emancipatory paradigm as the philosophical basis in addressing the barriers impeding the participants' progression in Advanced Level science subjects. In view of this position, the interaction with the participants illuminated gender inequalities and gave them the voice to draw around the ways of empowering them in their progression in science subjects (cf. Henn, Weinstein & Foard in Kramer-Roy, 2015:1211). In my study, the transformative-emancipatory paradigm makes available a podium to confront the barriers encountered by the participants in their progression in Advanced Level science

subjects, with specific reference to the values of their experiences (cf. Mertens, 2003:139; Oliver in Barton, 2005:319).

In my study, the selected paradigm accords the chance to discourse questions raised on who has power, how it is negotiated and which structures reinforce power relations to enhance the interests of one group at the expense of the disadvantaged group (cf. Merriam, 2009:36). It is this emancipatory nature of my study that influences the need to comprehend and elucidate the participants' experiences with the view to set them free from unequal social circumstances that were subverted by power dynamics (cf. Dews, 1999:8). Hence, I deliberately and unequivocally situate myself side by side with the less influential rural female pupils in a collaborative attempt to improve their progression in Advanced Level science subjects. This, through open discussions, creates the need for me to be in favour of the emancipation of the participants from constrictions of one-sided social configurations that restrain their self-determination (cf. Creswell, 2003:11; Mertens, 2010a:11; Mertens, 2015:45). It is noted that the issue under investigation requires a paradigm flexible and sensitive to the social context in which data are generated (Dornyei, 2007:147; Eusafzai, 2014:181; Grix, 2010:121).

A comprehensive indulgence in cultural issues concerned is demanded through the engagement of the transformative-emancipatory paradigm. Thus, my being a Biology educator plays an influential part in the recognition of the participants' experiences, onto which trust is built as the basis of truthful data generation (Briggs in Mertens, 2007:218; Merriam, 2009:5; Patton, 2002:105). In addition, this makes it possible to interrogate and critique the traditions that preside over the various forms of gender inequalities in society (Hart in Byrant & Bowman, 2012:58; Ramirez, Quintana, Sanhueza & Valenzuela, 2013:431). In this context, this paradigm not only methodologically influences my comprehension of the participants' experiences with Advanced Level science subjects but also assists with comprehending the subsequent vigour needed to provide answers to the questions raised (cf. Chilisa & Tsheko, 2014:229; Mertens, 2007:219; Mertens, 2016:12; Romm, 2015:412). This accords my study an opportunity to gain insight into how issues such as isolation and inferiority influence female pupils' progression in Advanced Level science subjects. This paradigm provides the participants with the opportunity to raise their degree of awareness

of the inequalities encountered in their progression in Advanced Level science subjects (cf. Oliver, 1992:110). This is made feasible since the participants are accorded the opportunity to challenge conservative dominance both in the patriarchal society and in academia (Mertens, 2007:214). This upsurges the appreciation for the consistencies concealed in the participants' experiences and, in so doing, directs their thoughts towards emancipating them (Lather, 1986:259). In this context, my study seeks to create a platform that inspires female pupils through the transformation of the system and policies of society that imitate subjugation and inequality (cf. Lincoln, Lynham & Guba, 2011:102).

This calls for the acknowledgement of the existing barriers to female pupils' progression in Advanced Level science subjects due to lopsided power interactions and intangible deceptions in the social system, which are often disregarded (Watson & Watson, 2011:68). In this regard, my study is aimed at not only the comprehension and discussion of social constraints but also specifically addressing inequalities with the view of bequeathing power to those excluded in social structures (cf. Pring in Eusafzai, 2014:182). In this case, the ontology and epistemology of the discourse have led to the creation of an appropriate procedural basis to generate data with the potential to bring about social impartiality in Advanced Level science subjects (cf. Cohen, Manion & Morrison, 2007:26; Mertens, 2010b:472). It is against this setting that my study seeks to probe the issue and subsequently contribute towards the participants' emancipation from the submissive position in their progression in Advanced Level science subjects (cf. Creswell, 2012:8).

4.2.2 QUALITATIVE APPROACH

My approach in the study is qualitative in nature, with a rich description base that outlines the context and activity of interest founded on socialisation and its influence on the participants' behaviour and beliefs (cf. Creswell, 2007:21; Merriam, 2009:16). Therefore, my study seeks to convey female pupils' subjective reality based on their frame of suggestions made available on the issue under study (Conger, 1998:107; Pole & Morrison, 2003:16). This results in the attainment of a well-defined picture of what the participants experience (cf. Denscombe, 2007:97; Mason in Frost, Nolas, Brooks-Gordon & Esin, 2010:2) in their progression in Advanced Level science subjects in selected secondary schools.

The qualitative approach is seen as a mode of inquiry used to look into the what, how and why of the crucial issue under study (Basias & Pollalis, 2018:94; Rosenthal, 2016:510). It centres on an intense and subjective picture concerning the participants' perceptions, meanings and beliefs (Denscombe, 2007:75; Mutasa, Goronga & Gatsi, 2013:26; Schwandt, 2007:104). Taking a feminist standpoint makes it possible to ask participants some general questions about their views (in the form of words or images) and afterwards, scrutinise them for further elucidations and arguments (Chakacha, Iwu & Dakora, 2014:21; Cooper & Schindler, 2008:162; Glesne, 2011:283). This sheds more light on the subjective nature of the participants' thoughts relative to their experiences and the assigned meanings (Terre-Blanche & Kelly, 2004:2; Wudie, 2014:162).

In order to enable authentic data generation, engagement with the participants took place in a natural setting through inductive reasoning (cf. Abawi, 2008:5; Bogdan & Biklen, 2007:274; Denzin et al., 2005:3). It enabled me to reflect on why the participants see their world the way they do (cf. 3.3) (Flick, 2009:21; Khan, 2014:224). This is in line with the epistemological commitment of the study, which underlines the need to comprehend the female pupils' conduct and behaviour in choosing Advanced Level science subjects or not (cf. Given, Winkler & Willson, 2014:4). Thus guided by the aim my study (cf. 1.4), the participants are regarded as the eye through which concerns about their progression in Advanced Level science subjects are holistically and contextually exposed (cf. Cohen et al., 2007:19; Phiri, Kaguda & Mabhena, 2013:49). Against this backdrop, I explored the participants' narratives on; *inter alia*, the influence of beliefs, politics and economics (cf. 3.3; 3.4; 3.5) on their progression in Advanced Level science subjects (Katsande, 2016:16; Yin, 2011:8). This was made possible through a prolonged and all-embracing period engaging the participants in their social sphere.

Further to this, it is prudent to acknowledge that a qualitative approach allowed for flexibility and evolvment that enabled me to familiarise myself with the concerns at hand, the individual participants' experiences and the meanings assigned to them (cf. Denzin et al., 2003:13; Ochieng, 2009:16). This approach within a feminist perspective allowed me to consider the complexity, sensitivity and relativity of the issues surrounding gender inequality (cf. Hogan, Dolan & Donnelly, 2009:3; USAID, 2014:viii) in progression in Advanced Level science subjects. This resulted in the study generating knowledgeable claims based primarily

on the multiplicity of the socially and historically constructed meanings, with the intention of establishing patterns and trends (cf. Creswell, 2003:18). Against this background, my study commences with a worldview, together with the use of a relevant theoretical lens to probe the meanings ascribed to the issue under study (cf. Creswell, 2007:37).

4.3 METHODS

Methods can be seen as a sequence of *modus operandi* used to generate data as a basis for the analysis and interpretation of the issue under study (Bogdan & Biklen, 2003:31; Le Grange, 2007:423; Leonardo, 2003:75) and form the basis for soliciting relevant data to address the research objectives (cf. 1.4.1) set in Chapter 1 (Burns & Grove, 2009:733). The generated data are supposed to act as the empirical foundation on which comprehensive knowledge is built (Creswell, Klassen, Plano & Smith, 2011:4; Lankshear & Knobel, 2004:172). This calls for the need to thoroughly link methods to the selected paradigm (cf. 4.2.2) to enable a comprehensive indulgence in the phenomenon under investigation (Khan, 2014:229; Suri, 2011:67). This forms the starting point for the epistemological belief that influences the use of methods that are less restricting when picking up the participants' experiences. This scenario depicts the need for my study to explicitly single out the most appropriate methods for the sourcing of relevant knowledge, experiences and feelings, which are later analysed and interpreted and present answers to the questions (cf. 1.3) that were raised in Chapter 1.

With the exigencies at the centre of the main question (cf. 1.2) and the derived theoretical lens (cf. 2.5), pluralistic methods are needed to mutually connect these into meaningful integrity (Devetak, Glažar & Vogrinc, 2010:78). However, in my study, the choice of data generation tool is not prescriptive (cf. Denscombe, 2010:173; Englander, 2012:27; Giorgi, 2009:122). It is against this backdrop that the participants' intricate experiences are brought to light through the purposively selected methods (Chikunda, 2013:139; Yeasmin & Rahman, 2012:155). Consequently, this endorses the generation of data in an all-embracing manner giving rise to the articulation of subjective meanings from it (Denscombe, 2007:132; Johnson & Reynolds, 2011:1; Van der Westhuizen, 2013:694). For my study, this presents an opportunity to openly work together with the participants within the margins of the ethical courtesies during the inquiry about the 'why' and 'how' of the issue under investigation.

In my study, the data generation procedure is all-encompassing, as it draws data from numerous sources, emblematic of a qualitative approach (cf. Creswell, 1998:62). This requires sourcing data from real-life circumstances through the use of a suitable course of action without creating an artificial setting (Mushibwe, 2009:159). This calls for this procedure to be done above board and within the confines of the research protocols, as was explained in Section 4.4.2.

A critical analysis of relevant literature (critical documentary analysis), guided by the themes as outlined in the research questions (cf. 1.4), is done. This method is employed to critically interrogate relevant literature, such as the Zimbabwean laws and policies that either directly or indirectly influence the participants' progression in Advanced Level science subjects. The critical analysis of these documents brings out how belief systems of family and community in acts of parliament, the *National Gender Policy*, among other documents, endorse or discourage participants' progression in Advanced Level science subjects. In addition, through the literature (documentary) method, the *Education Act* and policy circulars, among other documentation, are interrogated to figure out how these incorporated policy goals to facilitate the participants' progression in Advanced Level science subjects.

Since data generation is not restricted to a single method, focus group discussions and semi-structured interviews were incorporated in my research to enable a comprehensive interrogation of the issue under investigation (cf. Devetak, 2010:78). This was done to guarantee the participants' privacy and confidentiality during interaction. As a result, this minimises incidences where participants are not inclined to speak freely about their experiences. This gave them the chance to voluntarily and willingly share their thoughts, feelings, concerns and experiences on the issue under study. Furthermore, it created the need for me to be flexible in the solicitation and accommodation of other issues that might have emerged during the interactions and would have been overlooked earlier on. This procedure brings about valuable data and the analysis thereof, which is at the centre of the next section.

4.3.1 CRITICAL POLICY ANALYSIS

Critical policy analysis is taken as the synthesis of already-existing acts and policies with the belief to initiate an up-to-date transformative policy agenda (Taylor et al., 1997:20), with ‘transformative’ meaning ‘the emancipation of women’. Therefore, relevant texts are identified, studied and interpreted with the intention to situate these within the margins of the secondary questions raised in Chapter 1 (cf. 1.3). In this case, acts of parliament, the *National Gender Policy*, the *Education Act* and policy circulars are interrogated to expose inconsistencies, convergences and divergences pertaining to female pupils’ progression in Advanced Level science subjects (cf. Cahill, 2015:304; Rizvi & Lingard, 2010:74). In addition, I used the literature functionally to consult relevant primary and secondary sources (cf. Bell, 2010:128) to support my interpretation.

This encompasses the need to look with discernment at issues to do with the legislative dynamics in the wider society and Advanced Level science subjects in particular (cf. Cahill, 2015:303; Duncan, Thorne, Van Neste-Kenny & Tate, 2011:433; Mogashoa, 2014:106). Accordingly, this draws attention to the need for consideration of the issue under investigation by providing answers to the following questions: *Who benefits? Whose voices are listened to?* and *How do sidelined groups fare in their progression in Advanced Level science subjects as a result of these acts and policies?* (Ozga, 2000:2; Taskoh, 2014:55). It is against this background that the *Constitution of Zimbabwe*, acts of parliament, policy circulars, manuals and newspapers, among other relevant documents, are studied.

4.3.2 INTERVIEWS

Interviews are face-to-face interactions with participants, with the aim of comprehending their experiences, memories and opinions in relation to the issue under investigation (Polit & Beck in Whiting, 2008:35; Taylor & Bogdan, 1998:77). It is presumed to be a thought-provoking method that has the potential to transform the participants’ understanding of the issue under investigation (Akin, Yildirim & Goodwin, 2016:777; Griffe, 2005:36; Roulston, 2007:25). In my study, it involved posing open-ended questions linked with the secondary research questions (cf. 1.3) and relevant literature sources (cf. Chapters 2 and 3) for an in-depth conceptualisation of the issue under discussion (cf. Akin et al., 2016:777; Mandoga & Chakandinakira, 2014:6; Rosenthal, 2016:510).

Due to sharing space and ideas, there is potential for in-depth interchanges of experiences, memories and opinions with participants, which are captured, reflected upon and later interpreted (Schostak in Alshengeeti, 2014:40). This method grounded my interaction with the participants at the core of the secondary research questions (cf. 1.3), the conceptual framework (cf. 2.5) and the philosophical paradigm (cf. 4.2.2) for an interactive disclosure of the participants' experiences (cf. Gubrum & Halsteins in Denzin et al., 2000:647; Mason, 2002:63).

The above set-up requires my study to operate from a perspective that considers information contextually by making sure that pertinent issues are brought into consideration during discussions with the participants. In these interactions with participants, considerations are made to ensure anonymity and confidentiality (cf. 4.7.2) of their input to the issue under study (Mason, 2002:62). Against this background, during unpremeditated interview sessions, I tried to buoy up the participants during deliberations (cf. Berg, 2007:96; Patton in Rosenthal, 2016:512; Schultze & Avital, 2011:1). For instance, encouraging commentaries such as "that seems interesting; can you tell us more about it?" were extended to the participants during the interviews.

I conducted two types of interviews. Firstly, I conducted two focus group discussions with sets of female pupils. After that, I conducted individual interviews with more female pupils and with some of the staff members at the schools I visited. I prepared myself and the participants that the interviews would have no time limits. With this in mind, the sessions only come to an end when no more new insights were being produced. This was a clear pronouncement that the study has reached data saturation (cf. Trotter, 2012:399; Walker in Fusch & Ness, 2015:1408). In giving sustenance to the methods mentioned and discussed earlier, focus group discussions (cf. 4.3.2.1) and semi-structured interviews (cf. 4.3.2.3) are integrated into the generation of data. It is important to point out that preliminary meetings were held with the participants roughly a week before the interviews, with explicit focus on ethical issues (cf. 4.7.2).

4.3.2.1 FOCUS GROUP DISCUSSIONS

Focus group discussions form part of the methods that I used. These discussions gave the participants a chance to interactively exchange their experiences, memories and opinions around defined issues (cf. Bryman, 2008:694; Mason, 2002:90). The participants could 'hitch-hike' on one another's thoughts and comments, thereby sharing in-depth reflection on the issue under study in a more natural setting (cf. Casey & Krueger in Dilshad & Latif, 2013:192; Denscombe, 2007:176; Maree, 2007:90; Whitley, 2002:380). In pursuit of the above, two focus discussion groups (cf. Appendix 6) made up of 11 participants each were engaged in the exploration of thoughts and experiences in an informal discourse (cf. Patton in Flick, 2009:195; Wilkinson, 2004:177). The first group consisted of female pupils who chose to do Advanced Level science subjects. The second group was for those who chose to pursue other combinations (arts, commercials or practicals) at the Advanced Level. Each group was made up of participants with common attributes in terms of their subject choices at the Advanced Level from secondary schools that had been randomly selected. This took care of the need to create relatively homogeneous groups (cf. Dilshad & Latif, 2013:192; Rennekamp & Nall in Pacho, 2015:47). In the discussions, there was a need for me to act as moderator to manage the interactions (cf. Alexis, 2010:79).

The discussions started with my asking questions, which stimulated the group interaction and allowed for the participants to bring to the table other issues that had not been thought of, thereby providing the basis for further analysis of the meanings entrenched in their answers (cf. Bloor, Frankland, Thomas & Robson, 2001:43; Morgan, 2002:148). Under these circumstances, the participants were left to interact with one another through exposing views and hints that none of the others had thought of before (cf. Litchman, 2013:299; Rubin & Rubin in Berg, 2001:115). The success of this method entirely depends on the sincerity of synergies created by participants as they act independently in response to one another's thoughts (Finch & Lewis in Moriarty, 2011:10; Upadhya & Singh, 2010:36). However, during these interactions, in some instances, a participant seemed to have taken over the discourse, with others being hesitant to discuss their lived experiences in the presence of others. This brings to the fore the need to apply group dynamics in handling competencies within a homogenous group of participants.

4.3.2.2 SEMI-STRUCTURED INTERVIEWS

Through individual semi-structured interviews (cf. Appendix 7), I sought to gain a more rich and all-inclusive understanding of the participants' experiences and sentiments. It allowed me to follow up in more depth the participants' responses in order to draw out, analyse and interpret the imperative data that provided answers to the secondary research questions (cf. Section 1.3), which resulted in in-depth data generation (cf. Esterberg, 2002:83; Marshall et al., 2008:55; Yin, 2011:133). For data generation in this case, sets of female pupils, primarily those who chose to do Advanced Level science subjects but also some who chose to pursue other combinations, form the basis.

In scheduled interview sessions, dialogues begin with the disclosure of some general beliefs of the participants' society. Thus, through an interview with each participant, it is possible to unearth the concealed feelings about the status of female pupils in Advanced Level science subjects through a reflection from different angles (cf. Bowden & Galindo-Gonzalez, 2015; Johnson, 2009:449). A semi-structured interview schedule is used to generate data from a diverse participant base in terms of their experience in their progression in Advanced Level science subjects. The next section deliberates on whom these methods were applied in order to generate data and how they were selected.

4.3.2.3 SELECTION OF PARTICIPANTS

In the previous section (cf. 4.3) it was noted that it is not possible to generate data from all possible participants in the population (cf. Berndt & Petzer, 2013:349); hence the need to draw up suitable selection criteria, pointing reference to the influence thereof on the credibility and dependability of the findings (Gentles, Charles, Ploeg & McKibbin, 2015:1775; Marshall & Rossman, 2008:61; Wegner, 2007:213). I used purposive sampling, since, as a researcher, I pursued not only participants but also secondary schools that could source pertinent facts desired to respond to the questions raised (cf. 1.3) (cf. Creswell, 2008:214; Gall et al., 2007:21).

All of the participants were invited to be part of my study based on their aptness to provide indispensable data that could contribute towards the change of their status in Advanced Level science subjects (cf. Creswell, 2013:124; Patton, 2012:169). Hence, in finding participants for my study, I asked myself the following question for each participant: Does this individual have the experience I am looking for? (cf. Englander, 2012:19; Flick, Tongco, Bernard in Pacho, 2015:46; Suri, 2011:65). Thus the participants were selected on the virtue of their readiness, keenness and ability to converse their experiences and sentiments in a coherent and thoughtful manner (cf. Barbour, 2008:52; Higginbottom, 2004:17; Mason, 2002:124). The decision about the number of participants was based on the evidence of data saturation (redundancy). Thus, the new data were constantly compared to the already existing source, and I reached a point where no new data of significance were encountered (cf. Cutcliffe & McKenna, 2002:614; Trotter, 2012:399; Tuckett, 2004:3).

In this instance, upon applying the selected methods (cf. 4.2; 4.3); there was no new discovery of new themes, which was taken to signify that the sample was at that time sufficient (Marshall, Cardon, Poddar & Fontenot, 2013:12). With this line of reasoning, the sample of female pupils comprised 45 participants, of which 20 were taking Advanced Level science subjects and the rest (25) doing other combinations in rural secondary schools in the seven districts of the Matabeleland North Province. It is summarised below in Table 4-1.

Table 4-1: Distribution of female pupil participants by district (n=45)

District(s)	Female pupils doing science subjects at Advanced Level	Female pupils not doing science subjects at Advanced Level
Binga	2	3
Bubi	1	3
Hwange	7	4
Lupane	2	3
Nkayi	3	6
Tsholotsho	4	3
Umguza	1	3
Total	20	25

My decision to focus on rural secondary schools in the districts highlighted in Table 4.1 as research locations as outlined in chapter 1 (cf. 1.9) and the aim at these was an in-depth analysis of societal factors influencing female pupils' progression in Advanced Level science subjects. Thus the selection of the appropriate participants was critical, hence certain factors such as the participants having passed with at least a 'B' in science subjects at Ordinary Level. With this in mind, the participants who meet the requisite entry requirements could either opt to progress in Advanced Level science subjects or take up combinations. It should be acknowledged that the number of secondary schools offering Advanced Level education varies from one district to another within the province.

Moreso, those offering Advanced Level science subjects are few due to the rural nature of the province under investigation since some secondary schools cannot afford to purchase the relevant equipment and consumables for experiments. Resultantly reduces the number of female pupils progressing in Advanced Level science subjects, as they would opt for other subject combinations (cf. 1.2). In this context, I selected these participants guided by what authors such as Barbour (2008:52); Singleton & Straits, (2010:173); Thomas and Nelson (2001:281) refer to as the 'theoretical selection.' For this reason, my sampling was based on the characteristics, which the participants held, and which I deemed to be crucial in understanding the issue under investigation since the participants were from unique and dynamic contexts. It is against this background that since the intention of the study was not to calculate some population value, I, therefore, subjectively targeted those participants from whom I believed; might gain more information on the issue under investigation.

As I sampled various groupings surfaced from these participants at the targeted rural secondary schools and this was a clear hint on the need to proceed from one institution to another to. In this regard, purposive sampling was directed by the desire include participants with diverse backgrounds and made sure a geographic coverage was taken into consideration. This was done with the view that it would increase latitude in the participants' experiences in their progression in Advanced Level science subjects, resulting in the representation of the findings (cf. 1.6.2.3a). In Table 4.2 below the participants are distributed according to their ages.

Table 4-2: Distribution of female pupil participants by age (n = 45)

Age range (years)	(n)	(%)
Below 17	1	2,2
17-18	27	60
19-20	14	31,1
Over 20	3	6,7

Although it was not my plan at the onset, I also engaged with six members of staff in their different capacities (e.g. senior staff, school heads and heads of the Science and Mathematics Departments) through brief discussions during my time at the schools in order to enhance the data generated from the female pupil participants. They gave permission for me to use the content of the discussions as data. I specifically probed them with regard to the implementation of policies and circulars, and due to their roles at school, they were rich sources of data (cf. Taherdoost, 2016:23; Tongco, 2007:151). Furthermore, all of them were well versed in the processes involved in Advanced Level learning activities, as they were directly involved in the supervision and facilitation of the learning activities and thought to be in a position to make valuable contributions towards the issue under discussion (cf. Cooper et al., 2008:711; Oppong, 2013:203). Some of the staff members were also parents of female learners, and as such, they shared their ideas from the perspective of parents.

4.4 THE INTEGRITY OF THE RESEARCH

In my study, diverse methods were used to gather the participants' experiences and what these meant to them in the context of their society (cf. Creswell, 2007:39; Denzin et al., 2005:3). This is done in order to derive a diverse representation of the issue under study. It is important, though, to ensure that the integrity of the process is upheld at all times. This relates to honesty, truthfulness and common decency (Lincoln et al., 1985:290; Panigrahi, Duran, Waris & Kumar, 2017:462; Watt, 2008:440). I had to consider the following: Can my research findings be trusted? Did I go about with decency and honesty in my data generation, analysis and interpretation? (cf. August & Tuten, 2008:83). Next, I shall discuss the two issues (e.g. trustworthiness and ethical issues) in more detail.

4.4.1 *TRUSTWORTHINESS*

The trustworthiness of my study is embedded in considering whether or not the findings answer my secondary research questions (cf. 1.3) (cf. Anney, 2014:276; Cohen et al., 2007:133) by reflecting credibly the original data shared by the participants and providing an accurate explanation and interpretation thereof. For this reason, trustworthiness is presumed to be attained through a thorough triangulation of narrations and interpretations of data from multiple sources of evidence (Stake, 2005:443). In this setting, triangulation emphasises the need to trim down the influence of bias in data analysis and elucidation (Gunawan, 2015:11). This is based on a setting that is geared towards putting forward an impartial, authentic and sensible account (Neuman, 2014:218), in this case, of participants' experiences in Advanced Level science subjects. This brings to light convergence within data, which makes it possible to robustly look at a study from a perspective centred on the integrity of the findings (Gunawan, 2015:4; Yin, 2006:115).

In my study, credibility involves establishing the scope to which the participants' experiences, views and feelings are believable (cf. Trochim & Donnelly, 2007:149). This raises the need for the inclusion of a trustworthy methodology and methods tailor-made within the needs of the crafted research questions and the theoretical framework (Nieuwenhuis, 2016:123). Also required are sincerity on the choice of the point of view and truthfulness of the elucidations, reflected through the soundness of the data (Creswell, 1985:219; Kitto, Chesters & Grbich, 2008:245; Scott in Mogalakwe, 2006:226; Sikolia, Mason, Biros & Weiser, 2013:2). In this scenario, credibility is dealt with through the combination and corroboration of data from different methods, in the context of the conceptual framework (cf. 2.5), to robustly establish its convergences or divergences (Merriam, 2009:10; Oswald & De Villiers, 2013:8; Stake, 2005:443; Yin, 2006:115).

According to Henry (2015:25), Houghton, Casey, Shaw and Murphy (2013:13), Morrow in Sikolia et al. (2013:2) and Stringer (2007:57), a need exists for a prolonged engagement in a research setting in a bid to build a strong relationship with the participants. Thereafter, engagement with the data (recordings, notes and transcripts) is done intensively to set up an empirically well-defined link between data analysis and interpretations. Regular fall-backs on the data are held with the view to make adjustments in accordance with suggestions and recommendations from the participants. This is done by returning the analysed and

interpreted data to the participants for them to weigh up the interpretations and to put forward amendments where necessary (Anney, 2014:277; Guba, 1981:85). This enriches the integrity of the research through self-reflection and self-scrutiny of findings, including member checks (Lincoln & Guba in Eusafzai, 2014:181; Polit et al., 2010:493). This was done in my study, which makes this study worth paying attention to.

Dependability is another benchmark taken into consideration as a means to ensure consistency and honesty of findings and the extent to which procedures are documented to allow for others to make an audit trail and critique the process (Streubert in Moon, Brewer, Januchowski-Hartley, Adams & Blackman, 2016:2). It is imperative to perceive this section as not being there to depict the findings as those before but to deal with the consistency of the findings (Gass, 2010:12; Houghton et al., 2012:14). It provides the readers with the opportunity to follow the discussion and the interpretive endeavours thereof through the prolonged engagement with participants in order to comprehend and gain knowledge on the issue under investigation (Polit et al., 2010:493). Therefore, credibility and dependability in this investigation are linked to the participant selection and the amount of data generated, all of which influencing how truthful the secondary research questions are answered (cf. Graneheim & Lundman in Moon et al., 2016:2).

4.4.2 ETHICAL ISSUES

Ethical issues form an integral part of the preparation, data generation, analysis, elucidation and report writing (Chowdhury, 2014:37; Mertens, 2010a:12; Von Unger, 2016:88). On this basis, it is meaningful to regard the selected participants as an important component of data generation. This entails being mindful of the obligation of looking after participants' rights and well-being during the data generation, presentation, analysis, interpretation and reporting (Ackerly, Stern & True, 2006:7; McMillan et al., 2010:136). Nevertheless, this calls for the need to critically look at the participants' rights and well-being through the intimate link between the methodology and the methods (Creswell, 2007:141; Punch in Khan, 2014:231).

First, ethical clearance was sought from the Faculty of Education at the University of the Free State (approval number: UFS-HSD2017/1006) (cf. Appendix 1). Thereafter, forms that are part of the package used to apply for permission to carry out research in the identified province from the Secretary for the Ministry of Primary and Secondary Education (cf. Appendix 2) were obtained. Through a written response, the Secretary for the Ministry of Primary and Secondary Education (cf. Appendix 3) granted permission to carry out research in the selected province.

Subsequently, familiarisation visits were done to introduce myself and to create a comprehensive relationship with the Provincial Education Directorate, the District Education Inspectorates and the heads of the secondary schools. In this case, data generation was only embarked on after approval was granted by the relevant ministry to conduct the study. Hence, from the beginning to the end, my study is entrenched in the ethos of full disclosure.

Furthermore, I sought informed consent from the participants' parents or guardians, taking into consideration issues dealing with privacy, anonymity and confidentiality (cf. Caruth, 2013:115; Madison, 2005:113). Since social inquiry has an impact on participants' privacy, providing detailed information upfront is used as the basis to encourage them to make an informed decision (Creswell, 2009:89; Taylor, Peplau & Sears, 2012:2). The mentioned consent form incorporates the rights of the participants through free will, respect for their integrity and personal freedom during data generation, analysis and interpretation. This was followed by engaging the participants to assent their participation in the study knowingly, voluntarily and willingly in data generation, with the assurance that their privacy and sensitivity would be protected (cf. Armiger in Fouka & Mantzorou, 2011:4; Bryman, 2008:694; Walliman, 2011:47). I made an effort to truly and genuinely inform the parents and participants about my desire to generate data through personal interviews and focus group discussions. All relevant information pertaining to the investigation, including its aim and purpose, was relayed to the parents and participants. The participants, based on information shared with them about their role in the study, were given time to make an informed decision (cf. Amdure, 2002:23; Cohen et al., 2007:53). On the basis of that information, they made informed decisions to participate in the study by signing an assent form (cf. Appendix 5).

In my study, confidentiality was guaranteed to the participants as their identity or personal information would not be disclosed anywhere; instead, only details relevant to answering the issues raised are divulged. The interactions in my study were reciprocal and vibrant, with each party taking into consideration the others in the deliberations (cf. Blummer in Aldiabat, 2013:26).

With the first engagement, the participants were introduced to the study by highlighting its purpose and explaining how they had been selected to be part of the investigation and the procedure to be followed. Of importance is that the participants' identities would remain confidential and never be revealed in the final write-up. Hence, an active attempt was made to remove from the records any elements that might have an indication towards the participants' identities (cf. Berg, 2004:65; Walford, 2005:84). This was done in adherence to confidentiality and respect of participants' privacy in terms of their right to control what information to provide or not (Pieterse, 2010:141; Shaw, 2003:10). The generated data, analysis and interpretation are not linked to individual participants by name; instead, numbers and letters of the alphabet are used to refer to them. Explaining this to them gave them the assurance that all the data generated would be treated with the highest degree of privacy and confidentiality.

In my study, the anonymity of the participants' information obtained through focus group discussions and semi-structured interviews is regarded as a crucial ethical aspect during the data generation, analysis and interpretation (cf. Berg, 2004:65; Polit et al., 2010:129; Walford, 2005:84). During these interactions, the participants were assured that questions requesting them to identify themselves would not be asked. Within the focus group discussions, the participants agreed to keep the discussions confidential and not share what individuals disclosed outside the discussion. This helped them to open up during discussions on sensitive issues, thereby enhancing the credibility of the findings. In my study, the participants owned the experiences, feelings, views and memories they shared; hence, the data generation process was collaborative and allowed them to be the custodians of the proceedings concerning the issue under investigation. In this regard, the participants were able to review the generated data through member checking, as they checked the accurateness thereof and, afterwards, bestowed their final approval (cf. Creswell, 2014:239; Rosenthal, 2016:513).

4.4.3 *THE ROLE OF THE RESEARCHER*

As a 'transformative' participant, my attention was to offer other participants a platform to share experiences pertaining to their progression in Advanced Level science subjects. In this regard, I assumed two deep-seated responsibilities during the data generation, analysis and interpretation of the findings (cf. Litchman, 2013:2).

Firstly, as the 'chief data generation tool', I critically looked at the relevant literature (documentary evidence) and interrogated the participants in the semi-structured interviews and focus group discussions. After that, I analysed, discussed and interpreted the findings, following Hatch's (2002:14) guidance on the qualitative approach. Thus, in generating the data, I tried not only to put together pieces of knowledge that were peripheral to the participants but also to capture their lived experiences. For this, I needed to keep track of the continuous and rigorous interaction with the participants (cf. Shenton, 2008:68).

Secondly, I was a 'partner' to the participants during the data generation, which enabled me to set up a mutual understanding with them during the data generation (with specific reference to the semi-structured interviews and focus group discussions conducted). This provided me with the opportunity to enter into each individual participant's unknown world to generate their lived experiences (cf. Upadhyaya & Singh, 2010:36) in their progression in Advanced Level science subjects in particular. For this reason, I introduced myself to them and carefully outlined the aim of the study and their role in the issue under investigation and adhered to all procedures related to ethics. I issued consent forms for their parents or guardians to acknowledge their children's participation in the data generation procedures. Upon the parents or guardians consenting to their children's taking part in my study, I requested assent from the female pupils themselves. After that, appointments were made with the selected participants. I tried to be flexible and composed, as we conversed about sensitive aspects of the issue under study.

4.5 DATA ANALYSIS

In my study, analysis is conducted inductively through critical policy analysis (cf. 4.3.1); focus group discussions (cf. 4.3.2.1) and semi-structured interviews (cf. 4.3.2.2) (cf. Adom, Yeboah & Ankrah, 2016:6; Lankshear & Knobel, 2004:266). The probing of this data is grounded in the demands of the secondary research questions (cf. Chapter 3). My study views data analysis as a vigorous, practical and spontaneous activity that informs with regard to the interpretation and report writing of the data (cf. Gibbs, 2007:73). This is not treated as the last point of the study, since it brings about the need for further data generation.

Accordingly, this section centres on the analysis of written texts and spoken words in a bid to expose the expansive sources of power, dominance, inequality and bias and how these are instigated, upheld, mimicked and transformed within the participants' belief system, economic and political contexts (cf. Maree, 2016:113). This requires looking logically at the data in the context of the selected approach (cf. 4.2.2) and paradigm (cf. 4.2.1), so as to observe patterns, points of argument, convergence and divergence pertaining to the issues under scrutiny (Leech et al., 2007:564; Silverman, 2000:126). Hence data analysis involves preliminary reading through, sorting, coding, organising, presenting and interpreting data (Creswell, 2012:179; Creswell, 2013:179). It is essential to note that this process of data analysis is on-going, interwoven and iterative and attempts to sort, code, present, analyse and interpret data (Creswell, 2014:245; Maree, 2016:109; O'Leary, 2005:12).

Data analysis makes sense of data through the consolidation and interpretation of what the participants have said about the issue under investigation (Creswell, 2009:183; Merriam, 2009:176). This calls for accountability, grounded in the context of the selected methods, such that a "thick and rich description" of the established patterns in line with the identified themes is offered (Cohen et al., 2007:462; Patton in Rosenthal, 2016:513). This brings together the small portions of data on the participants' experiences to form an all-encompassing interpretation of their insight into the issue under investigation (Domegan et al., 2007:430; Lodico, Spaulding & Voegtle, 2010:301). In this context, the ontological and epistemological interrogations provide the basis to uncover data (Denscombe, 2007:308; Olson, 2007:29). This crafts the need to engage feminist critical policy analysis (cf. 4.5.1) and critical discourse analysis (cf. 4.5.2) as the basis to look at the data.

The qualitative approach allows for an in-depth look at activities and participants' experiences (Holloway & Wheeler in Khan, 2014:230), in this case, in learning ecologies of Advanced Level science subjects, while recognising issues of power. Rich quotations, descriptions, narrations, conversations and voices are derived and are used to subjectively interpret the participants' experiences (Creswell, 2007:20; Devetak et al., 2010:79; Habermas in Flick, 2009:12; Leedy & Ormrod in Pacho, 2015:44; Patton, 2015:264). This gives the researcher and participants an opportunity to probe beneath the surface facts and to ask why this phenomenon occurs the way it does. However, for this to be feasible, the qualitative approach prescribes how participants are supposed to put down their subjective views and experiences and conduct themselves in the study (Astalin, 2013:118; Demuth, 2013:35). In the next section, the philosophical standpoint from which the data were generated, presented, analysed and interpreted is exposed. The choice is based on the demands of the approach and the issue under study discussed earlier.

4.5.1 FEMINIST CRITICAL POLICY ANALYSIS

The fusion of feminist tenets and critical policy analysis enhances the cross-examination of the influence of the *Constitution of Zimbabwe*, the *National Gender Policy*, the *Education Act* and other policies on female pupils' progression in Advanced Level science subjects (Mansfield, Welton & Grogan, 2014:1157; Olesen, 2005:236; Pillow, 2003:151). It is prudent to highlight that this feminist critical policy analysis not only looks at the presence or absence of female pupils in Advanced Level science subjects but, instead, contextualises it within a comprehensive setting of belief systems and socio-political and socio-economic factors (Loftsdottir, 2011:202). This provides the ground to candidly interrogate the structure of the secondary research questions, conceptual framework, methodology and methods and to critique the findings in line with the demands of the main research question (Shaw, 2004:59).

There is a need to draw attention to the power dynamics and the influence thereof on the participants' progression in Advanced Level science subjects in the context of the interaction of different components of the society. This forms the basis to critique the education acts and policies within the context of the power dynamics that perpetuate gender inequalities in the participants' progression in Advanced Level science subjects. The next section proceeds to interrogate the interactions in the context of power relations in society.

4.5.2 CRITICAL DISCOURSE ANALYSIS

In my study adopted critical discourse analysis engaged to gain insight into the issue of equality as portrayed in the *Constitution, the National Gender Policy and Education Act* (Setyono & Widodo, 2019:387). Thus it deals broadly with the sanctioned approaches of domination in societal interactions with the view to unearthing the unclear social traditions (Arce-Trigatti & Anderson, 2020:7; Van Dijk, 1995:18). It also enables me to scrutinize the evident underlying connections of domination and inequality as exhibited by the participants during our interactions (Fairclough, 2013:231; Wodak & Meyer, 2009: 10).

This can be seen as a means for critiquing the implied beliefs that are entrenched in the participants' mind as they delineate social, economic and historical power interactions between dominant and subservient groupings in their society (Henry & Tator, 2002: 72). In this context critical discourse analysis exposes how created the platform for me to compare and contrast the influence of belief systems and socio-political and socio-economic factors on participants' progression in Advanced Level science subjects (cf. Fulcher, 2010:7; McGregor, 2010:2; Rogers, Malamcharuvil-Berkes, Mosley & Hui, 2005:371). Hence, the consulted sources are succinctly looked at through a conceptual framework (cf. 2.5) to gain insight into how these factors interact to influence participants' progression in Advanced Level science subjects. In this regard, texts (newspaper articles, the *Constitution of Zimbabwe*, policy circulars and interview transcripts) are scrutinised and critiqued to single out patterns and themes in the context of the participants' progression in Advanced Level science subjects (cf. Mogashoa, 2014:105). This is made feasible by looking at the influence of impervious patriarchal interactions on female pupils' progression in Advanced Level science subjects (cf. Locke, 2004:1).

The above discussion appreciates the existence of concealed motives behind the gender inequalities in science subjects, which ultimately need answers (Olson, 2007:29; Pilot et al., 2010:264). This forms the basis to critically analyse and interpret the social patterns and trends reflected within the data (Braun & Clarke, 2006:79; Fulcher, 2010:5; Howitt & Cramer, 2010:79). In this context, it is noted that the analysis uncovers who has power and control over the activities in Advanced Level science subjects in rural secondary learning ecologies. Through the data obtained from consulted documents and the relevant quotations from participants, critical policy analysis, feminist critical policy analysis and critical discourse analysis are employed to provide answers to the issues raised in Chapter 1 (cf. 1.2). However, data analysis, interpretation and report writing are done in the context of trustworthiness and ethical considerations.

4.6 CONCLUSION

This chapter gave a detailed explanation and the underlying principles for the selection of the research methodology (qualitative approach and transformative-emancipatory paradigm) and methods (critical policy analysis, focus group discussions and semi-structured interviews) used in the investigation of the influence of societal factors on female pupils' progression in Advanced Level science subjects. Also discussed were sampling, methods, data generation procedure and data analysis (feminist critical policy analysis and critical discourse analysis). The integrity of the study was discussed by looking at trustworthiness (credibility and dependability) and ethical considerations. The next chapter seeks to critically investigate how laws and policies influence female pupils' progression in education in general and Advanced Level science subjects in particular.

CHAPTER 5: CRITICAL ANALYSIS OF RELEVANT ZIMBABWEAN LAWS AND POLICIES

5.1 INTRODUCTION

The previous chapter placed prominence on the research methodology, sampling, methods, data generation procedure, analysis and research integrity. In this chapter, policies and laws are used explicitly as statements of intent that purposively outline the strategy to be adhered to by individuals or society when dealing with gender-related issues (Anderson, 2010:6). I view acts and documents as a normative indication of how society deals (or is supposed to deal) with gender parity (Eyben, 2008:14). Laws and policies are referred to in an unambiguous way when considering females and males in a patriarchal society. I shall, therefore, look at selected pieces of legislation and policy documents that influence the area of education (cf. Cahill, 2015:303). The focus of this chapter is not only on analysing what is inscribed in related laws and policies but also on considering the discourse on these in the literature and comprehending and valuing how the laws and policies influence female pupils' progression in education in general and Advanced Level science subjects in particular.

5.2 A HISTORICAL OVERVIEW OF LAWS AND POLICIES

In any given society, the organisation of its followers can only be meaningful when there is a definite course of action detailed through enacted laws and policies (Ball, 1994:19; Braun, Ball, Maguire & Hoskins, 2011:586; Chireshe, 2006:20; Mbibeh, 2013:55; Ombati & Ombati, 2012:115). However, laws and policies are not value-neutral. Laws and policies are influenced by the constitution of a country, where values are either explicit or implied. However, it can also advance the agenda of those in power (Coetzee, 2019:2; Fenwick, 2003:339). In the context of my study, which focuses on gender oppression, I used critical policy analysis (cf. 4.3.1) to consider gender-related laws and policies influencing female pupils' progression in Advanced Level science subjects.

While there is a general understanding of the concept of 'law' as the directive enacted by parliament, it is vital to highlight that failure to define 'policy' comprehensively by different stakeholders in education has been a hindrance in the field of policy studies (Ball, 2008:15). I, therefore, firstly need to make clear what 'policy' entails in education and in my study in particular.

In my study, I regard policy as a point of reference that standardises female pupils' progression in undertakings of learning (cf. Anderson, 2006:6; Starling, 1979:4). Policy is seen as more than just a version of structural transcripts that guide education; it also influences the behaviour of pupils in education in general and Advanced Level science subjects in particular (Teise, 2013:112; Torjman, 2005:4; Ranney, 1986:7). Policy is seldom value-neutral but rather represents a particular political, ideological or ethical standpoint that vests it with authority (Coetzee, 2019:6). It is against this background that I see policy as an outcome of power and control processes to provide a reflection of values – theoretical and practical. It thus positions female pupils in a particular way, by foregrounding particular values and enabling or disabling power differentials within the context of education and Advanced Level science subjects.

In this section, I engage in critical policy analysis (cf. 4.3.1) in scrutinising the laws and policies that influence female pupils' progression in education (cf. Olesen, 2005:236; Pillow, 2003:151; Taylor et al., 1997:20) from my own standpoint as a feminist. Critical policy analysis enables me to look at how laws and policies are, and can be, used to maintain or challenge inequality with regard to female pupils' progression in Advanced Level science subjects (cf. Duncan et al., 2011:433; Msoffe, 2015:137; Rata, 2014:348). It might appear as if laws and policies are simply to be taken up and, thereafter, transformed into a vibrant course of action (Braun et al., 2011:586). However, a critical look at these might open up conflicting interpretations by stakeholders, resulting in, for example, different terms of reference for their application, monitoring and appraisal (Bell & Stevenson, 2006:12). Policies and laws, therefore, require exploration through paying attention to inconsistencies, omissions and power relations (Bryant, 2009:86; Forde, 2014:370) within a society guided by patriarchal belief systems, in an environment where, traditionally, females are accorded a low status (Kibui & Mwaniki, 2014:22). Such an analysis does not only involve policy directives but also negotiation and tussle between those involved in the policymaking

process and those outside of it (Ozga, 2000:113). This assumed antagonism is a clear indication that educational laws and policies on their own are never complete in dealing with issues concerning the promotion of female pupils' progression in education (Mutekwe, 2014:49; Shizha & Kariwo, 2011:6).

Education systems reproduce the cultural capital and opinions of influential groups in societies (Asimeng-Boaheme, 2006:1; Forgasz, Leder & Tan, 2014:370). Hence, there is a need for a clear understanding of the social structure and the influence thereof on the setting up of laws and policies that can either promote or discourage females' progression in Advanced Level science subjects (Dziva, Mpofu & Kusure, 2011:88; Zvobgo, 1994:96). The next section thus seeks to investigate how laws and policies in the colonial (cf. 5.2.1) and post-colonial (cf. 5.2.2) eras have influenced female pupils' progression in Advanced Level science subjects.

5.2.1 COLONIAL EDUCATION LAWS AND POLICIES

In pre-colonial Zimbabwe, females are narrated to have had some influence and were, according to the stories told, recognised in their traditional society. Despite the existence of inflexible settings, females in Zimbabwe participated in, for instance, spiritual belief systems. Stories were told about Mbuya Nehanda, a female Shona spiritual medium and revolutionary leader in the fight against colonialism. She was an illustrious character, who performed a purposeful role in the emancipation wars. However, historical accounts of females in pre-colonial Zimbabwe lack complementarity, as versions of these accounts were very often told from a male viewpoint (Ndlovu-Gatsheni, 2005:6). The voices of females were increasingly lost within the interaction of the non-egalitarian cultures of the time (Ampofo, Beoku-Betts, Njambi & Osirim, 2004:19; Ndlovu-Gatsheni, 2005:3).

During pre-colonial times, traditional education was closely incorporated into the social, cultural, artistic, religious and recreational life of the natives (Marah, 2006:15). In this setting, education was mainly a community obligation that enabled progenies to acquire experience from their parents and other associates of their social group (Masaka & Chingombe, 2013:156). During the pre-colonial era, the process of educating children would begin as early as when they were deemed able to operate in the physical and social setting. In this context, it can be highlighted that each society had its own unique historical

experiences that influenced the existing and future contexts of its natives in diverse spheres such as education (Moyo & Modiba, 2013:373).

However, upon colonisation by Western colonial powers, among these Britain, France and Portugal, educational dispossession took centre stage among the natives (Chung, 2008:7). For instance, in Zimbabwe, as in any other previously colonised country, its education system is defined by its history. With the British rule, the formal education practised a patriarchal set-up, resulting in females failing to progress in education, let alone Advanced Level science subjects. The natives had little influence on policy formulation; still, the colonial society was deeply-rooted in the indigenous belief systems and, linked with the inequalities that colonialism brought, created a favourable environment for the proliferation of gender differences (Moosa & Bhana, 2016:2). The education structure that was put in place by the colonial regime, which had a completely different cultural background (Rotich et al., 2014:52), made unequal power relations possible through a system of socialisation that favoured the transmission of the colonial master's religious and moral ethics for societal advancement.

It is contended that policy aims are rarely, if ever, transformed into practice the way they were projected to be put into effect and, further, because policies and legislation are socially put up and not simply manuscripts, they are often open to different elucidations in practice (Ntshoe, 2009:86). Yet colonial laws and policies downgraded females to the level of dependents of their male kinsfolks and spouses, thereby being treated as juveniles for life (Barnes in Moyo & Kawewe, 2002:166). Thus colonialism brought with it an educational system that created subversive minds in the indigenous Zimbabwean population through discriminatory policies that affirmed males as being vigorous in the upkeep of society (Awofeso & Odeyeni, 2014:105, Chinyani, 2010:242). Based on this, Mutekwe and Mutekwe (2012:293) argue that colonial settlers tended to view females in terms of the Victorian image of what a female should be, instead of acknowledging their real competences to operate in conjunction with their male counterparts.

The indigenous females were hardest hit as they were exposed to both an oppressive colonial regime and traditional practices, which viewed them as subservient to males, who, in turn, were subservient to the colonial masters. This unduly privileged males over females in the colonial period, as males were actively involved in the public sphere; this marked the beginning of females' under-representation in education (Awofeso & Odeyeni, 2014:105). This situation was a result of patriarchy, brought in by the colonial administration through its anti-females policies (Heywood, 2007:98; Shizha & Kariwo, 2011:13), which gradually transformed a mostly gender-unbiased society to a male-dominated scene.

The *Masters and Servants Act* (Southern Rhodesia, 1901) unequivocally showed prejudice against females with regard to occupation, as it gave women's spouses influence on whether their wives signed work agreements (Madhuku, 2001:3; Sithole, 1972:12). Thus, during the colonial era, the concept of gender equality was unheard of, as in this patriarchy society, females were regarded as the inferior sex of the species (Hora, 2014:97). This was against the principle of the feminist theories (cf. 2.2), which advocate for equality of sexes in various spheres of life (e.g. employment and education).

Although the colonial education system in the then Southern Rhodesia, later Rhodesia, did not have a specific policy for the education of females, as the policies were race-specific, it dealt a considerable setback on females, who had to withstand subjugation and deprivation on justification of being a black female (Chabaya & Gudhlanga, 2013:126; Mavhunga & Bondai, 2015:9; Primrose & Alexander, 2013:56). The limited numbers of African females who succeeded in education and attained the credentials required for admission into higher levels of the economy were mainly engaged by the state to cater for Africans as nurses or educators. Thus, under the colonial regime, the education system was organised around the existing political order of economic domination and social repression through education commissions and policies (Shizha in Shizha & Kariwo, 2011:20). Many of the young females who were discontented with the patchwork of African and colonial patriarchal oppression, where they experienced forced marriages and preference was given to males in terms of education and employment opportunities, took the risk of joining the struggle (Mudeka, 2014:89). However, upon return from war in 1980, not all were allowed the opportunity to proceed with their education.

5.2.2 POST-COLONIAL POLICIES AND THE EDUCATION OF FEMALES

In 1980, upon emancipation from the Western colonisers, Zimbabwe faced many challenges that needed attention from the government of the day. In addition, the ordinary citizens had their own expectations from the government, one of which was education that would equip them with knowledge and skills to empower them, regardless of one's gender. Thus, the notion of gender inclusion in various spheres, such as education, was brought to life (Akin-Aina, 2011:78). According to the liberal feminist standpoint (cf. 2.2.1), it was critical for the government, at this point, to apply an open-minded approach in the initial interventions to address gender inequality in education (Giddens & Sutton in Dekeza, 2017:2; Mutangadura, 2001:39). This mind-set created the potential for Zimbabwe to take note of the existence of inequalities, which then required the nation to embrace scientific socialism as its steering philosophy to change, among other things, imbalances in the education system (Hapanyengwi-Chemhuru, 2015:14).

This called for proactive interventions, such as the decree of acts and policies with the belief that these would create grounds conducive to equal progression in education (Primrose & Alexander, 2013:56; Rambe & Ndofirepi, 2016:100). These educational reforms influenced the transformation of how indigenous culture views females (Mareva, 2014:173). However, it took place at other levels of education, and not the Advanced Level; for example, the transformation reduced the enrolment gap at lower secondary between females and males, with the gap widening at the Advanced Level (Heymann, Raub & Cassolap, 2014:131; Leach, 2004:9; Moyo, Ncube & Khupe, 2016:856; Mavhunga & Bondai, 2015:11; Sahin, 2011:217; Samkange, 2013:955). The implementation of the interventions was a result of the signing of the *Lancaster House Agreement* in London on 21 December 1979, which created a platform for a newly born nation.

Zimbabwe participated in several international conferences on citizens' rights and well-being. The Zimbabwean government endorsed and consented to, for instance, the following international treaties (Lukong, 2016:18; Nani & Sibanda, 2019:2):

- The *International Labour Organisation Convention no. 169* (of particular importance is Sections 26 to 31)
- The *Convention on Rights of the Child* (note Sections 29 and 30)
- The *Universal Declaration of Human Rights* (Section 26 is relevant)
- The *Convention on the Elimination of all forms of Discrimination Against Women* (CEDAW) (1991)
- The *Beijing Declaration on the Platform for Action* (1995)
- The *Convention on Civil and Political Rights*
- The *Equal Remuneration Convention*
- The *Convention on the Prohibition of Discriminations in Occupations*
- *The 2004 Solemn Declaration on Gender and Equality in Africa*
- The *Dakar Platform for Action*
- The *Beijing Declaration*
- The *SADC Declaration on Gender and Development*
- The *Millennium Declaration*

This led to better designing of strategies to fight against, for example, gender inequality in education as the basis for acts and policy formulation (Mareva, 2014:123). I, therefore, argue that these conferences and conventions supposedly brightened the expectations of disadvantaged groups, wishing to have a gender-neutral and gender-sensitive approach to education, among other things. At face value, Zimbabwe consented and agreed to these declarations, resolutions and procedures, with the intention of initiating a permitting atmosphere for the realisation of gender equality (Kapungu, 2007:6; Mugugunyeki, 2016:14). The intention was to improve the operating base for laws and policies to inhibit the bias that is grounded on gender (Gudhlanga et al., 2012:4534; Mavhunga & Bondai, 2015:10).

However, a closer look at reality on the ground shows that this did not in any way guarantee an automatic inclusion of themes derived from international conventions into indigenous laws, since the process needed approval through an act of parliament to be incorporated into law (Machacha & Alexander, 2010:132; Mugugunyeki, 2016:14; Plan International, 2016:13). This created a gap between the demand for gender equality as enshrined in the conventions and what was obtained on the ground, with females encountering challenges in their progression in education (Nani & Sibanda, 2019:2); these intentions did not always come to realisation. Against this background, female pressure groups have been challenging

societies' let-down on defending the code of equal opportunities as delineated in various conventions (Kumar & Joshi, 2015:44; Zimbabwe Human Rights Non-Governmental Organisation Forum, 2012:4; Zimbabwe Women Lawyers Association, 2012:10).

On paper, these acts (e.g. *Matrimonial Causes Act* [1987]; *Maintenance Act* [1999]; *Education Act* [1987]; *Domestic Violence Act* [2007]; *National Gender Policy* [2004; 2013-17]) might sound practical in providing answers to females' concerns, but the implementation thereof leaves more questions than answers. In support of the above contention, I agree with authors (e.g. Bown in Mapako & Mareva, 2013:138; Mandipaka in Chinomona & Maziriri, 2015:840; Samkange, 2015b:2) stating that Chapter 25/04, Part II, Section 4 of the *Education Act* (1987) brings with it obstructive gaps in its framework, which makes it strenuous to realise the full capacity of the laws. Acts and policies are indeed written in a complex socio-political environment, with key issues, at times, being raised by ordinary citizens who are set aside in preference of apparently so-called 'doable' approaches, together with 'feasible' goals for various sectors, such as education (Forde, 2014:370; Mutanana & Bukaliya, 2015:3, Shizha & Kariwo, 2011:6; Tom & Attai, 2014:74). Consequently, in most cases, acts and policies are portrayed as a symbol of political achievement from the colonial to the current society – mere symbolism (Jansen, 2000:46; Mkanje, Shaba & Win, 2004:11).

Taking into account the patriarchal nature of both the state and the social order, and given the preconceived notion in the dispensation of impartiality concerning gender parity, it is not rational to imagine that laws and policies can ever be a vigorous force for transforming prevailing social configurations in this post-colonial era (Mukhopadhyay in Ntlama, 2010:18). In this context, through a lens that incorporates the feminist, symbolic interactionist and human capital theories (cf. 2.5), I shall discuss how pieces of legislation influence female pupils' progression in Advanced Level science subjects.

5.3 CRITICAL ANALYSIS OF RELEVANT ZIMBABWEAN LEGISLATION AND POLICIES

For the empowerment of females and males, several gender-sensitive laws were enacted and existing ones were mostly brought in line with tenets of equality. However, wide-ranging inequalities against females continue in the socio-economic, socio-political, environmental and socio-cultural spheres (Mazambani 2006:2; Moreira et al., 2017:499). It is against this background that females' progression in education has been observed to be marginal, mostly owing to colonial remnants of interactions between femininity and masculinity (cf. 3.4.1) and procedures in policy changes (Masinire, 2015:623). This discussion uncovers the influence of the *Constitution of Zimbabwe*, the *National Gender Policy* and education acts on females' progression in education in general and Advanced Level science subjects in particular.

5.3.1 *THE ZIMBABWEAN CONSTITUTION AND THE INFLUENCE THEREOF ON FEMALES' PROGRESSION IN EDUCATION*

This section centres on the two constitutions of Zimbabwe (the *Lancaster House Constitution* and the *2013 Constitution*) and the influence thereof on females' progression in education. The first part focuses on the *Lancaster House Constitution (1980)*, and thereafter, the *2013 Constitution (Amendment No. 20)* takes centre stage in the discourse.

5.3.1.1 *THE CONSTITUTION OF ZIMBABWE (1980), REFERRED TO AS THE LANCASTER HOUSE CONSTITUTION*

The *Lancaster House Constitution* (Republic of Zimbabwe, 1980) was enacted as a guide in the operation of various spheres of life in independent Zimbabwe. The citizens had definite expectations to bring about equality and congruent nation building (Mlambo, 2013:50; Moyo & Kawewe, 2002:171), also in the context of education. Those in authority were expected to create conditions that empower females through education (Heymann et al., 2014:131). With this in mind, this section looks at how the *Constitution* influenced the setting up of a female-friendly environment in different spheres, such as education (Selebogo & Ojakorotu, 2013:5181; Stromquist, 2007:41).

A closer look at the *Lancaster House Constitution* (Republic of Zimbabwe, 1980) reveals that in bid to please the indigenous population, the customary law and the application thereof to issues relating to people's rights and lives were preserved (Makonese, 2016:169). For instance, Sections 23(a) and (b) state as follows:

Nothing contained in any law shall be held in contravention of subsection (1) (a) [the non-discrimination provision] to the extent that the law in question relates to any of the following matters – (a) matters of personal law; and (b) the application of African customary law in any case involving Africans. (Republic of Zimbabwe, 1980)

The citation gives the impression that discriminating against one another on the basis of gender or beliefs was against the law. This lay the foundation for the application of the requirements of Section 20(5) (Republic of Zimbabwe, 1980) in discouraging the implementation of the practice of expelling pregnant pupils from schools (Hapanyengwi-Chemhuru, 2015:12). I observed that the principle of equality is also catered for in Section 14(23)(i)(a) (Republic of Zimbabwe, 1980), as it directed that no law shall make discriminatory conditions. In the context of education, schools could no longer prevent pregnant pupils or those who have given birth from progressing in their studies (Heymann et al., 2014:131).

Still, despite some positive aspects from the perspective of equality, one has to understand that first and foremost, the concern at this point is history was to establish a sovereign state. Secondly, the *Lancaster House Constitution* (Republic of Zimbabwe, 1980) was ushered in without a referendum being done (Madebwe, 2014:10). Therefore, there was a need for the *Constitution* to be amended in line with concerns raised by different stakeholders in the society. This brought to light amendments that are discussed in the next section (cf. 5.3.1.2).

5.3.1.2 THE 2005 CONSTITUTIONAL AMENDMENT (NO. 17) AND THE 2013

CONSTITUTION OF ZIMBABWE AMENDMENT (NO. 20) ACT

Now, the discussion shifts its focus to probing the extent to which the *2005 Constitutional Amendment* (No. 17) (Republic of Zimbabwe, 2005) and *2013 Constitution Amendment* (No. 20) (Republic of Zimbabwe, 2013) protect females' rights with specific reference to progression in education. These amendments were a result of endeavours by different interested parties such as females' groups (e.g. the Women Action Group, the Zimbabwe

Women Lawyers' Association, Women of Zimbabwe Arise, the Musasa Project and the Girl Child Network) to strengthen the demand for a legal framework that intensifies the issue of gender parity in education (Africa Union, 2009:3; Chimhenga, 2016:28; Economic Commission for Africa, 2008:26; Egne, 2014:3; Inglehart & Norris, 2003:149; Kibera & Kimoti, 2007:45; Mapuva, 2013:263; Samkange, 2015a:1173; UN, 2014:2).

Therefore, looking at the diversity in terms of females' concerns, those consulted in the formulation of the *2005 Constitutional Amendment (No. 17)* and the *2013 Constitution Amendment (No. 20)* enabled them to be widely recognised for their well-founded pledge to gender equality and the right to education (Kapinga, 2010:274; Nani & Sibanda, 2019:2). Thus, the provisions of the Amended Section 23 of the *2005 Constitution on Protection from Discrimination* (Republic of Zimbabwe, 2005) clarify confusion and provide more detail by replacing specific terms and supporting equity:

- (a) in subsection (2) by the deletion of "or gender" wherever it occurs and the substitution of "sex, gender, marital status or physical disability";*
- (b) in subsection (3) —*
 - (i) by the repeal of paragraph (a) and the substitution of—*
 - (a) "matters of personal law";*
 - (ii) in paragraph (d) by the deletion of "or gender" and the substitution of, "sex, gender, marital status or physical disability"*
 - or*
 - (g) "the implementation of affirmative action programmes for the protection or advancement of persons or classes of persons who have been previously disadvantaged by unfair discrimination."*

This was intended to speed up the socio-cultural, socio-political and socio-economic transformation through the application of standards that allow for an improved number of individuals, regardless of their gender, to access and be treated in the same manner in different activities, such as education in general and Advanced Level science subjects in particular (Mkude, 2011:367). In addition, the *2005 Constitution Amendment (No. 17)* shows transformative foresight on the *Declaration of Rights*, since it organises epic objectives that extend from the indivisibility and inter-connectedness of human rights and substantive equality to addressing the inequalities (Moyo, 2019:32) in education in general and Advanced Level science subjects in particular. Thus, the *2013 Constitution (Amendment No.*

20), in Chapter IV, Part II – Declaration of Rights on Section 56 (Equality and non-discrimination), provides that –

(2) Women and men have the right to equal treatment, including the right to equal opportunities in political, economic, cultural and social spheres.

(3) Every person has the right not to be treated in an unfairly discriminatory manner on such grounds as their nationality, race, colour, tribe, place of birth, ethnic or social origin, language, class, religious belief, political affiliation, opinion, custom, culture, sex, gender, marital status, age, pregnancy, disability or economic or social status, or whether they were born in or out of wedlock.

(Republic of Zimbabwe, 2013)

An important point to note is that the *Declaration of Rights* singles out specific categories (e.g. ethnic or social origin, religious belief, custom, culture, sex, gender and pregnancy). In this regard, the *2013 Constitution* acknowledges the existence of obstacles that hinder the fulfilment of females' rights, hence the need to lay a legal foundation to promote the elimination of such obstacles.

A closer look at the preamble of the *2013 Constitution Amendment* (No. 20) (Republic of Zimbabwe, 2013) portrays the commitment of the people of Zimbabwe to upholding and defending fundamental human rights and freedom. The *Constitution* goes beyond the mere recognition of these rights, as it ensures that the rights are realised. Section 17(1) provides that the state must promote full gender balance in Zimbabwean society and, in particular, *“(a) [t]he State must promote the full participation of women in all spheres of Zimbabwean society on the basis of equality with men”* (Republic of Zimbabwe, 2013). With specific reference to education, Section 27(2) provides that *“[t]he State must take measures to ensure that girls are afforded the same opportunities as boys to obtain education at all levels”* (Republic of Zimbabwe, 2013).

The citations from the *2013 Constitution Amendment* (No. 20) (Republic of Zimbabwe, 2013) advocate for full participation based on equality in spheres, such as education, at all levels; one could infer that it implies to Advanced Level science subjects as well. Hence, in this Constitution, education is seen as a tool for promoting other rights, for example equality and non-discrimination. It took cognisance of this by regarding females' rights in light of the disadvantaged status under the previous dispensation and the first Constitution.

With regard to the right to education, the *2013 Constitution* (Amendment No. 20) through Section 75(1) states that “[e]very citizen of Zimbabwe has a right to (b) further education, which the State through reasonable legislative measures must make progressively and available and accessible” (Republic of Zimbabwe, 2013). Of significance in this clause is the word ‘every’, as it is taken to include females. This can be regarded as a positive development in light of past injustices. However, the document does not explicitly state how legislative measures ought to be interpreted within the ideals set (Nyabeze, 2015:19; Zanzi, 2014:1), and as such, this can be noted as a silence (Taylor et al., 1997:50).

Furthermore, despite statements to advance equality, it must be noted that the *2005 Constitutional Amendment* (No. 17) (Republic of Zimbabwe, 2005) and the *2013 Constitution Amendment* (No. 20) (Republic of Zimbabwe, 2013) had limitations on the *Declaration of Rights* in Chapter 4 since they fell short with regard to conceptual simplicity in females’ rights (Dziva, 2018:21). It silences females through, for instance, the language used, as citizens are referred to by other words such as ‘he’ and ‘him’, with the words ‘she’ and ‘her’ appearing nowhere (Zungura et al., 2013:205). Females are thus subconsciously excluded and forced by the belief systems to accept discrimination (cf. 2.2.2) among the sexes as ‘normal’ in society (Gutsa et al., 2011:24). This oppresses females in areas such as education, since laws and policies have been turned into the very apparatus of gender discernment (Ifemeje & Ikpeze, 2012:56; Losindilo, Mussa & Akarro, 2010:1; Nkiwane, 2000:337).

Furthermore, the *2013 Constitution Amendment* (No. 20) (Republic of Zimbabwe, 2013) does not outline the implementation procedure. Thus it falls short of a clear objective on how females’ right to education should be developed and treated. This portrays the use of a catch-all formula in terms of the right to education, which renders the clause unclear and makes it subject to different interpretations by stakeholders in secondary schools. Against this background, any law that guarantees the right to education but does not guarantee gender equality in education fails to enact equality and, by implication, equal access to the so-called ‘masculine’ Advanced Level science subjects.

Of note too is that some of these clauses are enacted without a stipulated monitoring procedure. Although there are bodies, such as the Ministry of Women Affairs, Small and Medium Enterprise and Community Development and the Zimbabwe Gender Commission, that direct the drafting of gender-related policies, no mechanism is in place to monitor compliance by other ministries (e.g. the Ministry of Primary and Secondary Education) or grassroots stakeholders. Hence, policy formulation without a clear statement of whose responsibility it is to enforce implementation and monitoring amounts to carrying on with an existing policy in education (Bamgbose, 1991:117). Of concern now is that not much has been done in terms of research to look into the influence of the gender-related aspects in the *2013 Constitution Amendment* (No. 20) on female pupils' progression in education in general and Advanced Level science subjects in particular (Heymann et al., 2014:132; Nyakudya, 2016:8; Unterhalter, 2008:26).

Several authors (e.g. Carinci & Wong, 2009:526; Tsanga, 2010:1; Unterhalter in Manion, 2011:45) argue that, in a structured society where females' mind-sets are influenced by cultural beliefs (cf. 3.3) on their inferior status, they take a back seat in, among other environments, the 'masculine' Advanced Level science environment. It is in this context that feminists (cf. Section 2.2) have advocated for the appreciation and involvement of females in education (Mapuva, 2013:262). This was driven by the need to transform from an elitist, settler, racially biased and dual education structure to an inclusive one (Chung, 2008:88; Kanyongo, 2005:6; Mugweni & Dakwa, 2013:2). This can, however, only happen if legislation and policies resonate with the stipulation in the *Constitution* and action is taken to implement these. It is, therefore, imperative to look at other forms of official text that relate to these versions of the *Constitution*.

5.3.1.3 INTERTEXTUALITY WITH OTHER LAWS AND CUSTOMS

The post-colonial government in Zimbabwe tried to create a doctrine of a non-discriminatory society to enable females to develop themselves to their full potential (Tanye in Atta, 2015:11). In this regard, the *Constitution* departs from its rather artificial categorisation of rights to a position that makes rights read holistically and be 'given full effect' through implementation (Moyo, 2019:54). But the existence of provinces demarcated along tribal or ethnic lines, such as the structures and systems of the institution of management in the

Ndebele, Karanga, Zezuru, Kalanga, Tonga and Venda societies, have some notable variances and, together with the introduction of plural legal systems (customary law and labour courts), proved detrimental to females' progression in different spheres, such as education in general and Advanced Level science subjects. Within these municipal settings based on ethnicity, traditional laws continued to provide a basis for discriminatory tendencies against females. In addition, the superstructure in Zimbabwe was still firmly established in socio-cultural, socio-economic and socio-political inequality, with education inclined towards the enforcement of cultural essentialism (Shizha, 2006:20).

In this regard, the customary law portrays a false picture of the existence of a uniform set of customs, notwithstanding the diversified society with multi-cultural belief systems (Ncube, 1997:1; Ndulo, 2011:88). Hence the existence of an immense fissure on the application of customary law vis-à-vis common law codes, thereby creating parallel structures to resolve issues related to inequalities. In this context, I can put out forward the notion that contemporary and Western-driven beliefs on equality between females and males tend to disagree with traditional values (cf. 3.3) on the same matter. From this I noted that there was no coordination between the two lines of thought (e.g. Western legislature and the indigenous customary belief system).

In this context, I note the existence of a contradiction between the requirements of the *Lancaster House Constitution* (Republic of Zimbabwe, 1980) in Section 23(3(b)) and the expectations of indigenous customs (Mboreke, 1988:69). For instance, *Customary Law* (Act 2 of 1990) had no clause on how to promote gender equality; instead, it was a source of law that was used to subjugate females and continue to regulate the lives of citizens (Heidi & Jen, 2009:150; Republic of Zimbabwe, 1980). Therefore, with most African females, such as those in the rural areas in Zimbabwe, married under customary law, their consent to its broader application of gender equality-related policies would therefore be regarded as *de facto*. This explains relations of power, gender and domination in social establishments and in the revelation of issues of disparity and subjugation within the social structures of human existence (Mutekwe & Mutekwe, 2012:367). The aforementioned idea is an antithesis of the human capital perspective (cf. Section 2.4), which advocates for an educational policy that correlates with gender relations through the identification of cost-effective strategies to

allow for the progression of females in education (Beneria & Sen in Manion, 2011:45; Gaidzanwa, 1989:4).

As a result, a plural legal system comes into existence, with indigenous customs being integrated into the Western legal courts to give rise to females' rights being ensnared between formal law and customary law. In this case, the customary law was mostly guided by the traditional belief systems that influenced society's adherence to particular traditional practices. However, these traditional beliefs grounded in the customary law tend to contradict what is legislated in the *Constitution* (Ncube, 1997:2). For instance, the issue by the state to promote the element of inclusivity tends to hit a brick wall, since there are still individuals or groups that conceal their own sub-cultural beliefs (Mutekwe & Mutekwe, 2012:194). This has led gender activists to suggest that although on paper the policy seems excellent; it needs time to prove that the provisions are not merely a facade for politicians (Mapuva & Muyengwa-Mapuva, 2014:16; Muzulu, 2014:6; Omotosho, 2015:97). For example, in the *Constitution*, it is not stated to which extent the state should fund basic education, leaving it open to interpretation that the state is partially responsible for funding (Dzimiri & Chingombe, 2015:167; UN, 2014:2).

In response to the outcry from female pressure groups, numerous laws were enacted through the *Lancaster House Constitution* (Republic of Zimbabwe, 1980) and the *Constitution Amendment* (No. 17) (Republic of Zimbabwe, 2005), the *Domestic Violence Act* (2007), the *Legal Age of Majority Act* (1982), the *Matrimonial Causes Act* (1985), the *Sexual Discrimination Removal Act* (1986) and the *Sexual Offences Act* (2001) (Hlatywayo et al., 2014:28; Kalenga, 2003:3). In support of the emancipation of females, the Constitutional Court ruled that Chapter 5:07 of the *Marriage Act* (Republic of Zimbabwe, 1980), which allowed females as young as 16 to be married with parental consent, was unconstitutional (Sachiti, 2016:2). However, the issue of child marriage remains a menace to the rights of young females (UNFPA, 2012:10). This concurs with the liberal feminist perspective (cf. Section 2.2.1), which sees it as a product of diminished access to civil liberties (Giddens, 2001:692). Thus customary law creates a biased patriarchal supremacy that gives males more power and control over decision-making processes (Losindilo et al., 2010:1; Mazambani, 2006:2).

The prevailing situation pertaining to females' rights, as enshrined in the *Lancaster House Constitution* (Republic of Zimbabwe, 1980), the *2005 Constitution Amendment* (No. 17) (Republic of Zimbabwe, 2005), the *2013 Constitution Amendment* (No. 20) (Republic of Zimbabwe, 2013) and the traditional belief system, seems to create a gap in the legislative framework. Against this background, the next section (cf. 5.3.2) centres on the need for the post-modern era to discuss strategies to be used to dismantle the inequalities between females and males in different spheres of life, education in general and Advanced Level science subjects included.

5.3.2 NATIONAL GENDER POLICIES AND FEMALES' PROGRESSION IN EDUCATION

This section focuses on the influence of policies and their content on the mutually exclusive categories of 'femaleness' or 'maleness' on progression in education (cf. Connell, 2005:1804; Crawford, 2006:18; Gudyanga, 2017:20; Kaimenyi & Ngeretha, 2014:121; Offor, 2013:410; Ministry of Women Affairs, Gender and Community Development, 2013:26; Samkange, 2015b:2). These policies recognise the existence of disparities among females and males that are socially constructed and are learnt through socialisation (Jhally, 2009:1; Taiwo, 2013:5244; Unterhalter, 2004:2; Zinn, Eitzen & Wells, 2008:180).

In this discussion on female empowerment, *Goal Number Five: Achieve gender equality and empower all women and girls* of the *Sustainable Development Agenda 2030* and *Goal Seventeen: Full gender equality in all spheres of life* of the *African Union Agenda 2063* (UN, 2016:4) are investigated. These led to the setting up of 'gender machinery' directed towards upholding and supporting gender equality and equity, which filter into society through laws and policies (September in Moletsane, 2005:80; Van der Westhuizen, 2013:690). In this context, gender disparity in progression in education forms the nucleus of the discussion, looking at how these policies, directly or indirectly, foster equality and equity (Kaimenyi & Ngeretha, 2014:224) in female pupils' progression in Advanced Level science subjects.

In recognition that there are gender imbalances in operation of institution, the government, guided by the *Constitution*, has developed and introduced policies, among them *Affirmative Action*, the *National Gender Policy* and the abolition of child marriages (Chauraya, 2012:235). These policies are rooted in the *African Charter on Human and Peoples Rights*, the *Protocol to the African Charter on Human and People's Rights on the Rights of Women in Africa* and

the *Solemn Declaration on Gender Equality in Africa* (Hlathwayo, Zimondi & Nyatsanza, 2015:1; Omotosho, 2015:95). However, these policies and intervention programmes focused on expanding female pupils' progression in education with little reflection (African Union, 2009:15; Swainson in Masinire, 2015:621) on female pupils' experiences in progression in Advanced Level science subjects in rural settings. In this context, Dorsey (1989:10) and Gaidzanwa (1989:5) express concern over the significantly low figures of female pupils progressing to Advanced Level science subjects and beyond.

Zungura and Nyemba (2013:205) and Winter and O'Raw (2010:28) portray that this discourse interrogates how policies such as the *Affirmative Action Policy* (1993) and the *National Gender Policy* (2004; amended in 2013), designed under the direction of exterior powers, influence female pupils' progression in education in rural learning ecologies. Accordingly, these national policies are aimed at affording a viable conduit through which the government interconnects and acts in response to petitions by the natives (Zhou & Hardlife, 2012:212). This was because of the realisation that the contribution of females should be brought to the limelight through laws and policies guidelines (Kaimenyi & Ngeretha, 2014:221; Mabhandu, 2016:25). For example, the gender equality strategies of Zimbabwe (2013-2017) and the strategic plan for implementation (2013-2017) seek to achieve a gender-just society, where men and women enjoy equality and equity and participate as equal partners in the development process of the country (Ministry of Women Affairs, Gender and Community Development, 2013:iv). This meticulously worded local undertaking ensures the inculcation of the tenets of equality, as enshrined in the Beijing resolutions (SARDC-WIDSAA, 2008:31).

In addition, the *Affirmative Action Policy* (1993) was introduced with the intention of correcting historical inequalities encountered by mostly females in their progression in Advanced Level science subjects (Nittle in Mareva, 2014:174; Stewart et al., 2000:135). This policy placed much emphasis on equal access to learning opportunities for all (both females and males) at higher institutions of education (Chabaya in Musingafi & Mafumbate, 2014:193; Zimbabwe Women Lawyers Association, 2012:4). For example, this policy advocated for the enrolment in institutions of females with one or two points less than males in science subjects at the Advanced Level to augment their progression in science and engineering degree programmes (Kanyenze, 2011:223; Onsongo, 2009:73; Zungura &

Nyemba, 2013:205). Feminists (cf. 2.5) viewed this as a legislative attempt to reduce disparities in the social structure by uplifting disadvantaged females (Manion, 2011:15; Schaefer in Mareva, 2014:174; Wanyende, 2003:50).

This advocates for a substantive approach in the realisation of gender equality that focuses not only on the difference between females and males but rather on how these policies weigh into the historic systemic drawback (Selebogo et al., 2013:5189). Authors such as Hlatshywayo, Hlatshywayo and Muranda (2014:28), Moyo et al. (2016:858), Mubika and Bukaliya (2011:314), Musingafi and Mafumbate (2014:193) and Zivengwa et al. (2013:404) argue that, although in affirmative action there are instances where all citizens cannot be treated the same, there are instances where there is a need to level the playing field, such as allowing females who have been marginalised in spheres such as education to proceed to other levels. Mwamwenda (2013:425) insists that policy planning fails mostly due to decision makers who are unaware of the prevailing situations in institutions such as rural secondary schools. Therefore, it is imperative that ideas and initiatives of policy generation and implementation come from and are supported by ordinary citizens in the remotest parts of the country.

Although this was considered to be a positive move in confronting gender inequality, no mechanism was put in place to spearhead the implementation thereof (Chiedza, Makaye & Mandiudza in Pedzisai, Tsvere & Nkhondo, 2014:159; Mabhandu, 2016:23). This raises questions about the practicability of gender-related policies in a set-up where a 'son syndrome' prevails, which entails giving preference to males and seeing females as the fragile sex, which needs to be aided (Sinnes & Locken, 2014:348). From this discussion, I allude to the fact that the *Affirmative Action Policy* is taken to adversely put forward females' reputation, which suggests that they are incompetent to do the things males can (Musingafi & Mufumbate, 2014:196). I view this as contradicting the basis of equal conduct under the *Constitution*, thus giving rise to activist bias, for example where female pupils with lesser quality Ordinary Level passes (Grade B or C) in science subjects are enrolled, with their male counterparts with quality symbols (Grade A) at the Ordinary Level being omitted from the classes to proceed in Advanced Level science subjects.

I argue that the policy was simply concerned with making secondary schools more expressive of gender composition in Advanced Level science subjects; however, it did not confront the existing patriarchal beliefs in society. Against this background, the decision to legislate a *National Gender Policy* to direct and guide gender equality in all sectors under the auspices of the Republic of Zimbabwe's Ministry of Women Affairs, Gender and Community Development (Maposa & Maposa, 2013:5). Thus, the *National Gender Policy* (2013-2017) sought to eradicate discrimination to create a gender-impartial society where females and males experience equality and participate as equal partners in all spheres of life (Ministry of Women Affairs, Gender and Community Development, 2013:v).

From the previous discussion, I recognised that on education and training, the *National Gender Policy* (2013-2017) has the following objective:

To promote (i) equal access to education for boys and girls and their retention at all levels of education; and (ii) access to training opportunities for men and women, to make possible their equal participation in the workplace and in governance structures. (Ministry of Women Affairs, Gender and Community Development, 2013:11)

In this regard, the policy advocates for the amendment of all pertinent legal mechanisms, with support from various international treaties and conventions with a view to stimulate gender equality by supporting and inspiring females to take up science subjects at all levels (Ministry of Women Affairs, Gender and Community Development, 2004:9; Samkange, 2015b:4). This is against the backdrop of society often being unaware of the low levels of females' progression in Advanced Level science subjects and, thus, not realising the need to confront such concerns (Chikunda, 2014:2; Chikunda in Chikunda & Chikunda, 2016:14; Egne, 2014:565; Masinire, 2015:620).

In this context, the state enacted strategies such as amending all relevant legal channels to deal with females' progression in education in general and Advanced Level science subjects in particular, but with accountability procedures to monitor the effectiveness and efficiency thereof (Chikunda & Chikunda, 2016:12; Chingarande, 2007:51; Ministry of Women Affairs, Gender and Community Development, 2009:12). In support of this argument, Beuchler (2011:27), Mapuva (2013:264), the UN (2016:4) and Win (2004:19) put forward that the lack of legal back-up or any sanctioned announcement on how this instruction was to be applied

creates fragile and inconsistent powers of gender policy determination. Accordingly, while education guidelines are deliberated at the senior level of influence, the application thereof hinges on the subordinate echelons, such as schools, where social proxies could construe policy goals and use their substantial discretion on implementation (Eurydice, 2010:5; Johnson, 2006:2; McDowell & Pringle in Maposa & Mugabe, 2013:6).

This is probable to ensue in a patriarchal society where, to some extent, policy implementers continue to socialise females and males on their roles instead of being urged to promote gender equality in ‘masculine’ science subjects (Biholar, 2014:1; Shabaya & Konadu-Agyemang, 2004:406). This calls for the use of feminist theories (cf. 2.2) in critiquing the extent to which conventional policy priorities are put in place without the involvement of policy implementers and the intended right beneficiaries (Moletsane, 2005:81; Runhare & Vandeyar, 2011:4101). In this context, the next section explores how the existence of education acts influences female pupils’ progression in Advanced Level science subjects.

5.3.3 EDUCATION ACTS AND FEMALES’ PROGRESSION IN ADVANCED LEVEL SCIENCE SUBJECTS

In the pre-colonial era, indigenous society had its own form of education, where grandfathers and grandmothers played a critical role in inculcating social values and expected roles for females and males in their day-to-day lives. In a nutshell, this informal education created a scenario whereby females and males were socialised according to their gender, which influenced their identity. On the other hand, the arrival of colonisation brought with it a Western education system (cf. 5.2.1), guided by laws and policies, which were later amended in the post-colonial era (cf. 5.2.2). In this regard, laws and their influence on females’ progression in education should not be seen in this section as a fixed structure but as a continuing social creation of human interpretation.

To begin, the pre-independence era was characterised by policies that were biased in nature, as they banished and deprived the natives (Ministry of Education, Sport and Culture, 2005:4). Thus, upon realising that most of the general public were excluded from formal education during the colonial era, post-independent Zimbabwe embarked on a massive education transformation crusade to make available much sought-after education (Chakacha et al., 2014:19; Mubika & Bukaliya, 2011:313). It is broadly acknowledged that education has a momentous function in making pupils ready to take up the fortunes and potentialities (Chikuvadze & Matswetu, 2013:5285) in education in general and Advanced Level science subjects in particular. However, even with the declared success story of legislated acts and policies aimed at improving females' progression in education, a sizeable number of females still find themselves excluded from Advanced Level science subjects in particular (Kibera & Kimokoti, 2007:45; UN in Chinyoka, 2014:295).

In this case, education acts and policies are portrayed as an effort towards the attainment of comprehensive constitutional imagery of moving from the colonial era to the sovereign society (Jansen, 2000:46). This call for the need to own up that gender equality is more extensive than just the completion of primary and secondary education (Colclough, 2008:56; Olowu, 2012:107). In this context, this section discusses how education acts influence female pupils' progression in education in general and Advanced Level science subjects in particular.

According to Chikunda (2013:132), economic and social development in any country relies heavily on a sound technology base, which can be achieved by placing much emphasis on science, mathematics and technical subjects at all levels of the education system. Therefore, in Zimbabwe, there has been a revitalisation of the science curriculum in line with the ideology of 'science for all', which focuses on scientific literacy for all citizens and promoting sciences for national advancement (Michie in Dziva et al., 2011:90). This can be done by eradicating gender inequity in order for viable societies to become apparent through exposing stumbling blocks in female pupils' progression in Advanced Level science subjects (Chikunda, 2013:135; Ntim, 2013:182). To accomplish this goal, a rigorous educational policy transformation was embraced by making a commitment to comprehensive and uniform educational prospects for all (Zezekwa, Madau & Nkpodi, 2013:318).

This was in line with feminist ideals, which hope that education would help to reduce disparity by developing the possibility that subsists within all human beings. Within the context of bringing about reform, the post-colonial government promulgated the *Education Acts of 1987 and 1991* (amended in 1992), revised in 1996, 2004 and 2006, with emphasis on education as a basic human right available to all pupils, irrespective of religion, culture or sexual inclination (Mushoriwa, 2001:143; Mutepfa et al., 2007:342; Runhare & Gordon, 2004:15). These education acts, through amendments, recognised the liberating role played by education by acknowledging it as a right, with no child being refused admission on the basis of sex, among other concerns. In this way, educational institutions are assumed to be places of learning, growth and empowerment, in particular for female pupils who are regarded as a marginalised group (Chikuvadze & Matswetu, 2013:5285) in Advanced Level science subjects in particular. This is a clear indication that concerns pertaining to equality and inclusion prop up the actual underpinnings of the society in which female pupils live and how they associate with others at community and national level.

While legislated education acts and policies have a part to play in promoting gender equality in education, there has been tension that the prescribed legal set-up gives little consideration to female pupils' context in Advanced Level science subjects (Bhana, Morrell & Pattman in Masinire, 2015:621; Unterhalter, 2007:26). As a result, female pupils have persistently been limited by traditional timidity to proceed in various spheres of life, such as education. This is supported by Vavrus (2002:544), who highlights that while there are perpetual steps towards the emancipation of female pupils in secondary schools in terms of matriculation, nevertheless, traditional, economic and political forces hang on to this wish, instead of it being a reality for the subjugated. In some cases, although education acts specify that every child has a right to education, it does not immediately translate into equal opportunities for both females and males, as chauvinist views on females' progression in Advanced Level science subjects still exist (Ministry of Education, Sport and Culture, 2005; UNESCO, 2003:143). Consequently, it is not that gender equality is not seen as a priority, but there is a wide implementation gap between declared policy intents and proceedings for legislative and social transformations (Mukoro, 2013:134). In such a scenario, underprivileged female pupils run the risk of being uncared for and, ultimately, dwindling if the system falls short in addressing their concerns (Chikuvadze & Matswetu, 2013:5286).

As a result education acts and policies tend to concentrate more on the symptoms rather than attend to the relentless triggering bases of gender disparity in Advanced Level science subjects (Economic Commission for Africa, 2008:16). Thus, policies and circulars have no definitive schedules to provide for exact requirements for female and male pupils; as a result, differential prospects in education between the two sexes seem to persist (Chauraya, 2012:256). This is contrary to human capital theorists' perspective that the provision of quality education to female pupils is an investment crucial for the development of society (Iyoboyi & Muftau, 2014:1). In line with this, Stromquist (2007:41) appeals for a cross-examination of the barriers to open-minded execution of educational acts and policies, in a bid to transform the social gender interactions in Advanced Level science subjects.

In upholding global values of non-discrimination in learning institutions, Part II, Subsection 4(1) of the *Education Act* emphasises that every child shall have the right to education (Republic of Zimbabwe, 1996). The widespread contention concerning this nationalist education policy proclamation was to bring Zimbabweans into the realm of social conscience within the structures of the post-colonial circumstances. Thus, the education sector set-up was assumed the principal place for the creation of a well-versed and analytical public sharing of knowledge among the diverse population. Nevertheless, Section 4(2) of the *Education Act* (Republic of Zimbabwe, 1996) does not include gender as a basis on which inequity on enrolment is outlawed (Zimbabwe Human Rights Non-Governmental Organisation Forum, 2001:6). This controverts the feminism codes of beliefs, which are in favour of evenly balanced privileges and access to all aspects of existence, such as education. In response the *Education Act* (as amended) (Republic of Zimbabwe, 2006) emphasises the authoritarian, top-down approach, which empowered the minister responsible to unilaterally declare what should be taught in an area without consulting the concerned grassroots stakeholders (Dube & Ncube, 2013:251).

Judging from the amount of literature available on education policies, I may argue that, of all aspects of the protection of children's rights in education, policies, to a larger extent, have received attention (cf. Nkomo, 2008:356). For Zimbabwe, this is true, as children's rights to education are enshrined in the *Education Act* (1987), of which the relevant section of the Act has been amended twice – in 1990 and 2006. On the amendment in Chapter 25:04, Section 4 on children's fundamental right to education and entitlement to enrolment in government primary and secondary schools reads: *"(1) Notwithstanding anything to the contrary contained in any other enactment, but subject to this Act, every child in Zimbabwe shall have the right to school education"* (Republic of Zimbabwe, Education [Amendment] Act, 2006). This seems to resonate with the demands in the *Constitution* on their right to education, as, in its articulation, it refers to 'every child', which I presume to be inclusive of both female and male children. However, in Chapter 25:04, Part III, Section 10 the following is stated:

Every child of school-going age shall be entitled to be enrolled at the Government primary or secondary school, as the case may be, nearest to the place where he is ordinarily resident, unless such primary or secondary school is fully enrolled.
(Republic of Zimbabwe, Education Act (Amendment), 2006)

I observed that there is a contradiction in the citation, as at first, it made reference to 'every child', but inspecting it more closely, I noted that this section referred to 'he' instead of constantly being gender-sensitive by using the term 'every child', which accommodates both female and male pupils. In the absence of gender-sensitive language in the policy document, this brings more question than answers in the extent to which it can be implemented to the satisfaction of the disadvantaged female pupils. From the above discussion, it can be noted that the consultations that lead to the crafting of *Education Act* (1990; 2006) with limited participation from rural parents and pupils (Kadodo & Zanga, 2015:118). As a result, without the translation of policy intentions into reality the recent amendment stipulations are not likely not to benefit children in the selection of either primary or secondary schools of their choice.

Referring to the discussion above, the new demands for gender equality require female pupils to be re-admitted into the education system upon giving birth so that they can continue with their studies. This stance is backed by *Policy Circular 35* of the Republic of Zimbabwe, Ministry of Primary and Secondary Education, which grants pregnant pupils with the right to continue with their education upon giving birth (Mawere, 2013:1083). However, it is a matter of concern that this change comes up with a scenario that seems as if the policy circular was specifically meant for disciplinary issues, making the whole process gender-blind (Mawere, 2013:1083). So, while they have thought of withdrawing female pupils from inconvenient situations, it still remains to be seen how this has weighed in to address gender discrepancies, as some schools still do not allow pregnant pupils to attend classes in rural secondary schools (Samkange, 2015b:5).

Furthermore, there is no guarantee that nursing mothers can return to school, as their return depends on the availability of a place in the relevant class (Molosiwa & Moswela, 2012:267). This enacted policy was expected to operate in a society where specific groups, such as church and traditional leaders, regarded it as taboo and unmentionable in African culture to allow girls of school-going age to get pregnant (Sithole et al., 2013:66). Accordingly, this gives the impression that the legal framework is favourable but it is not matched by action on the ground where, at times, policies are viewed as propping up promiscuity and is believed to bring about a lenient atmosphere at a time when children are experimenting with sex. Against this background, my study seeks to explore how enacted policies in Zimbabwe influence female pupils' progression in Advanced Level science subjects.

Although much has been said about moving towards equality in science subjects in secondary schools in terms of enrolment, the way in which these female pupils are socialised into subjugated positions has not been taken into cognisance (Marshall & Arnot, 2008:178). For instance, Zimbabwe's *2004 Education Act* does not look precisely into gender-related issues in learning institutions, as it only gives reference to the matter of no nepotism on admission in schools, without taking note of pupils' different socialisation circumstances (Gudyanga, 2016:136). Against this background, educational acts and policies that are centred on enrolment only are scratching on the outer borders of gender inequality, without getting deeper into the nucleus of the causative factors (Marshall & Arnot, 2008:178). This is

a case of the act, in theory, providing equal rights of entry into education, but in actual fact, on the ground, the reality is different, as female pupils still come across challenges in their progression in Advanced Level science subjects (Chikuvadze & Matswetu, 2013:5286). Consequently, the Act consciously prefers to presume that all pupils are equal and need access to education, without balancing the incongruity already impressed upon pupils during the socialisation process. As a result, there is a need to explore how educational laws and policies influence female pupils' progression in education in general and Advanced Level science subjects in particular.

It is contended that policy intents are rarely, if ever, transformed into reality, the way they have been envisioned (Schauer in Ntshoe, 2009:86). Furthermore, acts and policies are socially put together and are frequently exposed to varied understandings (Schauer in Ntshoe, 2009:86). For example, in Zimbabwe, policy, such as the *Education Act*, positions all pupils into a single group, signifying that the education system is a gender-neutral place where female pupils can transverse without restrictions (Primrose & Alexander, 2013:56). However, in this patriarchal society, female pupils form a group of their own, with their own needs, which should be accommodated. If this is not recognised at the policy design level, it might not be addressed at the policy application level. This is against the feminist perspective, which advocates for equality and equity in all spheres of society, such as education. For example, in the *Basic Education Assistance Module* (BEAM), the position of the government is that monies are supposed to be allocated on a 50/50 basis between female and male disadvantaged pupils (Mawere, 2012:14). This perpetuates inequalities, as in Zimbabwe, females comprise 52% of the population (Ministry of Women Affairs, Gender and Community Development, 2004:1).

This is a clear indication of gender-blind and unresponsive interventions that are not equitably distributed as more male pupils will benefit, creating a weak basis for female progression in education (SARDC-WIDSAA, 2008:31). This is restrictive in its nature, as it caters for only those still in school and is silent on those out of school, who are mostly females. It can be noted that policies and policy circulars place children in a single category, thereby suggesting that the education system is a gender-neutral space (Chirimuuta, 2006:2). According to Makura (2012:280), social responsibilities and potential within the Zimbabwean setting stress that males and females carry out functions consistent with their

sex, which generates a gender disparity in pupils' progression in education. Hence, my study explores the influence of this policy on female pupils' progression in education in general and Advanced Level science subjects.

The socio-spatial 'othering' of females emerges from broadly conceived imaginings of femininity and female roles, responsibilities and expectations, which subjectively link females to motherhood and domestic household spaces (Giddings & Hovorka, 2010:219; Suggs, 2001:27; Van Allen, 2007:102). This situation leaves females vulnerable, as they are exposed to patriarchal tendencies such as parents choosing to send their sons for further education, based on stereotypes. In such a scenario, the patriarchal ideology inscribes females into passive and obedient individuals, who do what is anticipated and carry out roles without interrogation (Kambarami in Tagwirei, 2013:47; UNESCO, 2010:2).

This refutes the prime objective of an education system of providing quality education for all pupils, regardless of their sex, to make possible the realisation of their full capability and contribute to the advancement of society (Prinsloo in Chimhenga, 2016:30; Shava, Tlou & Mpofo, 2019:30). It can be noticed that education policy proclamation is one thing, but instigating that policy is another (Kadodo & Zanga, 2015:118). In addition, this brings to light another point at issue, namely whether policies, which are centrally formulated, take into consideration rural, school-specific constrictions and anxieties in their enactment (Braun et al., 2011:585). Hence, there is a need to explore how constitutional aspirations indisputably guarantee unrestricted and equal right of entry to education as premised in education acts and policies (Heymann et al., 2014:131). In this context, my study establishes how laws and policies influence female pupils' progression in Advanced Level science subjects in the rural setting of the Matabeleland North Province, Zimbabwe.

5.4 CONCLUSION

This chapter explored related literature that focused on key acts and policies and their contribution to my study. Points discussed were literature on an overview of education laws and policies in different eras, critical analysis of relevant Zimbabwean legislation and policies and the influence thereof on female pupils' education in general and Advanced Level science subjects. It started by looking at how colonial laws and policies influenced the progression of females in education. This chapter also analysed the *Constitution* and policies as key bases of gender equality and equity in female pupils' progression in education in Zimbabwe. A gender-situational scrutiny of Zimbabwe pointed out that the state of affairs was still depressed in education despite the implementation of the gender-related laws and policies. In this chapter, I looked at how Zimbabwean laws and policies direct education in general and Advanced Level science subjects in particular through a lens that integrated the feminist, human capital and symbolic interactionist theories. Chapter 6 will present discourse on female pupils' experiences in their progression in education, in the particular context of Advanced Level science subjects. In addition, the data generated will be summarised and presented thematically in sections according to emerging subject matter.

CHAPTER 6: FEMALE PUPILS' PERSPECTIVES ON THEIR PROGRESSION IN ADVANCED LEVEL SCIENCE SUBJECTS

6.1 INTRODUCTION

Chapter 4 explained in detail the research design (cf. 4.2) and methods (cf. 4.3). A qualitative approach within a transformative-emancipatory paradigm was applied in my study to gain insight into the societal factors influencing the participants' progression in science subjects from the perspective of the female pupils. The previous chapter was centred on critically analysing Zimbabwean educational acts and policies with the view of gaining insight into their sensitivity to the demands of inculcating a gender equality culture in education. Based on what has been discussed in the previous chapters, this chapter brings together and discusses my findings under the themes that emerged from the generated data (cf. Nieuwenhuis, 2016:120). This involved converting the generated data into findings through a precise procedure with the view of arriving at a specific end (cf. Patton, 2002:432). This was done against the backdrop of an analysis of relevant theories (cf. 2.2; 2.3; 2.4), which brought into view concepts that gave rise to a lens through which the issue under scrutiny was perceived. This brought to light the integration of the framework (cf. 2.5) and the empirical findings to create a platform for the discussion of concerns raised through the secondary research questions (cf. 1.3). The current chapter presents a picture of how female pupils perceive the influence of societal factors on their progression in science subjects (cf. 1.2).

6.2 DATA GENERATION PROCEDURES

As indicated in Chapter 4, after being granted the permission to carry out a study by the Permanent Secretary in the Ministry of Primary and Secondary Education (cf. Appendix 3), and receiving ethical clearance from the University of the Free State, engagements were made with the Provincial Education Directorate, the respective District School Inspectorates and the heads of selected schools to permit my entrance into areas where I could generate data. After that, parent or guardian consent forms and participant assent forms were distributed to those who formed the sample of my study. This started the data generation through focus group discussions (cf. Appendix 6) together with some personal interviews (cf. Appendix 7) with selected participants. The data generation was targeted at capturing female pupils' experiences through a procedure driven by an epistemological belief that knowledge concerning the issue under study was rooted in the participants. This required me to afford them the opportunity to critique, during personal interviews or focus group discussions, the existing cultural practices and policies that influence female pupils' progression in Advanced Level science subjects. The data generation process was conducted at a time and venue convenient for the participants on school days and during school hours with the permission of the school heads.

This section is geared towards presenting, scrutinising and deliberating empirical answers to the issue under investigation. The voice of rural female pupils in my study is defined as a way by which they raise their concerns pertaining to their progression and marginalisation in education in general and Advanced Level science subjects (cf. Czerniawski, 2012:131; Taylor & Robinson, 2009:162). In my study, the sample comprised 45 purposively sampled participants (cf. 4.4), some of whom were taking science subjects, while others were pursuing other combinations (arts, humanities or practicals) at the Advanced Level. The empirical findings in my study are analysed and discussed according to themes outlined in Chapter 1 (cf. 1.4.1). After going through selected policy documents (the *Constitution of Zimbabwe*, the *National Gender Policy*, education acts and policy circulars) and the transcripts of the personal interviews and focus group discussions and verifying them, I picked out persistent concepts.

With this in mind while I repeatedly went through the transcripts, I took care to avoid linking text extracts hurriedly to the stated research questions. In this regard, I tried by all means to avoid turning a blind eye on extracts in which at first, their link to the issue under investigation might not be well defined. In discussing the participants' experiences in Advanced Level science subjects, I was conscious of the ethical matters raised in Chapter 4 (cf. 4.7.2). In this regard, the accounts in italics in my study are the direct words of the participants, who are referred to by numbers assigned to them so as to conceal their identity.

6.3 STUDY FINDINGS

In this section, the discussion of findings is accompanied by expressions from the participants' perspective on their lived experiences pertaining to the issue under investigation.

6.3.1 *THE INFLUENCE OF CULTURAL CONSTRUCTION OF GENDER ON FEMALES'*

PROGRESSION IN ADVANCED LEVEL SCIENCE SUBJECTS

In my study, selected participants between the ages of 16 and 18 were the main source of data. This age is a crucial stage in their life for personality development, which happens in and within their cultural heritage, where they are taught through their culture to be silent about themselves. With this in mind, I brought about the conception that as one grows up in a society, one is likely to be inculcated with a particular culture, either willingly or unwillingly. In this context, culture is seen as being exclusively social and shared among individuals for the perceived common good of a given society. In my study, culture is regarded as a set of ideas pertaining to the expectations, obligations, norms and values of a particular society, which are passed on from one generation to another through social contact.

Against this backdrop, femininity or masculinity is constructed around a set of practices that are not always expressed but, nonetheless, are dogmatic on what is passed on through their belief systems (cf. 3.3). In addition, it should be acknowledged that each member is identified by his or her perceived agreed norms and values in a given patriarchal society. In this scenario, gender roles are expected to endow gender stereotypes, engrained in the

social (one's gender) instead of the biological (one's sex) category, resulting in the conceptualisation of femininity and masculinity in that society (Kharbe, 2016:104; Matswetu & Bhana, 2018:1). In one way or the other, this symbolises the belief system with which a given society goes along (Etuk, 2002:13). With this in mind, the subsequent discussion (cf. 6.3.1.1) takes into account that there is no society without cultural values, which in my study is treated as the belief systems held by the participants, covering what is desirable or iniquitous in their interactions. This calls for the need to expose the participants' perspective on how their society conceptualises (cf. 3.3) femininity and masculinity as a key aspect of their life. In generating relevant information on the participants' perspective on the issue under investigation, individual interviews and focus group discussions were conducted.

6.3.1.1 TRADITIONAL VALUES AND THEIR IMPLICATIONS FOR DEFINING FEMININITY AND MASCULINITY

a) Construction of the feminine and the masculine

This section centres on how femininity and masculinity in the traditional context are regarded as the basis for a society's comprehension of suitable manners for females and males respectively. The participants shared the norms and values, according to their culture, that defines femininity:

In our Ndebele culture, I consider obedience, respect, kindness, co-operation, commitment, sense of humour, submissiveness, docile, honest and caring as some of the norms and values that define femininity. (Interviewee 18)

Interviewee 18 seems to be a conscious agent in emitting recognised gender-related deeds, also in terms of the language used. This concurs with McLaren (1997:528) and Mitra and Sigh (2007:1228), who noted that in a gendered society, language can be used to 'press out' the prevailing dominate (male) – subordinate (female) relationship through the customary procedures of 'signification' due to gender roles among themselves. In this context, there is a need to regard society as a dynamic institution, so as to understand the meanings of 'things' through interactions in social roles and traditional structures (Alver & Calgar, 2015:480; Aksan et al., 2009:904; Brettell & Sargent, 2005:185; Nyoni, 2004:46). For that reason, when dealing with issues of gender inequality, the subjective interpretation of

females' perspectives (Carter & Fuller, 2015:1) and how these make sense of their environment, ought to be paid attention. In this regard, Interviewee 42 said:

Our culture is very strict when it comes to adherence to beliefs of what is expected of us as girls at home. Upon going against these, one is regarded as a deviant in the society. For instance, as girls you might be called names. This makes us to [sic] lose confidence in whatever we do in school activities.

Society is clearly propelled by norms and values, which the participants, when probed, were unable to explain or provide details on where they originate from. This reflects how rural areas adhere to customs that incline towards females' subservience standpoint. Thus, these values, to which these female pupils hold on, are an outcome of the demand to fit into the society in line with patriarchal praxes (Burns, 2005:24; Mwanza, 2015:102). These norms synchronise and guide either female or male behaviour to such an extent that girls are socialised to take up their mothers' responsibilities in case of death. This was also reflected in discourse through an indigenous proverb: '*Unina engafa ngubani ozaphulula abantwana?*' [If a mother dies, who will caress the toddlers?]. Thus, the mother-daughter relationship provides a fertile ground for the transmission of expected female behaviour, without much interrogation of expected norms and values, that they can perceive as either positive or negative (Khattab, 2015:734; Melkizedeck, Makiya, Masalu & Saria, 2017:432). Cultural belief systems influence how females make sense of particular cultural issues and why they respond in that way (Maasik & Solomon, 2003:475; Scheiner & Willig, 2008:23). Consequently, it was crucial for me to elucidate the processes through which females are subjected to suitable norms and values of a given society.

In contrast to the discourse on femininity, as being obedient, subservient and in need of protection, the discourse on masculinity portrays strong traits, such as responsible, hard-working and taking the lead:

In our Ndebele culture, masculinity can be defined by values such as [being] responsible, hardworking, decision making, brave, love and leadership.
(Interviewee 20)

Focus Group Discussion Participant 7 explained that her younger brother was regarded as a figure of authority:

In the absence of our dad, my young brother is consulted by our mom pertaining issues that need Dad's decision. Whatever decision he makes, stands and is not questioned.

In addition, Focus Group Discussion Participant 2 in the focus group discussion confirmed the patriarchal fibre of society:

In this society, males are expected to be a father figure, thereby protecting us as his kids [and women] from our mother up to my youngest sister. We look up to him for guidance on what we should do at home in terms [of] what we eat, farming activities, et cetera.

The sentiments echoed above by the participant are in line with the findings by Dover (2005:175), who shares that societies expect males to be tenacious and not easily be dissuaded from their 'masculine' tenets. This is opposite to what is expected from females, for instance to be modest and pay attention to their male partners. Such unwritten messages are being nurtured from a young age, as females and males are socialised differently, with the latter being taught to be competitive and aggressive and, therefore, expected to excel in more challenging activities (Halford & Leonard, 2001:11; Kolawale in Gasva & Moyo, 2014:124).

From my own point of view, this is a true reflection of the patriarchal constructs that keep females in a subservient position, which hinders them from advancing in spheres such as education. In support of this notion, Muchinako (2013:161) and Nwamuo, Nwigwe and Izuagba (2014:76) indicate that gender roles are one of the traits of a patriarchal society that bestows a subservient status to females in most spheres of life. This, in turn, influences how females, during interaction, exchange an intangible heritage with their mothers, who are orientated towards passive and subdued activities (Mawere, 2015:59) with restrained prospects to stand out in physical or intellectually thought-provoking activities. In the context of my study, this could inform the narrative that only boys should take science subjects. This reflects that how femininity and masculinity are structured in cultural terms,

considerably influences the identities of females and males and makes a distinction between them (Iwu & Azoro, 2017:834; Ngoshi, 2013:119).

This discussion brought to light the view that daily interaction in society from a young age, through power relations, males are accorded the superordinate position over the subservient stance of females (Abbot, Tyler & Wallace, 2005:60; Losindilo et al., 2010:1). This set-up in the Matabeleland North Province is sustained through a gender-biased social and education system (Casimir, Chukwuelobe & Ugwu, 2014:170), in which males are regarded as eminent, with females complementing them. Such gender divergences may end up with society being biased against females through the apportioning of obligations and decision making in diverse institutions such as families, communities or schools (Kabeer in Makombe, 2006:46).

It is crucial at this stage to appreciate that in scenarios such as these, it is likely that females in their mind-set would have labelled themselves as being inferior to their male counterparts (Nnamani & Oyibe, 2016:73), resulting in their not feeling contented to be associated with intellectually exigent activities, such as Advanced Level science subjects. This mind-set does not occur in isolation from the happenings in society at large; instead, it is influenced by the human grouping into masculine (male-dominating) and feminine (females shouldering the primary responsibility of housework) (Chirwa, 2008:348; Khumalo, 2008:43). This signals the classification of people according to their gender into dichotomous and different sets, with females being regarded as inferior, as they cannot create insightful and credible strategies due to their so-called 'lower acumen'. In this context, I took this to be true mirror image of how families are at the centre of socialising females, for instance, in ways that teach them to internalise their expected obligations, norms and values without any resistance.

b) The role of parents and other adults

From a patriarchal perspective, it is the responsibility of the family or community to create a conducive environment (Wood, 2009:30) to enable females to exist in accordance with the gender-related aspirations and expectations of the society. Against this background, I viewed the society in my study as having the prime concern of furnishing adolescents (female and

male) with relevant norms, values and obligations for their moral well-being. This concurs with what was outlined by the father of one of the participants in a discussion:

According to our Ndebele tradition, it is the duty of mothers and aunties to deal with issues to do with girls. So, I don't want to interfere much with their responsibilities. (Father Y)

From this discourse, it is evident that these disparate power interactions make female pupils incapable to negotiate better connections for their career progression. This comes about through persistent interaction within the society where they share experiences that influence their identity (Charon, 2007:42; Laluddin, 2016:15). In support, Manwa and Motsi (2010:217) highlight that females in the contemporary society are handled in a different way as males; hence they take up responsibilities that are diverse by virtue of gender role socialisation.

In this context, the participant regarded the family as an agent through which gender-specific behaviour was strengthened to set up normative beliefs that nurture females to be in harmony with their gender responsibilities. Adetunde and Akensina (2008:338), Connell (2002:68) and Taylor (2004:88), in their studies, noted that the place of females is in the domestic sphere, with males having the privilege of being breadwinners. This set-up in a society creates a gendered space, which, through male dominance, regulates and restricts female pupils' progression in spheres such as education (Farre, 2012:20; Jones, 2011:389; Muranga, 1997:17; Zimbizi, 2007:15). In light of the expectations about female adults' life in this patriarchal society, their progression in Advanced Level science subjects appears to be doubtful (Drèze & Sen, 2002:161).

From generation to generation, ideas about traditional values that reinforce expectations about how females and males should behave are passed on as culture; however, everyday set-ups around them are transforming. Consequently, this creates an intricate social scenario, which in most cases, tends to take advantage of and degrade females (Hussein, 2005:59). In my study, it was highlighted by the participants that the community under study accepts the division of roles and responsibilities according to sex, without questioning their legitimacy. One of the interviewed female pupils reported the following:

In our Ndebele tradition, females have obligations such as doing household chores, which include taking care of young ones, teaching kids family norms and values, laundry, cooking and looking after the sick, with males doing outdoor activities, such as herding cattle. The elders will not accept any questions as to why girls do this and not that role, let alone progressing in science subjects. If you ask a lot of questions, you will be labelled 'umuntu ongela mbeko' [as someone who is improper]. (Interviewee 17)

During a face-to-face interview, another participant stated:

Our father works in South Africa, and we stay with our mother in this rural village. It is my responsibility, together with my mom, to carry out household chores and to work in the fields. Interestingly, the harvests are all presented to Dad upon his return home, mostly for the Easter holidays. Thereafter it's him who tells us about the quantities we should sell and how many bags of maize we should store for future family consumption. (Interviewee 33)

In concurrence, from the focus group discussion, the following was noted:

In our Ndebele tradition, fathers treat their wives as one of their children. So our mother has limited voice when it comes to decision making in the family. (Focus Group Discussion Participant 15)

In this case, cultural beliefs emphasise the inferiority of females. This thought is an integral part of the 'informal education' to which most of them have been exposed from infancy. Through the years, they come to internalise these ideals in line with anticipated roles in the family.

6.3.1.2 THE INFLUENCE OF RELIGIOUS BELIEFS ON DEFINING FEMININITY AND MASCULINITY

The discussion in this section centres on the influence of religious beliefs in the construction of attributes that contribute towards gender inequalities in different spheres of life. According to Ani (2013:24), in a patriarchal society, God ordained and reinforced females' inferior and subservient position to males as articulated in the Biblical story of creation in Genesis. Thus, religious beliefs are taken to play an imperative function in influencing females' minds in line with their much-anticipated responsibilities in patriarchal society (Colulota, 2007:35). Of interest is that in the patriarchal social order, females' roles are morally delineated in procreative settings (Kabeer, 2005:18). In support, Chitando and

Mateveke (2011:44) argue that Christianity is central to sustaining the demureness of females as part of the patriarchal beliefs. In support of this, one participant pursuing the combination of Ndebele, History and Divinity at the Advanced Level had the following to report:

In our church, we are taught that females should nurture their kids and cooperate with their families, with males being virile, competitive, should have [sic] strength and self-confident. In Genesis 3:16 [and] Colossians 3:18, the woman is expected to submit to her husband. (Interviewee 6)

In support of the above, one of the participants highlighted the following:

In our religious circles, there are documented expectations for us as girls; failure to adhere to them might lead to one being labelled a rebel or an outcast in terms of our cultural beliefs. (Focus Group Discussion Participant 10)

From the above statement, it can be noted that society, from the family level, nurtures imbalances in the form of feminine and masculine responsibilities that are assigned to females and males respectively through religion. This discourse brought about the idea that in each society, socially constructed responsibilities have been assigned to females and males (Msoffe, 2016:135). This socialisation defines characteristics of femininity and masculinity, resulting in inherent gender stereotypes that are unconsciously linked to stereotypical decrees, for instance females being labelled incompetent in Advanced Level science subjects (Iwu & Azoro, 2017:834; Kiprotich & Chang'orok, 2015:67; Young, Rudman, Buettner & McLean, 2013:284). Female pupils then develop awareness about their anticipated roles through interactions with their parents, who act as 'value socialisers' (Gasva et al., 2014:125; Phukan & Saikia, 2017:31).

In this context, religious tenets are taken seriously as the fulcrum around which daily social practice orbits (Hussein, 2005:60). This goes along with Msoffe (2016:137) and Jones and Somekh (2006:138), who highlighted that from a young age, girls, through interaction with women at church after service, enables them to appreciate these women's lived experiences in the domestic domain and their expected obligations. I can therefore deduce that these interactions are used to consolidate the existing power relations that shape societal ideology towards gender-related norms, values and responsibilities.

The contemporary status, which puts down females into the subordinate locus in religious circles at times, is substantiated through some Scriptures such as Genesis 1:26, Genesis 3:16 and 1 Corinthians 11:7-9 (Rwafa, 2016:44), which are referred to when females socialise. Consequently, these misinterpretations of the Scripture are used to justify the existing inequality and discrimination against females in families and communities at large (Casimir et al., 2014:170). In these circumstances, a gender ideology, which shapes the females' lives, is created by placing them in a subservient social position and patterns of expectations and aspirations (Raditloeneng, 2015:50). For example, in Zimbabwe, the Johanne Marange is a man-controlled religion according to which a good wife is one who is married at a young age to give birth to many children, especially males (Chikwature & Oyedele, 2016:27).

This concurs with Kajanda and Chiparange (2016:540), who raised the issue of young girls below the age of 18 years getting married to older men within their sects, thereby encroaching upon their right to education and ending up destroying their aspirations of progressing in science subjects. From the above discussion, I have noted that religious misinterpretations were the root source of child marriages (cf. Research Advocacy Unit, 2014:1), resulting in female pupils not progressing in secondary education. Against this background, I view religion as instigating the formation of some beliefs and practices (cf. Dodzo, Mhloyi, Moyo & Dodzo-Masawi, 2016:2) in the native culture that is biased towards males' domination over females in various spheres of life, such as education. These beliefs and structures can be considered as a cause for concern, as they result in female pupils' failure to progress in Advanced Level science subjects.

In these circumstances, females are believed to take subjects viewed as more 'feminine' and not proceed in sciences for fear of subverting and instigating misunderstandings in a tiered structure. This can be depicted through the existence of a hierarchical family order, where females are coerced under the pretext of belief systems. Many faiths understand the family relationships in a hierarchical order, in such a way that females are treated in a subservient manner. This concurs with what was drawn attention to when one participant (Interviewee 6) emphasised during an interview that some religions and cults, for example Christianity, tend to depict males as superior, with females taking up a subservient position in the patriarchal society. Interviewee 6 seems to be making an impression of a family as an

institution with its own hierarchy that begins with the males (fathers) dominating in decision making and below them, females (mothers and daughters) in the subservient positions. From there, females are socialised to develop those traits that fit them into an association of subservience.

This is in line with Nhundu (in Chikunda et al., 2016:12), who reveals that social interactions in a patriarchal society has substantive support, which creates interdependence with males that towers above that of females. Based on this finding, I can put forward the idea that religious values are the foundation for gender beliefs, which are used as the basis of females' obligations in society. This converges with Idang (2015:105) and Antia (2005:145) on the immense influence of religion on sustaining the hierarchical structure that brings about closely interconnected checks and balances on the gender-inclined indigenous norms and values. This idea was reinforced and supported during a focus group discussion, when one participant spoke about her personal experiences from the interactions at church:

At our church, after service, we hold meetings as girls with our 'aunties', and boys form their own group under the guidance of their 'uncles', discussing their own issues. In these meetings, we are taught our responsibilities and how to dress decently in order to earn respect from the community. (Focus Group Discussion Participant 8)

Another participant said:

At our church service, we have a unique sitting arrangement. For instance, as girls, we are required to sit in the front rows, facing the side where males are seated, with the elders – females or our mothers – occupying the back rows in the church. I am worried this can be interpreted [as] subjectively by either the males or us as females. (Interviewee 21)

6.3.1.3 THE INFLUENCE OF TRADITIONAL AND RELIGIOUS BELIEFS ON THE UPTAKE OF SCIENCE SUBJECTS

In the preceding section, the data showed how traditional and religious values entrenched in social institutions, such as family and society, act as the starting point for inequality. Against this background, I put forward the argument that the subjugation of females is embedded in the school set-up, thus maintaining their marginalisation in education in general and Advanced Level science subjects in particular. One of the participants, for instance, reported:

On selecting my combination (Biology, Chemistry and Statistics), I had to ask myself whether I will be in a position to pass these subjects. I just told myself to give it a try. So, to avoid disappointment when [the] result come out, I am relating more with boys who assist me in some components of Statistics and Chemistry, although at times jokingly they say to me, 'This is a no-go area, our sister.' (Interviewee 38)

Adding to the above, Interviewee 23 said:

In my transition from lower secondary school (Form 2) to upper secondary school (Form 3), I had the mentality [sic] to take up science subjects (Physics, Chemistry, Physical Science and Mathematics). But jokingly, the teacher who was allocating the Form 3 classes (Form 3 Sciences, Commercials, Practicals or Arts), with a boastful voice alluded to us that sciences, please, are not for the weak ones, mostly females. Hence, only a selected few will be taken into the science class. (Interviewee 23)

In concurrence to the above opinion, another participant mentioned:

On the day we were ushered into Form 3 classes, what members of the committee said to us was a bit embarrassing, since their messages seemed to be portraying us as being incompetent in science subjects. (Interviewee 40)

These social constructions are perceived to have a say in males being confined to thought-provoking activities, such as science and technology, with females, on the other hand, being 'sentenced' to easy subjects and household tasks (Amao & Gbadamosi, 2015:3; Gudyanga, 2014:40; Laila et al., 2014:60; Mutekwe & Modiba, 2012b:3; Nnamani & Oyibe, 2016:75; Offor, 2013:410). This upholds the claim of feminist (liberal, radical, socialist and African feminist) theories that on gender roles and work, masculinity is associated with authority and assertiveness, while femininity is linked to docility and subservience.

The participants seemed to have internalised the discourse that the more difficult subjects were predominantly masculine. This concurs with Asiegbu and Ezeugbor (2014:62), who noted that this experience was stressed by unintentional habits and norms that give eminence to males in various spheres. Merriam (2009:14) provides insight into how females perceive, construe and confer connotation to their lived experiences in education in general and Advanced Level science subjects in particular in a patriarchal society. Female pupils seem to have accepted a gender identity of inferiority and see themselves as intruders in the male-dominated Advanced Level sciences. It was evident that although the abovementioned participants have ventured into the 'masculine' subjects, they were not optimistic about them and seemed to believe in the patriarchal notion those females are presumed to be incompetent in 'masculine'-reputed knowledge areas. It is through these kinds of thought that females question themselves (What do I have faith in? Do I aspire to do what I accept as true?), resulting in their not believing in themselves. Clearly, assigned roles and perceptions towards femininity pull back female pupils from venturing into different spheres of life such as education in general and Advanced Level science subjects in particular.

From a cultural perspective, females' voice, due to enduring traditions and chain of command with regard to power relations during interaction is easily suppressed (Egbo, 2005:153; Kiragu et al., 2011:262). The expressed sentiments about females bring to light the impression that they have accepted what is said about them as true; hence the need for females to learn to fit into what is expected of them in their everyday interactions, so as to retain their inferior status quo in the patriarchal society. This concurs with Alexander (2000:29) and Ing (2014:1224) who both described that during contact, society can candidly or obliquely communicate to females' ideas that either deter or inspire them to proceed in thought-provoking activities such as Advanced Level science subjects. Consequently, being brought up in a society marked by the inferiority of their mothers in families influenced the participants' identity and aspirations in life (cf. Gudyanga, 2016:159).

The discussion above brings to light the perspective that the stereotypical roles that female pupils perform daily in a patriarchal society are oppressive and prevent them from achieving their full potential in Advanced Level science subjects. What society might consider legitimate gives rise to an unjust mental construct in female pupils that adversely shapes their self-concept and, ultimately, their progression in Advanced Level science subjects. Social norms and values not only influence how others see them but also how they see themselves (Luhmann & Eberl, 2007:117). Hence, societal beliefs lead to female pupils associating themselves with 'feminine' career avenues according to their purported abilities within the cultural context (Kirai & Kobia, 2012:215). This leans towards findings by Durosaro and Adebanye (2012:112), Graffin, Hutchins and Meese (2011:177) and Woldie and Ardesua (2004:80) that recognised that roles and obligations might influence one's vocational opportunities.

In light of the above analysis, it is crucial to understand that the family works as an agent through which pupils take on their 'appropriate' male or female roles, which, in this scenario, are perceived as having an influence on how they select their subject combination at the Advanced Level. This is grounded in the belief that females, through the historical, legal, religious and social-cultural context, experience responsibilities that disadvantage them in different spheres of life (Gudyanga & Kurup, 2017:3; Kambarami, 2006:5). In this regard, I noted that the participants could not be separated from their culture, since the way in which they made sense of themselves relative to their decision to proceed or not in science subjects had been moulded by their history of being in a patriarchal society (cf. Gudyanga, 2016:159; McKeon & Harrison, 2010:10).

Gendered undertakings in Advanced Level science subjects are influenced by socio-cultural and socio-economic practices (Kirai & Kobia, 2012:217), alongside the formulated policies in a patriarchal society, as discussed in the previous section. And so, unless social norms and values strengthen gender equality, education alone would not pave the way for female pupils' progression in Advanced Level science subjects. The combination of inequalities ingrained in the social fibre and the gaps in the legal contexts become structures of oppression. Based on this reasoning, the next section specifically focuses on whether and

how gender-related acts and policies influence female pupils' progression in education in general and Advanced Level science subjects in particular.

6.3.2 THE INFLUENCE OF GENDER-RELATED ACTS AND EDUCATIONAL POLICIES ON FEMALE PUPILS' PROGRESSION IN EDUCATION

Chapter 5 of my study has already indicated that acts and policies (cf. 5.2.2) are put in place all over the world, regionally and on a national scale, in a bid to give power to and liberate females from all forms of inequalities in different spheres of life. As delineated in Chapter 1 (cf. 1.1), numerous researchers and institutes support transformation of the status of females in spheres such as education. Against this background, legislation and policies are considered to be imperative means to facilitate the emancipation of females in a patriarchal society. This triggered the need for me to gain insight into the influence of these acts and policies on female pupils' progression in education in general and Advanced Level science subjects in particular.

I considered acts and policy to be rich sources of information in the early phases to make out critical discourse of the legal frameworks in the implementation of gender equality principles in education (cf. Ozga, 2000:46). I therefore critically analysed these texts to expose the underlying regulative codes that, in this section, are reflected against the participants' perspective on their design and implementation in education. Acts and policies are not only perceived to be substantiated in and bestowed with the mandate (such as parliament) but also as an outcome of a process in a specific context in which command and influence are used to legitimise specific ideals and interpretations (Ball, 2006:50).

6.3.2.1 THE APPARENT ABSENCE OF SCHOOL GENDER POLICIES

During the data generation process, I requested policy documents from school authorities on guiding their operations involving female pupils at selected secondary schools. At some schools, there seems to be a complete absence of school policies. For instance, a female teacher responsible for dealing with female pupils' concerns reported as follows:

I have been here for the past four or so years, but I have never seen a school gender policy; if it is there, then it should be somewhere in the head's office. However, I have personal copies of the Constitution of Zimbabwe, Statutory Instrument 1 of 2000, Education Act and Child Protection Policy, which I got from [the] teachers' union. (Senior Lady A)

Likewise, one of the female pupils shared:

I have never heard of any affirmative action or education policies which are crafted towards promoting our participation in science subjects either at Form 4 or Form 5, especially from rural areas. (Interviewee 5)

Similarly, Interviewee 2 brought forward the issue of rurality and said:

In this rural part of the district, information dissemination is poor, so we are not aware of the existence of such policies, how they [are] crafted or who crafts them.

Along the same line, another participant from a different secondary school in an interview reported:

I have seen neither a copy of the National Constitution nor the so-called National Gender Policy. I would like also to say that at our school, to the best of my knowledge, there is no school-based gender policy. (Interviewee 19)

Interviewee 19 further commented on the total absence of information referring to human rights:

At this school, we spend most of our time on our subjects and sports, but that issue of being inducted on our rights at school, home or as a citizen does not exist.

From the above, it is clear that processes through which education acts and policies are understood, communicated and activated in marginalised secondary schools are lacking. This is in line with Dekeza and Kufakunesu (2017:14), who point to the gap in terms of advancement between urban and rural areas, with the latter in the worst position. In support, Masinire (2015:620) spells out that although there are gender-linked policies aimed at guaranteeing female pupils' equal progression in education in general and science subjects in particular in the rural context, circumstances on the ground remain a barrier. In principle, policy proclamations are seen to be ensuring sound doctrines when it comes to improving female pupils' prominence in education; however, these keep on being imaginary

rather than pragmatic in nature (Adetunde & Akensina, 2008:338). This can be supported by Matsikidze (2017:3), who highlights that the subject matter of law in the *Education Act* is not enough in as far as the exposure and addressing of inequality issues in science subjects were concerned in the area under investigation. Against this background, my findings substantiate the idea that rural female pupils are frequently being overlooked when it comes to educational policymaking and implementation procedures (cf. Bell & Stevenson, 2006:46), despite being projected benefactors.

Some of the participants mentioned that a gender policy existed at their schools but they did not have access to it. Interviewee 13, for instance, shared:

At our school, I heard that there is a school gender policy in place but I have not seen the document. Maybe it is for the teachers, as most of the things to do with girl empowerment in general, covering areas such as sex education and relationships are debated in guidance and counselling lessons. (Interviewee 13)

However, the participants were not convinced that the policies would make any difference.

During the focus group discussion, one participant explained:

How do these policies protect us in our day-to-day activities with specific reference to career paths, for example the promotion and advancement of our progression in sciences at Form 5 and 6! (Focus Group Discussion Participant 11)

It is evident that transformation is most likely not to occur in a patriarchal society such as the one in my study, unless the inequality gap in education in general and Advanced Level science subjects in particular is addressed through actively advocated and implemented gender policies. In view of the absence or unavailability of school policies, the gap will remain or continue to widen (cf. Alabi & Alabi, 2014:9; Chauraya, 2012:255).

Interviewee 23 acknowledged that she was aware of gender policies:

I have heard something of that sort from a friend who is studying at a university in town. One, especially girls, can be enrolled into [sic] university with fewer points than boys in sciences. But to be honest with you, I don't know how far [sic] true this is. (Interviewee 23)

Interviewee 19 mentioned that a gender policy would be ideal:

My wish is to have one in place so that it can inspire us as girls to [be] enrolled in science subjects as boys do.

Even in cases when such policies exist at school level, unless they are enforced by active societal structures and practices for their effective enactment in secondary schools, transformation is not likely to occur. This corroborates what was put forward by Samkange and Dingani (2013:25), that even when females are cognisant of a gender legal code and guidelines, not much is achieved in their enactment in some communities. Various reasons for that may exist, including that implementers may feel left out during the designing stage, which have an effect on their comprehension of what that should be in order to put such guidelines into practice (Chiwaro & Manzini cited in Ncube, Tshabalala, Mapolisa & Khosa, 2014:1).

According to Ncube et al. (2014:5), despite the existence of some channels available in society for female pupils to express their thoughts in line with progression in Advanced Level science subjects, the element of exclusion on policy furthering science subjects from the policymaking process remains. In support of this, Khuele (2005:1) notes that although much prominence has been placed on equality at policy level, patriarchy still has profound emotional and traditional roots that are embedded in the society under investigation. This creates a gap between the intentions of the educational acts and policies, and what occurs, as they might not represent the concerns of the envisioned benefactors. The current set-up in the educational policymaking process is of a hierarchical top-down nature, which results in acts and policies not being contextualised to society's cultural aspirations and practices. This tallies with the findings from my study that indicate that most of the participants were not aware of the existence of acts and policies that guide inclusion in education in general and Advanced Level science subjects in particular.

6.3.2.2 EDUCATION BEING POLITICISED

A theme that emerged was that school was seen as a playground for politics, which influence participation in policy processes at grass root level. The consultative process, also in terms of policy, ends up being polarised along the lines of political parties, with those of the opposition not attending due to fear of victimisation. In one of the focus group discussions Interviewee 10 shared:

Yes, our parents want to attend or participate in school activities, but there are times when meetings invited by the school committee, which is assumed to be associated with a certain political party, of which [sic] those from other parties will not attend for fear of being called 'names'. This results in our parents being unaware about happenings at school, let alone [sic] hindering the progression of their children in things that they should have supported like doing science subjects. (Interviewee 10)

Interviewee 28 confirmed that meetings were disingenuous:

Some of our grass root stakeholders mostly in the SDC (School Development Committee), in some instances; its members use these meetings and policies to advance their selfish interests. I therefore get worried about whether we, as the disadvantaged girl child[ren], will be addressed in this set-up. (Interviewee 28)

This matter can be looked into, bearing in mind that policies usually are not neutral; somehow they are trapped in the contemporary political affairs. For this reason, they become instruments for the advancement of values and associated concerns of those in power, which could strategically be manipulated to leave out the ascending right to be heard from those in subservient positions. This concurs with Mungwini (2007:124), who indicated that since the attainment of self-rule, fractional endeavours focus on the dilemma of females under the pretext of enhancing their concerns. Nevertheless, these were considered by the general populace to be in consonance with the ruling party's usual rhetoric, with minimum action (Mapuva, 2013:264).

This mirrors the current status of divergence in society, which causes its components not to realise a shared terrain on the interpretation and application of gender-related policies in spheres such as education. This resentment tends to incline towards advancing the interests of those in power to the detriment of issues swaying negatively on rural female pupils' progression in education in general and Advanced Level science subjects in particular. This

renounces the component of inclusivity in terms of information generation for the determination of educational policy formulation. In a sense, the current policy-drafting process can be seen as a questioned initiative, which calls for a critical analysis of the transformative-emancipatory nature of these acts in general and educational policies in particular.

It can be noted from the findings above that, despite the superficial commitment by the state to be inclusive in its consultation, educational policy formulation has not been a product of compromise between policy networks and the preferences of those in power. In such a scenario, schools end up as political fields, especially in rural areas where, for fear of victimisation, school heads sometimes end up enforcing the intended policy with limited knowledge and documentation. The statement of Interviewee 28 brings out the idea that consultative meetings might have concealed interests and clandestine consequences, which contradicts Carter and Fuller (2015:7), who indicated that close interactions with emphasis on common meanings and application of thoughts in policy formulation, ensure that the experiences of those in the lower echelons are perceived to be significant and worth mentioning.

a) Stereotypes during formal meetings

In the spirit of engaging communities at the lowest level in the dissemination of imperative gender-linked information, gatherings are organised under the direction of village heads and other concerned groups. However, one participant reported the following:

In our village, it's mostly our mothers who attend meetings to do with gender issues, as men mostly say, 'lokhu ludaba lwabomama, thina asilani lakho' [this is a females' issue, we have nothing to do with it]. (Focus Group Discussion Participant 19)

Another participant aired the following in line with the above discussion:

As young girls in the village, it's important that we attend meetings to do with women empowerment. In my case, I am left at home, looking after my young brothers and sisters. (Focus Group Discussion Participant 1)

This is a case in point where males do not take part in gatherings and deliberations that are centred on gender issues, owing to the patriarchal belief system. These acts and policies are socially put together under circumstances where females and males might be considered worlds apart in terms of their beliefs towards gender equality. I argue that with this type of mentality among females and males, gender-related policy targets in education in general and science subjects in particular are rarely, if ever, deciphered into reality the way they were envisioned.

Against this background, even with a very clear gender policy pronouncement on education in general and Advanced Level science subjects in particular, their interpretations are unlikely to be identical under situations where society is divided into females and males. Hence the need to look at gender equality not only terms of progression in spheres such as education but also with regard to how families, communities or schools set up an environment that empowers female pupils to pursue their ambitions (Müller, 2006:370) in different spheres, such as Advanced Level science subjects.

b) Limited levels of being informed and involved

It was established from my study that the participants were not aware of the gender policies in place at institutions. What is currently obtained in the secondary schools under investigation can be difficult to contextualise through the designing of school-based strategies due to limited knowledge on acts and policies on equality and human rights. In line with this idea, one participant reported:

I am not aware of any policy which has been crafted as an encouraging strategy for our inclusion in science subjects. Therefore it's a bit tricky for me to comment on how these may create a good environment for our progression in Form 5 and 6 science subjects. (Interviewee 25)

On the other hand, in the focus group discussion, one of the participants mentioned that the policymaking process was centralised:

I only got to know about the children's rights from a document that was availed to us through Guidance and Counselling sessions by our class teacher, senior lady and the Zimbabwe Republic Police Victim Friendly Unit's awareness campaigns. In these sessions, we were told that it came from Harare, but how it was crafted never came out clearly to us. In addition, most examples and statistics used were from other areas rather than those from our neighbourhood. (Focus Group Discussion Participant 6)

This confirms findings by Murniati (2012:44) that policies related to gender equality often exist but are not well introduced, as they frequently seem figurative and incomprehensible to carry out at school level. In such a scenario, females' involvement in the application of these policies hinges on their morals, as the decision-making procedure is influenced by the domineering males who are inclined towards ignoring issues that empower and emancipate subjugated females (Ushewokunze as cited in Mutanana & Bukaliya, 2015:3). This may result in the rise of intolerance between the sexes, thereby generating misinterpretations that cannot be attended to by the current centralised policymaking process. Thus, this centralised approach to policy making in situations where different settings (urban and rural) are not taken into account, provides the basis for the continuation of inequalities rather than their transformation (Tsanga, 2010:1).

A closer look at the *National Gender Policy* showed me that it had a strategy to bring about a mechanism to urge females to pursue the so-called 'masculine' subjects (Ministry of Women Affairs, Gender and Community Development, 2013:17). However, in this policy document, there are no clear-cut indicators to gauge the extent to which the set strategies would have been achieved (Tshabalala, 2013:429). This concurs with Morley (2003:9) in that although most central governments, such as that of Zimbabwe, have a tendency to be outspoken about the need for a gender-neutral and gender-sensitive approach in education and training, putting together effective implementation of policies for social transformation is inadequate. According to information generated from the visited secondary schools, this makes it difficult to derive school-based strategies on gender equality without clearly outlined achievement indicators in the national policy document.

The discord between the policy intentions and what it obtains on the ground occurs in the presence of overwhelming evidence from studies (e.g. African Union, 2009:3; Agu & Omenyi, 2013:518; Chikunda et al., 2016:12; Chikuvadze et al., 2015:131; Chinyani, 2010:241; Dambudzo, 2015:15; Dube, 2015:282; Mwanza, 2015:95; Edzie, 2014:29; Ministry of Women Affairs, Gender and Community Development, 2013:4) confirming that there is near parity between males and females at lower secondary (Form 1-4), with the numbers of the latter declining in science subjects at the Advanced Level. It is interesting to note that current policies are silent on what strategies and achievement indicators can be employed to minimise the disparity in Advanced Level science subjects. Hence the need to implement sentiments echoed by Chimhowu (2009:79) and Mertens, Sullivan and Stace (2013:51) about the urgent need to review and contextualise the educational acts and policy circulars based on values of social transformation and impartiality.

This brings to light the suggestion that the policymaking process needs to be conversational, understandable and all-encompassing to make sure that the voice of the disadvantaged is listened to and taken care of (Shizha, 2005:76; Subrahmanian, 2007:14). From this discourse, it can be deduced that despite the existence of gender-related acts and policies, concerned institutions seem not to collaborate well on how best can these be implemented to the advantage of female pupils' progression in education in general and Advanced Level science subjects in particular.

This discourse can be cemented by Gale and Densmore (2003:38), who noted that in most instances, policies only stand for the interests of those who control the policy making, although the process often presents itself as ensuring a collective and even democratic appeal. Against this background, I can say that the current approach to policy formulation strengthens the existing top-down approach, which standardises the voices of those it applies to, making the process work against the less influential, such as females. This creates the need for the policymaking process with regard to gender to be made through a give-and-take position in an operational setting, taking into consideration the influence of the gap and social interactions, ensuring numerous clarifications about its intentions (Estes & Edmonds, 1981:77). In this case, the bottom-up approach should include the immersion of female pupils in the policymaking process under the guidance of emancipatory discourse, resulting

in them advancing their concerns to further transformation in the so-called 'masculine' subjects. This concurs with the argument of Cornwall, Harrison and Whitehead (2007:124) on the need for a transformative process that implicitly gives attention to issues of gender inequalities, as female pupils have been placed in the periphery for a long time. Consequently, this calls for schools to have in place institution-based policies drafted with input from female pupils to preside over their selection and progression in Advanced Level science subjects.

6.3.2.3 THE LACK OF POLICY ON SUBJECT SELECTION ENFORCES DISPARITY

In addition to the apparent lack of gender policies in schools, and the way in which engagements and information are handled, it is important to note that guidelines of subject selection are also found wanting. A response from one of the participants voices the sentiment concerning documentation directing the selection of pupils at Advanced Level:

At this school, I have never come across the guidelines for the selection of pupils and allocations of combinations at Advanced Level. Hence the absence of such guidelines tends to disadvantage us, since most the committees are chaired by males, so their stereotypic beliefs might influence their decisions on who should be doing what combinations. (Interviewee 45)

In this context, upon requesting for relevant documentation guiding equality and inclusivity one school head had the following to say:

I was recently posted to this school, so during the handover-takeover process, no document to that effect was surrendered to me. On that I can neither say yes nor no to the availability of such documents, based on the information at hand, as I am yet to find out from those who have been here for some time now. However, you can see that on our school mission statement that aspects of equality and inclusivity are taken care of. (School Head H)

In line with the issue of documentation guiding female pupils' progression in Advanced Level science subjects, another school head stated:

Yes, there was a policy circular, which was sent to schools from head office around 2002, instructing secondary schools to prop up pupils' progression in sciences. But, unfortunately, here at my school, we do not have it. You can check with our district offices. (School Head B)

From a legal standpoint, educational policies appear to be advancing the doctrine of equality and transformation as evidenced by the circulars (*Education Act* and *National Gender Policy 2004, 2013-2017*). For instance, the Secretary's (Ministry of Primary and Secondary Education) *Circular P14/2004* legitimately gave the teaching and learning of science an essential place in the secondary school curriculum (Gudyanga, 2016:160). However, at the schools visited, it was noted that the conceptualisation of the doctrine of equality when it comes to the selection of female pupils to proceed in science subjects was non-existent. In this context, I bring forward the notion that, in general, there is a lack of knowledge when it comes to policy circulars guiding pupils on subject selection at both the Ordinary and Advanced Levels.

It is important to note that in existence was also the Secretary's (Ministry of Primary and Secondary Education) *Circular P77/2006*, intended to ensure equality in educational paths in secondary schools. I noted that although all of these circulars were derived from the *Education Act* (Chapter 25:4), there was no agenda in place to cater for the female pupils' specific concerns in their progression in Advanced Level science subjects (cf. Chauraya, 2012:256). This concurs with the finding of Akafor, Akinwale and Doyin-Hassan (2007:237) that although policies are in favour of the emancipation of females, these have not brought about meaningful transformation in female pupils' progression in education. In support, Swainson (2000:14) notes that these interventions engaged to lessen gender inequalities in education are "simply a piecemeal". This is so despite it being clear that female pupils' participation in the policymaking process is of benefit to them. In this regard, one participant gave a gloomy response:

At our school, I have never come across a document which guides the selection of combination at Advanced Level. In this regard, no document was consulted by me in coming up with Agriculture, Biology and Mathematics as my subject combination at Form 5. (Interviewee 30)

Not only is there an absence of policy or guidelines, but there is gender bias in the process. Earlier on, it was mentioned that teachers made snide remarks about female pupils who wanted to choose science subjects (cf. 6.3.1.3). It is also a male teacher who manages the process. Focus Group Discussion Participant 16 said:

The selection of Form 5 pupils into sciences, commercials or arts is mostly done by a committee of mainly male teachers whom I think overly value science subjects as a preserve of males mostly, with a limited number reserved for female pupils.

The panels seem to have the final say over subject choices:

In support of what has been said by my colleague in terms of the pupils' selection in Form 5, I would like to highlight that the criteria used to take pupils into either sciences or commercials is [sic] the preserve of the panel. (Focus Group Discussion Participant 21)

From my own point of view, the abovementioned findings tend to contradict the prevalence of the purported awareness campaigns to make female pupils aware of the choices they have in education. From this revelation, I acknowledge the need for the total emancipation of female pupils from the current oppressive procedures in their progression in science subjects at Advanced Level. All this was expected to ensue in contexts where the policy route has only been symbolic in nature to the extent that what was happening on the ground was in contrast with what was on paper in form of policy circulars.

a) Funding as a motivator for female pupils' progression in science subjects

In the province under investigation, efforts are made to stimulate the uptake of Advanced Level science subjects by the marginalised pupils through various initiatives from key stakeholders. Hence, this part of my study focuses on how funding from the central government and various non-governmental organisations influence female pupils' progression in Advanced Level science subjects.

In one of the focus group discussions, the participants mentioned funding as a barrier in their progression in education. One of the participants outlined the following:

If we can have a look at the number of girls in here doing science subjects, it's quite reasonable as compared to those who were in [the] Form 6 science class, the time we were in Form 1. I can say the numbers have increased as a result of the government's STEM programme, which paid all our fees. But I heard through [the] grapevine that we are the last group to benefit from such a programme. If this is true, my dad who is a peasant farmer will find it difficult to send to school my last-born sister who wanted to pursue sciences at Form 5. (Focus Group Discussion Participant 1)

Interviewee 39 also highlighted the financial implications of taking sciences as a subject field:

From our Form 4 class, there were so many female pupils who were doing Biology, Physics, Chemistry and Physical Science. If my memory serves right, they scored high grades in these grades. Of note is that during our spare time, we could encourage each other to take up science subjects come next year [Form 5]. However, the number of those doing sciences at Form 5 is significantly low as they couldn't manage to raise fees charged by mostly boarding schools offering these subjects in our district. (Interviewee 39)

The findings outlined above by one of the participants undoubtedly show that some of the female pupils were influenced by the government's Science, Technology, Engineering and Mathematics (STEM) initiative, which was responsible for the tuition of all those who had chosen to proceed with Advanced Level science subjects. However, the coming of a new dispensation in Zimbabwe brought in a blow to the STEM initiative, where it is now prioritising the re-tooling of higher and tertiary education institutions for industrialisation and modernisation (Matabvu, 2018:4). Against this background, the STEM initiative was suspended in all secondary schools in Zimbabwe, leaving the intended beneficiaries with no other option except to forget about progressing in Advanced Level science subjects.

The inconsistency of policy pertaining to sponsoring pupils to pursue science subjects generates a barrier to those from poorer families to attain vital scientific knowledge and skills for social transformation. In this sense, guidelines are not seen as an impartial conveyer of actions to be instigated to the value of female pupils' progression in science subjects. Resultantly, it is crucial to note that the educational system has failed in upholding its educational policies on empowering female pupils (Anderson, 2006:6; Mekonnen, 2014:263) to proceed in science subjects at Advanced Level. This is as a result of the centralised form of policy or programme initiation, which does not have at its core the aspirations of the

disadvantaged pupils (Ejiwale, 2013:66); this can be a possible source of inequality in terms of their career progression. This is in contradiction with the notion that education can be used as an arena for female pupils to argue for shared engagement and transformation in a manner that stimulates sustainable impartial human capital advancement grounded on self-determination of choice (Ballet, Koffi & Pelenc, 2013:34; Nussbaum, 2011:18).

This situation was exacerbated by the absence of a school-based gender policy drafted in line with the females' rights as enshrined in the *2013 Zimbabwean Constitution*, the *National Gender Policy* (2004, 2013 – amended) and the *Education Act of 1987* (amended in 1996 and 2006) (Research & Advocacy Unit, 2017:2). The absence of such a policy may negatively influence the vertical cooperation of these policies or strategies aimed at transforming female pupils' mind-set towards their progression in Advanced Level science subjects.

The earlier discourse laid a strong foundation for me to call for the establishment of a clear and concise gender policy that spells out the strategies for its implementation and assessment indicators at school level. This concurs with UNESCO (2018:4), which highlights the need for a culture that values an evidence-grounded policy conveyance procedure to later link up with the acknowledged implementation line of attack. This creates a platform through which female pupils are made aware of acts and policies that empower them in education and how they can contribute towards achieving the intended objectives thereof. In this sense, the potential of female pupils to progress in Advanced Level science subjects is seen through the lens of a contextually designed policy, intended to accommodate the gender equality dogma in the school setting (Kasiyabvumba & Rwodzi, 2015:165). However, this new dispensation has to contend with the current set-up, where most of these policies are centrally drafted and dispatched to the periphery for implementation, making it difficult for implementers to contextualise their intended goals.

As a result, institutions in rural areas, such as those under study, are cut off from the national information, resulting in the scarcity of sources relating to female pupils' constitutional rights, their rights related to gender equality and their role in the legislative process. This makes the irregular flow of information on gender equality issues from the centre (government) to the female pupils in the periphery (rural areas) a hindrance in transforming their beliefs pertaining to progression in Advanced Level science subjects. Under such structural and systematic circumstances, gender inequality will remain a stumbling block for female pupils in rural secondary schools. This exposes that the absence of a people-driven policy enforcement strategy makes the whole process obsolete.

There is a need to take into cognisance the fact that the sentiments voiced by the participants are a 'humanistic' response to their ignorance on the interpretation of how the top-down policy structure influences their progression in education (Jones, 2011:386; McLeod, 2011:186). Against this background, the discourse revealed patently that although legal rights and access to institutions for female pupils are a crucial starting point for gender equality, these are insufficient to undo the existing inequalities being replicated during social interaction in society in general and in education in particular. Consequently, the way females portray themselves in society is prompted by the existing stereotypes that are internalised during socialisation (Mahlomaholo, 2011:314). In this context, I found out that there was an absence of consistency in the application of the gender equality tenets in the secondary schools visited; this was ascribed to the scarcity of stand-alone intuitional gender policies to link with the national vision on equal participation in different spheres of life.

6.3.3 FEMALE PUPILS' SUBJECT SELECTION AT THE ADVANCED LEVEL

From the previous section, it has been noted that education is engrained in dominant societal norms and values that have an influence on how pupils comprehend their gender uniqueness. In this case, particular beliefs are held by society about female pupils' roles and obligations, which seem to be persistent in most spheres of their life. In this context, their education and career paths are likely to be modelled along cultural expectations and as dictated by the background in which they grow up.

6.3.3.1 FAMILY BACKGROUND AND FEMALE PUPILS' SUBJECT SELECTION

In this section, findings are anticipated to indicate how female pupils' subject selection at the Advanced Level is influenced by their family background. In Section 6.3.1.1(b), I wrote about how family contributes to stereotypes and socialises girls into specific roles. In this section, I focus specifically on how family hinders or enables female pupils to have the courage to take Advanced Level science subjects against the norm.

In some cases, the situation within the family acts as a barrier for the said subject choice. Interviewee 16, for instance, reported:

At home, most of the times I discuss my concerns with either my mother or elder sister who is married and stays close by. Dad does not entertain female stories as he spends most of his time with the boys, teaching [them] about our family history. (Interviewee 16)

Focus Group Discussion Participant 16 shared similar experiences:

My father at one point was working in town in a shop, so he might have an idea about career choice. However, it is hard for me to chat with him about such issues, as he always claims to be busy. On rare occasions, he refers me to my mother, who is also quick to say she does not know. I wish my dad could have time to chat with me as he always does with my brothers. (Participant 16)

One participant gave this input:

I lost my father when I was in Form 3, so my mother has been the one running around selling tomatoes and other things in order to raise my school fees. So at Ordinary Level, I passed well and thought she was going to send me to a boarding school to do Sciences at Form 5. Unfortunately, it wasn't the case, as she told me that she was now old to be involved in the buying and selling business to enable her to raise boarding school tuition. As a result, I was told to enrol at the local day school, which offers mostly commercials and arts. Here I am doing arts – IsiNdebele, History and Divinity. I think my mother chose my brother over me because my brother was in his final year in [the] Applied Mathematics degree programme at the university. (Interviewee 15)

Social roles indeed are at the core of how societal hierarchies sustain particular roles in society. Females and males are brought up with different powers and perceived abilities (Mapfumo et al., 2002:156). Mothers themselves are not informed about their constitutional rights; consequently, they cannot impress upon their daughters the inner self and belief to

be bold to take part in the so-called 'masculine' spheres in life (Nwakego, 2014:135). I argue that it is through these interactions where experiences are shared between adults and adolescents of the same sex that females are being 'brainwashed' into accommodating the traditionally endorsed submissive and dependent status (cf. Kajawu, 2001:15; Muzvidziwa, 2013:242) and males are being positioned to dictate the pace in intellectual activities. Therefore, long-established beliefs comprehensively influence their societal viewpoints, which alter how adolescents comprehend what is normally expected from them by society.

The discourse (cf. Interviewee 16) brought to light the prevailing scenario in her family where siblings are socialised according to their cultural beliefs – mothers spend time with their daughters and fathers with their sons. In light of this, I deduce that boys have the opportunity to interact with their father, who has the prospect of living and working in an urban set-up and, consequently, can influence their mind-set in terms of career ambitions. Girls, on the other hand, are coaxed to relate with their mother, who has limited knowledge concerning what is happening in society, which perpetuates inequalities. This is most likely to have a negative influence on girls' aspirations in life in general and career path in particular.

Although the participant had limited parental support in her daily interactions, she acknowledged the need for her father to interact with all their children, irrespective of their sex. In this instance, her father's advice and support might influence her decision making in terms of her progression in education. In the absence thereof, there is a chance of there being an interactive gap between parents and their daughters, which might influence the latter's self-confidence negatively (Chinyoka et al., 2013:202) and deter them from proceeding with the so-called 'masculine' subjects. This corroborates the findings from Jennings and Bosch (2011:1) that the relationship between parents and their children continues to influence the latter's education long afterwards.

At times, the situation at home is influenced by other family members as well, as described below.

Both my parents are deceased and I am now staying with my late mother's sister with whom I rarely discuss issues to do with my education. One former teacher enabled me to enrol for Form 5, through being placed under the CAMFED programme for the payment of fees. 'Mom' is always talking to me about problems she is having in sourcing food for us and this, at times, affects my studies a lot. (Interviewee 9)

Some like me, who stay with their uncles, find it a bit difficult at times to freely say out [sic] some ideas about what we might want to do in future that might require funding. As at times you're reminded that he is trying his level best to assist with my [sic] fees at the expense of his own kids, and not forgetting the hard economic environment. (Focus Group Discussion Participant 3)

The limited interactive support from immediate relations, such as guardians, account for barriers encountered by female pupils when making career choices. In this regard, I am of the view that through the guardian-initiated socialisation process, females are mostly deprived when it comes to their career progression. Against this background, I call upon society to set up a home environment that augments positive parenting in order to confront the externally controlled dynamisms of social beliefs (cf. Mawere, 2012:12) that possibly threaten their progression in Advanced Level science subjects. This corroborates findings by Grace et al. (2012:198), Chinyoka et al. (2014:224) and Turley, Desmond and Bruch (2010:1377) that there is a need to call on parents or guardians to converse candidly with their daughters to understand how they are advancing and what barriers they are encountering in their progression in education in general and Advanced Level science subjects in particular.

Some of the participants shared narratives of mothers who support their daughters:

At times, I sit down and wonder how my single mother, who is not getting much in terms of her monthly income, manages to send us to school. I need to work hard [at] my Advanced Level studies to pass with flying colours in order [to] please my hardworking mom. (Interviewee 44)

Furthermore, narratives about parents who acted as agents of change were shared. Interviewee 33, for instance, explained:

I was encouraged to take up my current combination at Form 5 (Chemistry, Mathematics and Physics) by my dad. Most members of my family are into sciences-like fields, so it's my wish to be part of them, and maybe one day, I will be the first female medical doctor in the whole clan. (Interviewee 33)

This concurs with Ceka and Murati (2016:64) and Streekanth (2010:37) in paternal concern not simply being restricted to enrolling their children in secondary schools but also guiding them in career selection. In addition, Dizon-Ross (2018:2) and Gonida and Cortina (2014:380) put forward the view that parents sometimes embrace the insight that their children's proficiency in academic work influences how vigorous they can contribute towards female pupils' progression in 'masculine' science subjects. In other cases, other family members, such as a female cousin, provide the impetus:

My cousin sister is doing a National Diploma in Sound Engineering at a polytechnic. So, I feel challenged to follow her footsteps or even take up a more challenging science-related course. (Interviewee 45)

The above responses give an idea about these participants' self-determination, through family connections, to change their path set towards progression in Advanced Level science subjects. These sentiments generated interest in me to probe further on what led to their parents to influence their daughters to proceed in science subjects at the Advanced Level. In this regard, Interviewee 33's father, as a teacher and the department head of Sciences and Physics, concurs with his daughter:

During our teacher formation stage in Cuba, I noticed that there were many female pupils pursuing sciences from high school up to university. Hence, during interactions at home with my daughter, I try by all means to encourage her to be strong and push hard in sciences. And this one who is in Form 6, I am actually taking her for Physics. (Father X)

In corroboration to the above idea, one participant noted:

It's high time that, at home, parents find time to sit down with children [boys and girls] to discuss ... their career progression with regards to sciences subjects. These discussions can be used as platforms to demystify myths associated with girls progressing in Advanced Level science subjects. (Interviewee 27)

The literature suggests that parents, during discussions with their children, tend to use their own experience and knowledge to influence them with a bias towards a specific career path (e.g. Baines, 2009:4; Duffy & Dik, 2009:338; Letha, 2012:69; Muchuchuti, 2014:34; Perera, Bomhoff & Lee, 2014:3029). This is corroborated by studies of Mapholisa, Tshabalala and Ncube (2015:178) and Mbugua, Kibet, Muthaa and Nkonke (2012:90), which concluded that girls look up to their parents to help them make an informed career decision. This is an indication that parents, during interactions with their daughters, should appreciate who their daughters are and, subsequently, motivate them through establishing a supportive upbringing (Mufanechiya & Mufanechiya, 2011:98; Van Zoest & Bohl, 2008:320; Wenger, 1998:89). This notion confirms ideas brought forward by Manwa et al. (2010:18) and Palos and Drobot (2010:341) that parents' expectations influence the selections they make about their children's areas of speciality, be it arts, commercial or sciences.

In addition, the explanation by Interviewee 45 above suggests that family members' occupations influence decisions to pursue science subjects at the Advanced Level. This concurs with the findings from studies by Bakshi, Ghandi, Shah and Maru (2012:13), Gudyanga (2014:45) and Igbo et al. (2014:2) that in some instances, parents' vocation and level of education may have an influence on their children's choice of subjects at secondary school level. Accordingly, a comprehensive parental and child engagement enhances female pupils' positive decision making from an early age (Jennings & Bosch, 2011:1; Mafa & Makuba, 2013:37, 38, 40; Park, 2008:380). In this context, I refer to the conception that parents' awareness of females' scholarly competences in science subjects can envisage their individual motivation (Eccles, 2015:120; Topper, Keane, Shelton & Calkins, 2010:190) to progress in the so-called 'masculine' subjects at the Advanced Level.

In addition, I deduced from the generated data that there was, among some, a mind-set transformation on the part of fathers on how they interact with their daughters through the sharing of understandings and knowledge (cf. Andrews et al., 2014:5; Beura, 2017:324; Krumboltz, 2009:135) concerning decision making when it comes to subject selection at the Advanced Level and career paths thereafter. In this context, parents and family members are seen as the ones who create a conducive atmosphere, which can, ultimately, influence female pupils' decision-making process (Baloch & Shah, 2014:546; Bolu-Steve & Sanni,

2013:92; Ojeda & Flores, 2008:91; Tillman, 2015:23) on whether or not to proceed in science subjects at the Advanced Level. Against this background, it can be deduced that the existence of dynamic interaction between parents and their daughters helps to conceive an all-compassing, conducive family climate (Bates, 2015:69; Diaz, 2003:47; Letha, 2012:69; Mutekwe, Modiba & Maphosa, 2011:140; Shumba & Naong, 2012:175).

One should be mindful of the circumstance that all this happens in a patriarchal society where the relationship between parents and their children varies according to their sexual category and daughters are expected to be consigned to the least influential roles, mostly in the domestic sphere; however, some males (fathers) go against the norms (Gudyanga, 2016:159; Kumar, 2016:28). This concurs with Kirai and Kobia (2012:214), who note that despite the existence of a patriarchal cultural stance, some females are able to excel in some spheres of life; however, time and again, they have to challenge cultural anticipations with regard to their roles in selected areas of occupation.

6.3.3.2 PUPIL-TO-PUPIL INTERACTION AND THE INFLUENCE THEREOF ON SUBJECT SELECTION

In one of the discussions in the previous section, issues on career paths or choices have been raised (cf. Interviewees 33 and 45), which created the need for me to inquire more on how the participants' interactions with their peers either motivated or demotivated them to take science subjects at the Advanced Level. One of the participants had this to say:

At my school, most girls think that science subjects are tough, but as for me, through discussions with my brother, who is doing a degree in engineering [BSc (Honours) degree in Electrical Engineering], I realised that sciences were not all that tough; hence, I decided to do Biology, Chemistry and Statistics in anticipation of getting a better-paying job after doing a degree. (Interviewee 45)

There was awareness among some of the participants that they had the right to make choices that would work for them, as shown in the response below:

As female pupils in rural schools ... we have rights to enable us to have a voice in the selection of subjects at Form 5 [Advanced Level]. (Focus Group Discussion Participant 14)

It was mentioned that there should be formally organised times when career choices could be discussed:

As girls, we should be encouraged to create platforms where we can discuss our concerns pertaining to career paths or subject selection from as early as Form 2.
(Focus Group Discussion Participant 20)

From the above description, the participant shared that despite science subjects being considered difficult; her dream of becoming an engineer drove her to take up these subjects. Accordingly, the participant's thinking was intimately interconnected with the tenets of equity in the provision and sustenance of education, thereby escalating female pupils' career choices and possibilities of high remuneration (Iyoboyi et al., 2014:1; Kabote et al., 2014:89; Zivengwa et al., 2013:399). Females should be given true, comprehensive and approachable social equality linked with policy (Alabi et al., 2014:10; Dube, 2013:201). This is in line with the expectation of the human capital theory on how eminent educational success can be a significant means for female pupils' emancipation (Mitra et al., 2007:1228) even though they are being looked down upon in the 'masculine' subjects. Against this background, the female pupils have to place emphasis on the need to deal with the deeply entrenched patriarchal beliefs that scaffold male hegemony when 'voluntarily' selecting a subject combination at the Advanced Level (Yakubu, 2010:88).

6.3.3.3 THE INFLUENCE OF THE GEOGRAPHICAL LOCATION OF THE SCHOOL ON SUBJECT SELECTION

Despite female pupils receiving advice on whether or not to take science subjects at the Advanced Level from their peers, the geographical location of the school in my study was also considered to be a key factor in their decision making. One participant explained:

At Form 4, I did sciences (Biology and Physical Science) as some of my subjects and passed them well with Bs. But at Form 5, I couldn't select sciences because the schools that offer these are almost 15 kilometres away, so walking to and from or cycling would have been a challenge, as here, wild animals are always moving around. Unlike for [sic] boys from our village, who can cycle to and from school daily ... I enrolled at the nearest secondary school to do commercial subjects (Business Studies, Economics and Geography). (Interviewee 36)

In addition to the above issue, one participant revealed:

At home, after supper, mostly our grandmother tells us folk stories detailing how men could traverse wildlife-infested areas to convey a message to either a relative or a traditional leader, with no mention [of] women performing such heroic actions. Hence, this discourages us from walking long distances for fear of being eaten by the lions. (Interviewee 31)

From the above response, I noted that ecological cues prompted a social identity threat to female pupils' progression in Advanced Level science subjects. This was as a result of the geographical location of the school, which made it difficult for the participant to opt for Advanced Level science subjects (cf. Ndirika & Agommouh, 2017:51; Ogbeba, Otor & Iorkyaa, 2014:723). From these sentiments echoed by the participants (cf. Interviewees 31 and 36), it was noted that female pupils continue to be socialised along the traditional expectations as seen in the difference in nurturing between girls and boys. Although wild animals are found in the area, male pupils were seen pedalling to and from school, while female pupils were not. Most male pupils cycle in groups, showing how the surrogate culture has influenced their beliefs about masculinity. As a result, this geographical setting may have an adverse influence on female pupils' progression in Advanced Level science subjects (Amao et al., 2015:4; Chemeli, 2013:357; Mushi et al., 2010:213; Nyoni, Nyoni & Bonga, 2017:5; Rao, 2004:141; Uwaifo, 2008:122).

In this case, the environmental set-up in the area under investigation generated a clear deficit in the female pupils' minds with regard to their own character (cf. Akinbode & Fagbohngbe, 2011:4033; Klapwijk & Rommes, 2009:405; Rowland, 2004:9; Runhare et al., 2004:14), which, in turn, negatively influenced their progression in science subjects at the Advanced Level.

6.3.3.4 THE 'MASCULINE' NATURE OF SCIENCE SUBJECTS AND THE INFLUENCE THEREOF ON FEMALE PUPILS' SUBJECT SELECTION

My focus in the whole of Section 6.3.3 is on those aspects that help female pupils to select science at the Advanced Level. This section gives an account of the participants' views on progression in science subjects. Pertaining to the selection of subjects at the Advanced Level, one of the participants said:

When I first came to this school looking for a place to do my Form 5, I was given the following combination: Maths, Statistics and Economics. Upon starting lessons in Form 5, my friends started telling me stories, “Heeee, Maths this, heeeh, Maths that; you will fail; look at so and so, how they performed in these sciences at Form 6.” This discouragement made me ... drop Maths and Statistics for Economics, Business Studies and Accounting ... (Interviewee 28)

Interviewee 14 gave a similar response:

A lot of adverse stories have been said pertaining to female pupils’ performance in science subjects at Form 5 and 6. This, in one way or the other, has instilled fear in us when it comes to progression in these subjects.

These findings are a reflection of how science subjects are perceived as ‘masculine’ due to the fact that they regarded as difficult by pupils. This deterring impression on female pupils’ progression in Advanced Level science subjects can be as a result of unsanctioned influence through doubt and relationships. In this case, the adverse beliefs of the participants’ peers about science subjects had a significant influence (cf. Abiola, 2014:73; Mapholisa et al., 2015:178) on the female pupils’ limited curiosity to venture into the so-called ‘masculine’ field. As such, such interactions between female pupils and peers from varied upbringings have the potential to stimulate self-analysis on their beliefs about science subjects, which might create conflict with the real self, resulting in anxiety that could be detrimental to their progression in these subjects. This scenario brought to the fore the call for female pupils to have self-introspection about their position in science subjects, which are ordinarily associated with ‘masculinity’.

As a result, stereotypical beliefs that regard female pupils as less competent (Asgari, Dasgupta & Cote, 2010:203; Shaba, 2003:5) impede them from reaching their full capacity in the so-called ‘masculine’ subjects. In this way, female pupils are socialised to imagine that only their male counterparts can progress well in the intellectually challenging subjects at the Advanced Level, hence obstructing their emancipation from their current subservient status in society. In this context, socialisation tends to scare them away from science subjects, which they might regard as incompatible with their self-image (Dube, 2015:382; Onyenekenwa & Nkamnebe, 2011:44; Ornstein, Levine, Gutek & Vocke, 2011:310).

This notion is grounded on the reasoning that gender socialisation of female pupils at an early age coerces them to have a preference for those subjects that fit into the traditional stereotypes (Phukan et al., 2017:31). This concurs with Kerkhoven, Russo, Land-Zandstra and Saxena (2016:2), Master and Meltzoff (2017:216) and Rind (2015:2), who describe that stereotypes, which act as 'gatekeepers', are adopted into female pupils' minds to influence their thinking about what field is for them and where they 'fit in'. As such, stereotypes have an influence on female pupils' identity formation, which manifests itself around their antipathy towards the 'masculine' subjects.

The previous argument corroborates what has been brought to the fore by Ardnt (2000:2) and Lott (1994:41) that female pupils assimilate uniqueness through relating themselves with the 'right' group in a patriarchal society, which accords them some understanding and criticism in line with their cultural beliefs. Eccles (2015:123) mentions that there is a socially shared stereotypical belief that female pupils are inherently less competent in Advanced Level sciences, resulting in society looking down upon their potential in these 'masculine' subjects. Under these circumstances, female pupils might be hesitant to take up the 'masculine' subjects at the Advanced Level, as, if they do take these subjects, it might be seen as their doing the unexpected in line with their identity. The above discourse highlights the idea that norms in the participant's society can adversely influence her decision to progress in Advanced Level science subjects.

Furthermore, the discourse above upholds findings from a study by Mudhovozi and Chireshe (2012:169) that young people are, in most cases, easily swayed by their peers, as they rely on them for endorsement of decisions, such as on issues to do with their career paths. Consequently, within this process of disclosing experiences to those young people considered to be their role models (Haambokoma, 2015:69; Van Raden, 2011:37), they are either encouraged or discouraged from proceeding in Advanced Level science subjects. From my own perspective, this background endows female pupils with a code of belief that is ordinarily informed by the patriarchal system, which guides them into regarding themselves as subservient citizens who are incompetent in particular career paths such as sciences.

While female pupils' decision-making processes are influenced by those around them, there is a need to give them an opportunity to choose their own career paths by having adequate information on the intended career paths. One of the participants reported:

My combination at Form 6 (Biology, Chemistry and Maths) is of my own choice, as I was told by my parents to make my own decision, as they don't know much about this, as they only went as far as Standard 3. I also considered that when one is doing sciences at 'A' Level, fees will be paid for by the government under the STEM programme. But I am not sure about what I will do next year at the university if, by chance, I make it. (Interviewee 39)

Another participant shared the following:

During school holidays, I visit my relative who stays at nearby [a] mine and one of his kids [a girl] is doing an engineering science-related degree at a local university. So, in our interactions, I have developed so much interest in the area and this has given [me] strength to soldier on with my combination [Pure Maths, Physics and Chemistry] till I enrol for a science-related degree programme. (Interviewee 22)

These sentiments by the participants are a clear indication of the effect of constructive nurturing by parents and relatives on decision making. This corroborates findings from Bryant, Zvonkovic and Reynolds (2006:152), Chinyoka et al. (2014:224), Nweze and Okolie (2014:63), Ogunshola et al. (2012:231) and Pufall et al. (2016:126) that sometimes, illiterate parents have the feeling that they cannot effectively give their children advice when it comes to education. The information generated through Interviewees 23 and 30 separately is a clear acknowledgement of how increased educational opportunities for female pupils are beginning to challenge some facets of inequality in science subjects. However, these educational opportunities alone cannot empower female pupils; thus, there is a need for society to set up a platform for their lived experiences to be listened to (European Commission, 2012:2; Unterhalter et al., 2014:52).

6.3.3.5 GENDER ROLE SOCIALISATION AND FEMALE PUPILS' PROGRESSION IN SCIENCE SUBJECTS

In Zimbabwe, interactions with regard to femininity and masculinity are based on patriarchal expectations (Aluko, Adewusi & Kalejaiye, 2017:64; Hussein, 2005:67; Ostergaard, 1996:6), which can influence female pupils' progression in Advanced Level science subjects. In this context, this section investigates the influence of gender role socialisation on female pupils' progression in Advanced Level science subjects. In one of the interviews conducted, a female participant reported as follows:

Science subjects at Form 5 and 6 – I heard that they demand a lot in terms of calculations and to go through those thick volumes. Hence, [being] the only girl in a family of six, who is supposed to wash dishes and sweep the yard before I go to school, made it difficult for me to select sciences. Instead, I opted for the arts (History, Divinity and IsiNdebele) at Form 6, which does not involve any calculations at all. (Interviewee 43)

Similarly, another interviewee shared the following:

Narration from my commerce teacher during [my] early days at school [Forms 1 and 2] discouraged me from pursuing sciences as a career path. She was highlighting issues to do with the difficulties associated with their learning. In this case, from those early learning days, my mind was now schooled towards taking up commercials at high school [Forms 5 and 6]. (Interviewee 33)

From the findings, I deduced that the inflexibility of family and others around female pupils at school, embedded in an environment where roles and career paths are ascribed in line with one's sex, influenced the participants' decision making in terms of subject selection at the Advanced Level. Typically feminine roles deter female pupils from setting aside enough time to study, as Advanced Level science subjects demand intense studying. Through the female pupil's participation in these gendered roles, she learns to accept as natural the sexist oppression out of which the values acquired are used to mirror her in the context of aspirations and expectations from the society. This corroborates contentions by Andersen and Taylor (2006:305), Ndirika et al. (2017:54) and Robeyns (2003:72) that in a patriarchal society, parents are seen as being interruptive of female pupils' intense linkage with Advanced Level science subjects. This limits the extent to which their aptitude to progress in science and technology-related subjects is developed, ultimately culminating in the

exploitation of their dream of becoming valuable human capital who promotes the scientific and technological revolution (Ikechukwu, Edeme & Azu, 2014:73; Kurebwa, 2014:128). Against this background, liberal feminists argue that the norms acquired through the socialisation process propagate females' inequality (Andersen, et al., 2006:327) in their progression in Advanced Level science subjects. Along the same line, radical feminists insist that the existing hierarchical societal interactions have propelled the dominance of males (Beasley, 1999:60; Khattab, 2015:734; Marysia, 2000:11) in spheres such as Advanced Level science subjects, where females are reflected as being low-grade.

In line with the data generated (cf. 6.3.1) on obligations and expectations, one participant noted how those influenced her endeavour to proceed in the so-called 'masculine' subjects:

I was the only girls in our stream who selected science subjects (Chemistry, Mathematics and Physics) at Form 5. And the Form 6 science class was made up of boys only. Now I have a problem with fellow girls doing other combinations (arts and commercials), as they do not want to mingle with me at school. This leaves me to hang around with those boys doing sciences mostly. For this, they have since given me a name, which pictures me as a 'boy'. (Interviewee 1)

In the same context, one of the participants in a focus group discussion shared the following:

Jokes aside, classmates remember that as the only girls pursuing Advanced Level science subjects at this school, we need to work together as a team, such that not anyone falls by the wayside till the end. (Interviewee 30)

From the above feedback from the interview, it can be noted there was a limited number of female pupils progressing in Advanced Level science subjects, despite the existence of policies aimed at transforming gender inequalities. In addition, it was revealed that at the school under investigation, female pupils tended to socialise at school according to their subject combination at the Advanced Level. Consequently, from the participant's perspective, science knowledge is not a 'gender-neutral' commodity. This concurs with Martin (2006:32) and Paggio (2006:225) who note that gender hierarchies are reinforced by labelling, which privileges 'masculine' subjects, with little on the values and practices of patriarchy. In this case, I noted that the language used in labelling subjects could be stereotypical, thereby influencing how female pupils perceive themselves in terms of their progression in Advanced Level science subjects.

In this context, patriarchy is entrenched in norms that strive to hinder female pupils' progression in science subjects (Mhiripiri, 2011:66). In such a scenario, female pupils may be forced to inhibit their true capabilities and become accustomed to alien and domineering values that advantage masculinity. This confirms findings of Good and Brophy (2008:263), Larsen and Buss (2008:544), Master et al. (2017:219) and Ncube (2013:10) that female pupils who progress in arts and humanities tend to look down on themselves in comparison to those progressing in Advanced Level sciences, signalling a sense of subservience.

The foregoing argument strengthens the finding of Mutekwe et al. (2011:133) that female pupils' subject selection at the Advanced Level is, more often than not, an outcome of society's gender role socialisation. In this case, the subject choices females pupils desire can be perceived as an overwhelming gender-related barrier (Hofstede, 2011:3; Mwamwenda, 2005:375; Nidiffer, 2010:154; Van Leuvan, 2004:429) against which the propaganda to promote equality in progression in spheres such as education has been in vain. In this context, I acknowledge that social beliefs have a significant influence (cf. Marumura et al., 2017:78) on how female pupils make the decision to proceed or not in science subjects, despite immense transformation in acts and educational policies.

Through the feminist lenses (cf. 2.2), the above discourse can be scrutinised and it can be rationalised that the subservience of females (Chikunda et al., 2016:15) cannot merely be taken as the result of home-based training but also as embedded within the structure of hierarchical beliefs deeply rooted in the patriarchal society. Against this background, when female pupils are exposed to socio-cultural ambience, with common beliefs, traditions and prospects (Bandura, 2002:274), it can influence either positively or negatively their progression in education in general and Advanced Level science subjects in particular. In the previous discourse, it has been exposed that barriers to female pupils' progression in Advanced Level science subjects are entrenched in acts, policies and the socio-cultural, historical and socio-economic backgrounds of the patriarchal social order. These barriers call for the next segment of my study to emphasise strategies that can be used to overcome the barriers encountered by female pupils in education.

6.3.4 STRATEGIES TO BE USED TO OVERCOME BARRIERS ENCOUNTERED BY FEMALE PUPILS IN EDUCATION

Despite the discrepancy in identifying the origins of gender discrimination in Advanced Level science subjects and their anticipated solutions (Budgeon, 2015:2), this section engages an objective to set up societal settings that augment female pupils' progression in Advanced Level science subjects. Hence, this discussion refers to the responses in the previous sections (cf. 6.3.1; 6.3.2; 6.3.3), which have raised a number of crucial issues perceived as barriers to female pupils' progression in science subjects. This calls for me to diagnostically, through a lens formed by the feminist, human capital and symbolic interactionist theories, consider strategies that can be engaged to overcome the multiple and interlocking barriers faced by female pupils in their progression in Advanced Level science subjects (cf. Chauraya & Gudhlanga, 2013:140; Connell, 2006:837; Dudu, Gonye, Mareva & Sibanda, 2008:74). In this context, the interviews and focus group discussions conducted with the participants recognised the demand for all-inclusive strategies to curtail the barriers faced by disadvantaged female pupils in their progression in education (some of which have been briefly touched upon in earlier sections).

6.3.4.1 POLICY TRANSFORMATION AS SOURCE OF FEMALE PUPILS' EMPOWERMENT IN SCIENCE SUBJECTS

Some of the participants were of the opinion that the ideas of those at grassroots should be considered in drawing up gender-equal acts and policies in education. They felt that more work was needed to move away from 'fashionable' policy semantics into substantiated reality in terms of policy drafting and implementation, and this resonates with the literature (cf. Clisby, 2005:23; Dube, 2015:282) on this topic. Although laws and policies are drafted to be in favour of female pupils, not much has been done to transform the patriarchal norms that hinder their progression in Advanced Level science subjects. One of the participants exclaimed:

I am of the idea that as girls from the rural areas, we have been side-lined for long. And now is the time to tell our own stories on issues to do with our welfare here at school or at home. (Focus Group Discussion Participant 14)

As a follow-up to the above, another participant noted:

True, I do agree with you that the time is now; we need to act, girls, such that our voice can be heard, mostly at home as a starting point. (Focus Group Discussion Participant 21)

From the above statement, it can be noted that the first participant expressed concern over the current scenario, where laws and policies are drafted centrally, making it difficult for female pupils' views and voices to be captured in the process. In this case, the participant was in favour of the inclusion of ideals of social justice in all spheres of the patriarchal society instead of giving more attention to formal equality in the form of written policies. This notion concurs with an announcement by Gudyanga, Wadesango, Manzira and Gudyanga (2015:40) and Pedzisai et al. (2014:163) that in the contemporary set-up in the Zimbabwean policy, prime movers set up commissions as a line of attack on gender inequalities in the education system with a view of finding solutions, without taking into account ideas concerned with the opinions of rural female pupils. Thus, the resultant educational acts and policies might be far away from the epitomes of contextual impartiality, which advances pupils to their full potential in areas such as science subjects, regardless of their sex and societal experience (Dekeza et al., 2017:13; Jayachandran, 2014:21).

It is critical to perceive that all of this comes about in a society that is deeply rooted in gendered beliefs, which may possibly have an adverse influence on female pupils' progression in science subjects at the Advanced Level. This appeal for pervasive participation as a strategy to emancipate the side-lined female pupils, not only giving emphasis to their immersion in policy articulation but also to petition for a course of action towards their substantive emancipation (Kirai et al., 2012:217). This concurs with authors such as Aleman et al. (2002:214), Ford (2002:28) and Macionis et al. (2008:649), who noted that it was crucial to enhance female pupils' progression in science subjects through their engagement in the drafting of policies aimed at giving them power. Against this background, I argue from a liberal feminist perspective that acts and educational policies and processes need to be transformed (cf. Khattak, 2011:72) so as to open up prospects that acknowledge female pupils to be the same as their male counterparts in subject selection.

The thoughts earlier expressed by one of the participants are a subjective image of the call of female pupils to be endowed with pertinent insight to allow for a more concerted effort against imbalances in their progression in science subjects. This is a critical platform for female pupils to perceive that for policy advancement to be beneficial, their setting should be considered (Nyoni et al., 2017:2). In this framework, one of the participants reported as follows:

As girls, firstly, there is [a] need for us to be aware of the so-called existing policies to do with us. From there, now, we can call for actions towards inspiring us to progress in education. But for this to be possible there is [a] need for support from everyone, especially our parents. (Interviewee 4)

Another participant reflected:

I am of the understanding that there is a full ministry responsible for females' affairs [Ministry of Women Affairs, Community, Small and Medium Enterprise Development]; if so, I do call upon its officers at district level to be visible in our villages. (Interviewee 29)

The participants were advocating for the conception of female-responsive settings to confront the perpetual influence of gender hierarchies on female pupils' progression in Advanced Level science subjects. They were calling for solidarity through moving females from being isolated in various spheres into active progression in the mainstream societal activities such as education and training (cf. Tung-Yuang & Nai-Ying, 2009:110). This creates an emancipatory consciousness, which propels female pupils to collectively confront the unequal power structures in education in general and Advanced Level science subjects in particular. Such agency can be seen in the statement of one of the participants:

Yes, like, [it] has been spoken already that we have a part to play, okay, but at the present moment, it's like these policies are falling from the sky. I think now is the time for our voices to be heard in meetings or discussions, starting from the family up to workshops on gender issues at national level. (Focus Group Discussion Participant 22)

In support of the above opinion, the following was said in an interview:

I am of the idea that whatever policy [related to education or gender issue] is crafted should be a reflection of the wishes of the grassroots stakeholders, instead of it being imposed on us by those from the capital city. (Interviewee 17)

The rural school microcosm replicates underlying inequalities in the patriarchal society (Bolarin, 2005:161; Mangheni, Ekirikubinza-Tibatema & Forsythe, 2010:4), which limits the involvement of grass root stakeholders from different backgrounds in policy articulation. This concurs with Mushongera (2015:59), who found that pupils' participation in the policymaking outreach programmes was constrained, which could be attributed to society's belief in not paying much thought to children's contributions during a formal course of action. However, the female pupils advocated the need to address the issues of oppression and become agents of change.

Based on the previous discourse, I noted that the participants' responses depicted a picture that although the policymaking process was, in a sense, argued to be progressive; it was still grounded in the tenets of traditionalism and narrow-mindedness in terms of the consultation spectrum. Based on the responses articulated earlier on, there is a critical need for society to move away from looking at female pupils as beneficiaries of formulated policies to include them in the formulation of policies and social transformation agenda (Chauraya, 2013:92). Against this background, I call on all stakeholders in education and training to get to the root cause of gender inequalities in Advanced Level science subjects through an in-depth study of the sense of 'masculinity' or 'femininity' in power interactions, which influences pupils' decision making. As a result, transformative-emancipatory interventions need to be designed to give power to deprived female pupils so that they can argue against barriers with regard to interaction and opportunities in families, societies or schools.

Clearly, the participants felt that the superficial redress of inequalities is not bringing about the change needed. This can be possible through the total engagement of stakeholders (e.g. parents or pupils) from lower levels in restructuring the existing gender-related educational policies, with their own experiences at the centre of the discussion. This was reinforced by Gale (2003:52), Islam and Rahman (2008:49) and the World Bank (2004:19), who stressed that the consequential interaction through reciprocated understanding among the parents and pupils, together with an exceptionally condensed educational structure, is inclined towards curtailing inconsistencies during the policy development process. This goes along with authors such as Lukong (2016:21) and Moreira, Rabenevanana and Picard (2017:500),

who put forward that the diversified demands of the underprivileged female pupils ought to be at the centre of policies, which are aimed at addressing inequalities in education. It is in this context that female pupils continue to interrogate whose values are represented in gender-related educational policies and how these values can be contextualised in a bid to set them free. In this frame of mind, Carl (2009:133) emphasises that for the drafting and implementation of the gender-linked educational policy to do well, female pupils as one of the key stakeholders should be enlightened and included so that they are mentally geared for it.

From the discourse, it was deduced that there was a need for disadvantaged females to be placed at the centre of the transformative policy formulation activities and exercises that engage and benefit them by systematically integrating attention to issues of inequality in education. Thus, the engagement of female pupils in policy advancement enhances their transformative progression in education in general and science subjects in particular (Mama, 2001:19; Mujeri, 2003:19). This can be substantiated by findings from Kaimenyi et al. (2014:223) and Shamase (2017:9186) that feminists advocate for an indisputable call for the transformative emancipation of females by means of comprehending their circumstances in the vibrant policymaking process. Henceforth, the policy-drafting process needs to be substantiated by the side-lined rural female pupils' thoughts and experiences in their progression in education in general and Advanced Level science subjects in particular. This can be made possible through the creation of a dialogic interaction platform between the marginalised female pupils and the mainstream forces in the patriarchal society in an attempt to open up the underpinning policy inadequacies in education (Unterhalter, 2005:112). This brought to light an impression that the entrenched 'masculinity' beliefs (Halai, 2011:49) in Advanced Level science subjects can be interrupted through enforceable and contextually engaged gender equality measures.

6.3.4.2 INFORMATION DISSEMINATION AS A TOOL FOR FEMALE PUPILS' EMANCIPATION IN SCIENCE SUBJECTS

From the discourse with the participants, the need to address the issue of information inadequacy among female pupils was stressed so as to raise their consciousness with regard to making crucial decisions pertaining to the selection of an appropriate combination of

subjects (cf. 1.2) at the Advanced Level. In this regard, one of the participants had the following to say:

At home we don't have a TV set; it was only after visiting my sister who stays in town when I saw the STEM advert on a local TV station. But for me, now, it was too late, as I had already enrolled for 'A' Level commercial subjects (Accounting, Economics and Geography). Later on, I told myself that if I had accessed this information when I was doing Form 4, I could have opted for science subjects. (Focus Group Discussion Participant 17)

In addition to the previous contribution, another participant expressed her thoughts as follows:

To be honest with you, when I went to a high schools' quiz competition as a spectator, that's where, for the first time, I heard about the new constitution and the provisions in it, to do with our rights. It is my opinion that copies of these important documents [should] be made available in isolated parts of the province. (Interviewee 32)

Another participant confirmed:

Here in our village, it is a bit difficult to access a newspaper, so current affairs is [sic] difficult to come by and only those with cell phones can do [so]. It is my feeling that at our school, we should have unlimited access to the computer laboratory, such that we can search for information on various issues. As it stands now, I don't know what is on offer at a local university. (Interviewee 7)

Also:

I am of the view that schools in rural set-ups should, through participation of other players in education, procure Internet infrastructure, like those in polytechnics and universities, so that pupils can access easily [sic] contemporary information. (Interviewee 37)

From the discourse, it is clear that the participants lamented their limited access to up-to-date sources of information and technology so that they can monitor trends in different spheres of life, such as education. This concurs with the evidence from the discourse (cf. 6.3.4) that puts forward that their exposure to inadequate information was an obstacle for them to undo the barriers encountered in their progression in science subjects. These complaints from participants concerning unsatisfactory information dissemination concur with those expressed by Rwafa (2016:47), namely that the availability of technology can

come in handy for marginalised females as it can transform their socio-cultural awareness. These was based on liberal feminist thoughts about female pupils' insight into how they perceive the enhancement of current acts and gender-linked policies of what they can accomplish in education and encourage them to proceed in Advanced Level science subjects (Marysia, 2000:6; UNESCO, 2016:4).

It seems that inequalities in female pupils' progression in Advanced Level science subjects need to be embarked upon from both the policy front and at community level, where these issues are felt the most. It is in this context that my analysis acknowledges that much has been done in drafting gender-related policy in the constitution of the country; however, the application thereof in the education system cannot come to fulfilment without the acceptance thereof by the purported beneficiaries. This can be made possible by taking into consideration the significance of an empirical, evidence-based policymaking process, which acknowledges individual characteristics and social and cultural background in drafting gender-related educational acts and policies (Iwu et al., 2017:837; Sottie et al., 2013:388).

6.3.4.3 GENDER-NEUTRAL AND GENDER-SENSITIVE APPROACH TO FEMALE PUPILS' PROGRESSION IN SCIENCE SUBJECTS

This section is a follow-up to the general view as set out in the previous section (cf. 6.3.4.2) by Scott et al. (2013:388) on the need to transform the mind-set of key stakeholders in education and training towards distinguishing subjects as either 'masculine' or 'feminine'. Thus, exposing female pupils to updated information on gender equality advances them to get to the basis of the concern on how to reduce the prevailing gender gap in Advanced Level science subjects. Opportunities for empowerment should be created. One participant made the suggestion that role models should engage with rural female pupils:

Here at our school, I think there are a few girls who have done science subjects either at 'A' Level or at higher institutions of learning [universities or polytechnics] before us; therefore I wish they could be invited to spend a day or just a few hours with us and those in Form 4 sharing experiences. (Interviewee 20)

Another participant suggested that the schools should create opportunities for visits:

I always ask myself whether our school will one day accord us the rare opportunity to visit a university with bias towards science and technology. This will go a long way in letting us know the programmes and their entry requirements. (Interviewee 41)

It is crucial for society to be sensitised on gender inequality concerns in science education through the conception of a corpus of female pupils who, in turn, can act as protagonists in the so-called 'masculine' subjects. This concurs with authors such as Bossman (2014:47), Lockwood (2006:38), Naz, Saeed, Khan and Sheik (2014:1194) and Young et al. (2013:283), who point out that networking with somebody 'similar' to a pupil and doing well in science and technology-related fields can be influential to female pupils in combatting all forms of stereotypes. Against this background, authors (e.g. Mandina et al., 2013:187; Mishkin, Wandrowics, Dori & Dori, 2016:227) proposed that in such scenarios, those who have enrolled for science courses at tertiary level are powerful examples to lift up female pupils' ambitions against all odds in the 'masculine' subjects. This is further corroborated by Dawo and Simatwa (2010:738), Hashim and Embong (2015:81) and Lockwood (2006:44), who highlight that through female pupils' interaction with role models, they have high chances of overcoming the customary gender labels through the inspiration to take Advanced Level science subjects.

From this standpoint, female pupils engaged in or and those wishing to pursue Advanced Level science subjects are open-minded in as far as how to settle into the new order that demands a gender-neutral and gender-sensitive approach in these subjects. This, in a way, makes society understand that female pupils can be as competent as their counterparts in Advanced Level science subjects (Chauraya et al., 2013:141; Ifegbesan, 2010:36). Against this background, the discourse spelt out how female pupils' interaction with role models can influence the change of their mind-set, which currently categorises subjects at Advanced Level into 'masculine' or 'feminine' according to their intricacy.

In this context, I acknowledge that the above-proposed arrangement has the potential for bringing about a new way of socialisation targeted at creating equal opportunities in science subjects regardless of one's sex. However, this can only be a success if female pupils are to become aware of how society influences their everyday tasks (Dimmock, 2007:285). This concurs with sentiments echoed by the participants during interviews:

In families that reside in urban areas, you can see that boys are now involved in activities like cooking and washing pots and clothes. It's my wish that one day; my brothers will be seen doing the same, without being told to leave that job for me. But in my case, who will say that is the problem, as each one of us has been instructed what to do from Monday to Friday before and after school.
(Interviewee 29)

Interviewee 33 also expressed the need for change at home:

I think there is need for [a] change of mind-set amongst those mostly in rural set-ups when it comes to who should be doing what at home. Some of the chores being done at home have nothing to do with whether one is either a boy or a girl.
(Interviewee 33)

Clearly, those residing with these female pupils in the patriarchal society can be a vehicle through which their identity can be shaped to either their advantage or disadvantage in different spheres such as education (Okkolin, Lehtomäki & Bhalalusesa, 2010:7; Shi & Barbrow, 2007:316; Van Zoet et al., 2008:320). All this was purported to happen in a scenario where female pupils are connected to their socio-cultural history through participation in activities that formed their identities and are reinforced through a revolution in gender-related activities in the existing society (Davies, 2003:12; Wenger, 1998:89).

This concurs with Gudyanga (2016:159) and Olatunji (2013:3), who declare that culture is not static but, instead, slowly transforms through negotiations and consensus about values that, to some extent, influence to the advantage of females' progression in various spheres of life, such as education. In this case, female pupils in marginal societies cannot be emancipated through acculturation but, instead, through the eradication of all forms of inequalities in science subjects, which have their foundation in the patriarchal privileges (Boston & Cimpian, 2018:204; Gordon, 1996:218). This sets up a 'sexist' setting, where female pupils' progression in Advanced Level science subjects is thought to be improper in the patriarchal society (Deutsch, 2007:122; Leaper, 2015:172). There is a need for society to

be conscious of the fact that in the pursuit of female pupils' emancipation from inequalities in their progression in Advanced Level science subjects, there has been a call for continuous confrontation with setbacks.

6.4 DISCUSSION

From the findings, it was noted that female pupils were brought up under distinctive parenting styles influenced by the lived experiences in their families. I therefore brought forward the notion that besides the patriarchal system, the issue of parenting had an influence on female pupils' progression in Advanced Level science subjects. As a follow-up, it was revealed that fathers with higher academic schooling in a given area of speciality for sciences positively influenced their daughters' decision to proceed in the so-called 'masculine' subjects. In my study, it was also discovered that those with fathers who had limited academic experience were, at times, left to make their own decisions, which might sway them to select subjects with which they were unacquainted and build their own decision-making process. Mothers were seen to be playing subservient roles in as far as influencing their daughters' decision making on subject selection at the Advanced Level was concerned. It was also indicated that guardians did not play an active role in the decision-making process of selecting Advanced Level science subjects, as they were only interested in providing them with accommodation and food. In this context, female pupils with parents and guardians who offered positive parenting had better chances of progressing in Advanced Level science subjects, as opposed to those who had limited parental support.

The decision by some female pupils to proceed in science subjects was also based on the proximity of secondary schools offering these subjects at the Advanced Level. Some of the female pupils who participated in my study revealed that they failed to progress in Advanced Level science subjects because the schools offering those subjects were located far from where they lived. As a result, the female pupils could not travel through the terrain which is inhabited by wildlife, as opposed to their male counterparts who cycle to and from school.

It is through the endorsed acts and policies that governance is enhanced and the direction of societal and educational activities is drawn. However, the findings from my study have revealed that community gatherings that are organised to discuss gender concerns are

mostly attended by females, with males regarding them as a 'feminine' concern. The findings also revealed that the society under investigation was politically polarised, making it difficult for those associated with the opposition to attend meetings and freely contribute their ideas on policy making in schools.

In the secondary school visited, documents such as the *Constitution of Zimbabwe*, the *National Gender Policy* and the *Affirmative Action Policy*, which are centrally drafted, were, in most cases, not readily available upon request from the responsible authorities. In instances where these, among other documents such as the school-based gender policy, were claimed to be in place, they were kept in the head's office. Once these documents are absent from the station, they cannot easily be accessed by either class teachers or pupils themselves. This brought to light the argument that in the case of the school-based gender policy, it might only have been drafted as per the requirements of those in higher office, with the minimum influence on female pupils' experiences in their progression in Advanced Level science subjects.

This was noted as a fertile terrain to exacerbate the gender gap at micro-level, despite the existence of the so-called 'well-rounded' national policies that were targeted at empowering female pupils in their progression in education and training. Thus, the international and national aspirations on gender equality in education in general and Advanced Level science subjects, in particular, are failing to find their way into schools due to the non-existence of stand-alone school-based policies to guide pupils' subject selection at the Advanced Level. This, from the participants' perspective, has created a scenario that requires cultural transformation in education in general and Advanced Level science subjects in particular instead of giving attention to prescribed equality only. In this sense, a gender-neutral and gender-sensitive approach was indicated as the way to go in acts and policy expression, based on the participants' lived experiences, towards their progression in Advanced Level science subjects.

The participating female pupils encountered some barriers whenever they decided to proceed in science subjects at Advanced Level. This discourse summarises those barriers from the participants' perspective. In the findings, it was revealed by the participants that the labelling of science subjects as 'masculine' by society discouraged them from taking

these subjects as they perceived themselves too weak to proceed in these subjects. All this happens under circumstances of limited parental or guardian support on decision making when it comes to subject selection at the Advanced Level. For instance, some participants claimed that this had led them to opt for any subject combination available, with little knowledge about the influence thereof on their future prospects.

The participants acknowledged that limited knowledge of parents about science-related career opportunities was a barrier when it came to assisting female pupils in deciding which science subjects to select at the Advanced Level and knowing why specific choices are made. It was also exposed that in instances where families were headed by single mothers, they encountered financial challenges, which, at times, influence the type of school in which they enrol their children. A case in point in my study was when a single mother failed to send her daughter to a secondary school offering her preferred Advanced Level science subjects due to high tuition being charged. This resulted in female pupils opting for less expensive schools, with limited knowledge about future career prospects. These schools have inadequate infrastructure to enable female pupils to access technology through which they can interact with the outside world to obtain current information pertaining to career options in polytechnics and universities.

In the earlier discussion, female pupils were presented as being culturally vulnerable to various forms of patriarchal influences. Thus, at times, female pupils have limited or no interaction at all with their 'knowledgeable' fathers in accordance with their cultural beliefs, which reduces the sharing of lived experiences on career progression. Hence the need to critique the image acquired from intense imaginations of the patriarchy, which have positioned female pupils in subservient spots with regard to Advanced Level science subjects. Against this background, strategies to minimise the barriers encountered by female pupils in their progression in Advanced Level science subjects are discussed briefly. This is to be done to make a contribution to the body of knowledge on how best the enduring voices of patriarchy in education in general and Advanced Level science subjects in particular can be eradicated.

It was against this background that the participants called for positive parenting, which argues for transformative thoughts in parents and guardians, with emphasis on acknowledging the starting place of gender inequality instead of accepting Advanced Level science subjects as 'masculine' and a no-go area for female pupils. In this context, the proposed gender-neutral and gender-sensitive approach to education would promote progression in Advanced Level science subjects to be based on competence rather than being a domain restricted for male pupils (Forde, 2014:370; Peters, 1972:109). This, in turn, allows for parents and guardians to look at the progression in Advanced Level science subjects from a gender-neutral perspective. This set-up demystifies the unbalanced cultural beliefs to propel female pupils' self-mobilisation to collectively confront inequality in their progression in Advanced Level science subjects.

From the findings, there was a call for the creation of an all-inclusive platform for the drafting of evidence-based gender-related acts and policies in education. Educational tours to enable constructive transformation of the marginalised female pupils' experiences through interaction with those from urban and advantaged set-ups are required as well. Interaction with role models can benefit female pupils so that there can be some sharing of experiences with those who went through similar experiences and finding out how they combatted the various stereotypical forms and gender labels encountered in their progression in Advanced Level science subjects.

6.5 CONCLUSION

Data generation in my study was done under the guidance of the qualitative approach and the transformative-emancipatory paradigm in the secondary schools offering Advanced Level science subjects. The purposive sampling procedure was employed in selecting the participants. The data generated through document analysis, critical policy analysis, interviews and focus group discussions were presented, analysed and discussed according to emerging themes. In some instances, data gathered from these instruments corroborated one another; however, in some circumstances, variations were noted from what the participants said. In the next chapter, I will draw insight from all components of this thesis in order to provide an informed summary of the findings and the conclusion. In addition,

recommendations on areas for further study will be made based on the negative influence of societal factors on female pupils' progression in Advanced Level science subjects.

CHAPTER 7: SUMMARY, CONCLUSION AND RECOMMENDATIONS

7.1 INTRODUCTION

In line with the conceptual essence, the Zimbabwean education system, which inculcates acts and policies, should be a platform aimed at promoting gender inclusivity in education in general and Advanced Level science subjects in particular. Not only should Advanced Level science subjects be transformed to focus on scientific and technological advancement, but they should also contribute towards the attainment of equality in the patriarchal society at large. Against this background, my study argues that female pupils have been disadvantaged in their progression in Advanced Level science subjects by societal factors (e.g. cultural, economic, environmental, political and legal framework). This chapter, through a summary of the thesis, presents interpretations of the theoretical or conceptual and empirical findings on the issue under investigation. In addition, attention will be paid to the limitations of the study, a conclusion, recommendations and areas for further research.

7.2 SUMMARY OF THE THESIS

My study sought to make available insights into female pupils' perspective on societal factors influencing their progression in Advanced Level science subjects in selected secondary schools in the Matabeleland North Province.

In Chapter 1, a concise background of the nature of female pupils' progression in education in general and Advanced Level science subjects in particular in the selected secondary schools was presented. Against this background, I perceived that the number of female pupils progressing in Advanced Level science subjects was significantly low, despite all the efforts made by interested parties to advance their status in education. This brought to light the need to determine what barriers impede their progression in Advanced Level science subjects and look for interpretations on what can be done to attain and maintain impartiality in these subjects in the Zimbabwean context.

Chapter 2 scrutinised the theoretical and conceptual framework that underpinned my investigation. These revolved around the selected feminist theories (liberal, radical, socialist and African feminist) (cf. 2.2) that portrayed females' subservient position in the patriarchal society. The aforementioned theories were integrated with the symbolic interactionist and human capital theories to form a framework (cf. 2.5) through which the influence of societal factors on female pupils' progression in Advanced Level science subjects was observed and critically scrutinised.

Chapter 3 reviewed literature on how societal factors influence female pupils' progression in education in general and science subjects in particular. In addition, the influence of socio-cultural (traditional customs and religious beliefs), socio-economic, environmental and political factors on their progression in Advanced Level science subjects was discussed.

Then Chapter 4 outlined the data generation procedure, which was done under the guidance of the qualitative approach and the transformative emancipatory paradigm in the secondary schools offering Advanced Level science subjects. This made it possible for me to attain a comprehensive understanding of the issue under investigation in the selected secondary schools. A purposive sampling procedure was engaged to indicate those participants who were taking science subjects (at least three of the following: Biology, Chemistry, Physics, Pure Mathematics, Mechanics and Statistics) and those who were taking other combinations at the Advanced Level (commercial, practical or arts subjects) but had mandatory passes at the Ordinary Level, which could have made it possible for them to pursue science subjects. The data generated through critical discourse analysis, focus group discussions and personal interviews were analysed through critical policy analysis and feminist critical policy analysis.

In my study, in Chapter 5, I examined gender-related acts and policies and how they influenced female pupils' progression in education in general and Advanced Level science subjects in particular. These were presented under headings derived from the sub-objective of the study, such as literature on colonial laws and policies in education and the influence of the post-colonial laws and policies on female pupils' education. In addition, I analysed the *Constitution of Zimbabwe* and policies as key bases for gender equality in female pupils' progression in education. Through a gender-situational scrutiny of the state of affairs in Zimbabwe, it emerged that the implementation of laws and policies was still inadequate. I

looked at the way in which Zimbabwean acts and policies direct education in general and Advanced Level science subjects in particular through a lens that integrated the feminist, human capital and symbolic interactionist theories.

Chapter 6 outlined the findings from the data that had been generated, scrutinised and deliberated. In my study, femininity and masculinity were defined according to both religious and traditional norms and values. This acted as the basis for female pupils to perceive themselves as being incompetent to proceed in subjects perceived to be exclusively 'masculine'. Their subsequent decision to either proceed or not in science was influenced by their socialisation, which was linked to subservient gender roles. In this context, this came into existence through social interactions from an early age, which were linked to norms and expected roles of females, which were inclined towards one's sex and, ultimately, influenced their subject selection at the Advanced Level in the Zimbabwean context.

7.3 SOCIETAL FACTORS AND THEIR INFLUENCE ON FEMALE PUPILS' PROGRESSION IN ADVANCED LEVEL SCIENCE SUBJECTS

In my endeavour to expose the perspectives of female pupils towards the influence of societal factors on their progression in Advanced Level science subjects, my discussion through the derived framework (cf. 2.5) interrogates the empirical evidence from various chapters in this thesis as outlined earlier (cf. 7.2). This call for identifying the significantly low number of female pupils progressing in Advanced Level science subjects as an undisputable impediment in the Matabeleland North Province (cf. 1.2). I ground this proclamation on findings from the literature sources consulted (cf. 3.2; 3.3; 3.4; 3.5).

It came to the fore that female pupils, through their interactions, define 'femininity' or 'masculinity', which, in turn, influences their identity (cf. 6.3.1). In this context, I found that interactions of 'femininity' and 'masculinity', based on the roles of patriarchal beliefs, have an influence on female pupils' progression in Advanced Level science subjects (cf. 6.3.1.1; 6.3.1.2). I make this contention on the grounds that, devoid of norms and values, education single-handedly does not pave the way for the upholding the sense of equality in female pupils' progression in Advanced Level science subjects.

A closer look at the Zimbabwean legal framework, without a doubt, makes available the basis on which to reflect on issues to do with equality in education and training (cf. 5.3.1.1). To ensure relevance, education needs to draw from the values of the *Constitution* (cf. 5.3.1). Therefore in my analysis of the *National Gender Policy* (cf. 5.3.2), the *Education Act* (cf. 5.3.3) and females' rights (cf. 5.3.1.1.2), I put forward the perception that, to a larger extent, these influence the mutual exclusiveness of 'femaleness' or 'maleness' in pupils' progression in Advanced Level science subjects. But the experience on the ground is that there are some gaps in the legal perspectives (cf. 5.3.1.1.2; 5.3.1.1.3; 5.3.1.2; 5.3.2; 5.3.3), which are anticipated to augment the support for female pupils' progression in Advanced Level science subjects.

The persisting low rate of female pupils' progression in Advanced Level science subjects has exposed a lack of meaningful translation of the policy intentions into reality by different grassroots stakeholders. This is a result of the existence of a gap between the objectives of the *National Gender Policy* (cf. 5.3.2), the translation of policy principles into practice and female pupils' experiences in their progression in Advanced Level science subjects. With this as a starting point, I make a case that these consistencies can be attributed to the dearth of stand-alone, school-based gender (cf. 6.3.2.1) and Advanced Level admission policies (cf. 6.3.3), which are derived in line with the national vision on equal participation in education and training (cf. 5.3.2).

Due to female pupils' socialisation, they are placed in a situation that disempowers them from raising concerns over inequalities in their progression in Advanced Level science subjects (cf. 6.3.1). I, therefore, contend that this issue should find some significance in relevant policy articles, so that it is not conceptualised merely as an act of dialogue for the sake of conversation, but through commitment and applying much detail to each one's role. On the selection of Advanced Level subjects, I found that female pupils' upbringing could affect either positively or negatively their decision to proceed or not in so-called 'masculine' subjects (cf. 6.3.3). This, together with other social influences, can create either favourable or unconducive circumstances (cf. 6.3.2.2; 6.3.3.6) to motivate or inhibit their progression in Advanced Level science subjects.

Based on the above understanding and insight concerning the selection of Advanced Level science subjects, it should be acknowledged and highlighted that family background (cf. 6.3.3.1), pupil-to-pupil interaction (cf. 6.3.3.2), the topographical location of the school (cf. 6.3.3.3), the 'masculine' nature of science subjects (cf. 6.3.3.4) and gender-related socialisation (cf. 6.3.3.5) are some of the aspects that influence female pupils' progression in these subjects. I make an argument that society needs to adopt an interactive approach to policy design (cf. 6.3.4.1), an operational information dissemination strategy (either bottom-up or vice versa) (cf. 6.3.4.2) and a gender-neutral and gender-sensitive approach (cf. 6.3.4.3) to gender issues in order to eradicate myths associated with female pupils' progression in Advanced Level science subjects. The expectation, therefore, is that these strategies and practices should be relevant and sensitive to the local needs. In this regard, I put forward that education will be receptive to the specific needs of female pupils if every stakeholder and the policy implementation thereof embrace the tenets of gender equality as an integral part of promoting female pupils' progression in Advanced Level science subjects.

7.4 LIMITATIONS OF THE STUDY

In each research study, some limitations are experienced, and my study is no exception in this regard. Difficulties and occurrences, which are out of the researcher's jurisdiction, may appear in a way that may keep tight reins on the extensiveness of the investigation (Ochieng, 2009:17; Simon & Goes, 2013:1). In line with this notion, during my doctoral studies, various constraints, among them finances and the time factor, were encountered. It was a demanding task for me to juggle between my responsibilities as a Principal Curriculum Research and Development Officer in the Department of Quality Assurance and Standards of the Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development and the demands of being a doctoral studies candidate. In conquering the aforementioned limitation, I applied for vacation leave to fully devote my time to the investigation under way.

In overpowering the financial limitation, I applied for financial assistance in the form of a bursary from the Post-Graduate Directorate of the University of the Free State. The bursary application was done early through the Faculty of Education, to which I received a positive response. This enabled the research process to progress according to the time schedule.

The selected research methodology has often been criticised for its lack of generalisability of findings (Katsande, 2016:16). However, in my study, it derives its strength from the use of multiple methods in the data generation, which are decisive in establishing credibility and dependability of findings. This was ideal for providing a detailed scrutiny of the socio-cultural factors (cf. Flyvbjerg, 2011:306) influencing female pupils' progression in Advanced Level science subjects in the Matabeleland North Province.

I could have included other voices. The adult participants, such as the staff members of the schools I encountered, were helpful, but I could have included more school staff, as well as parents. I could also have consulted females from rural parts who had proceeded to universities to hear their narratives. Still, I focused on the female child in a rural school, a voice that remains silent in many respects.

7.5 RECOMMENDATIONS

The findings of this study brought up both theoretical and practical point at issue, which insist on a potential investigation. In this regard conversant with the previous discussion and conclusions about female pupils' progression in Advanced Level science subjects, the subsequent recommendations are put forward:

I firstly endorse that the constitutive fundamentals to which the Zimbabwean laws and policies in general and education policies, in particular, be conceded and corroborated as elements that promote equality. This gives a boost to the government's obligation to the purge inequality in different spheres of life such as education. It is therefore proposed that concerns related to equality in science education be the focal point of science education policy.

Secondly based on the findings, I recommend that the government should formulate evidence-based policies about the education of females in general and female pupils' progression in Advanced Level science subjects specifically. The buy-in from female and male role players alike should inform such policy initiatives to ensure progress. Such specific education policies should go hand in hand with social transformation, informed by the drafting of gender-sensitive policies, thereby neutralising gender stereotypes and the oppression of women. This will be made possible when a gender-neutral, gender-sensitive approach challenges the patriarchal system until female pupils are at par with their male counterparts in cognisance of their progression in Advanced Level science subjects.

Thirdly besides the neutral and sensitive approach, positive parenting by both fathers and mothers is encouraged, as it helps with the socialisation of children without making demarcations to gender roles. Role models in society should be vocal and act as agents of change where possible. Schools must understand their role in creating opportunities to enlighten pupils about career and subject choice possibilities and expose pupils to diverse opportunities for engagement. Unless role players in the community put their hands up and step forward to bring about change, the situation is likely to remain the same.

7.6 AREAS FOR FURTHER RESEARCH

Based on the findings of my study, I identified gaps that insist on further investigation. Although research has raised awareness about inequalities in education, no study, to the best of my knowledge, has been done to gain insight into why some female pupils succeed in Advanced Level science subjects. Also, it remains unknown how the female pupils' lived experiences complement policy discussions in their rural setting. My study was carried out in rural secondary schools; therefore these findings do not give detail of female pupils' progression in Advanced Level science subjects in urban settings in the province under study since they cannot be generalised.

In this respect, more studies are needed to investigate urban female pupils' progression in Advanced Level science subjects. Such tracking of female pupils' progression in Advanced Level science subjects gives useful insights into the extent to which the province adheres to the prescriptions of gender equality related laws and policies. This allows for a comparative

analysis of female pupils' progression in Advanced Level science subjects from both a rural and urban perspective. Last but not least, I recommend that a further study, comprised of all ten Zimbabwean administrative provinces, is conducted, as this would enable the generalisability of the findings to the bigger picture of the whole nation. The findings from the study will help stakeholders in education to revitalise their approach to gender equality in education in general and Advanced Level science subjects, in particular, should the existing be found to be ineffectual in accomplishing its envisioned obligations.

7.7 CONCLUSIONS

My study sought to gain insight into the perspective of selected female pupils on the influence of societal factors in their progression in Advanced Level science subjects. In this regard, the findings suggested that the participants defined femininity and masculinity in the context of the cultural environment to which they were exposed. Hence, from their perspective, inequalities in their progression in education in general and Advanced Level science subjects in particular were upheld by traditional customs, religious beliefs, lopsided power relations, issues of social stigma and legal and environmental factors. In addition, through these findings, I suggested that although some gains have been addressed in terms of the participants' progression in education through the formulation and implementation of gender-related policies, much more needs to be done in relation to their progression in Advanced Level science subjects. Against this background, strategies to alleviate the barriers that hampered the female pupils' progression in Advanced Level science subjects, with a view to transforming their lived experiences, were delineated. From the data generated, presented, analysed and interpreted, I can, therefore, conclude that the participants held the perspective that their progression in Advanced Level science subjects was, to a larger degree, influenced by societal factors, founded on experiences they came across in their day-to-day activities.

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APPENDICES

APPENDIX 1: REQUEST FOR PERMISSION TO CONDUCT RESEARCH

Dear Secretary – Ministry of Primary and Secondary Education, Zimbabwe

I am doing research and would like to request permission to conduct our research at secondary schools offering Advanced Level science subjects in the seven districts of Matabeleland North Province.

DATE

November 2017 – November 2018

TITLE OF THE RESEARCH PROJECT

Female pupils' perspective on societal factors influencing their progression in Advanced Level science subjects in Zimbabwe

PRINCIPAL INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):

Chikuvadze Pinias (Student number 2015333988) Phone +263 777 358 002

FACULTY AND DEPARTMENT:

Faculty of Education, School of Education Studies

STUDYLEADER(S) NAME AND CONTACT NUMBER:

Prof Lynette Jacobs +27 (0)51 505 1289 / +27 79 525 2525

WHAT IS THE AIM / PURPOSE OF THE STUDY?

This study will provide insights on societal factors influencing female pupils' progression in Advanced Level science subjects. This aim will be attained based on understanding of challenges undermining their progression and guide me to provide comments on what best can be prepared to attain impartiality in science education in the Zimbabwean context.

WHO IS DOING THE RESEARCH?

I am Chikuvadze Pinias, a Principal Curriculum and Research Officer, with the Department of Quality Assurance and Standards in the Ministry of Higher and Tertiary Education, Science and Technology Development, Zimbabwe, conducting this study a requirement for the fulfilment of the demands of the Doctor of Philosophy degree in Philosophy & Policy Studies in Education.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received approval from the Research Ethics Committee of UFS. A copy of the approval letter can be obtained from the researcher:

Approval number: UFS-HSD2017/1006

WHY ARE YOUR INSTITUTION/ORGANISATION/COMPANY INVITED TO TAKE PART IN THIS RESEARCH PROJECT?

In a bid to provide answers to the main research question, a purposive sample will entail 85 female pupils who did and passed science subjects at Ordinary Level, which are a pre-requisite for one to progress with them at Advanced Level. Therefore participants to be source of information will be those female pupils who chose to do science subjects and those doing other combinations at Advanced level. These identified participants will be considered a rich source of lived experiences, memories and expectations pertaining to the issue under discussion. The target population was identified from the analysis of provincial Ordinary and Advanced Level enrolment statistics, where this gap was noted and it drew my attention. Contact details of the participants will be sought through the structures in the Ministry of Primary and Secondary Education.

WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?

In this study participants will be involved in focus group discussions and semi-structured interviews. These methods of data generation will be centred on the following major themes: General demographic questions, laws and policies that direct education for girls in general and science education in particular and main discourses amongst female pupils on their progression in education, particularly in the context of Advanced Level science subjects. The expected duration of the semi-structured interviews and focus group activities will be thirty and sixty minutes respectively. During data interactions in semi-structured interviews and focus groups due to diversity in terms of belief systems, some participants might feel offended when their customs are being critiqued. It is against this background that during my introductory remarks I will highlight that no dialect, culture or religion will be looked down upon in the discussions, hence participants will be encouraged to be factual in their contributions without offending other in the process.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

My concern is that although policy pronouncements were made on gender equality in various spheres of life, for rural female pupils in Zimbabwe, this is still a pipe dream for them to progress in Advanced Level science subjects. It is therefore the purpose of my study to generate data, which will form informational base to gain insight into socio-cultural and socio-economic factors influencing female pupils' progression in Advanced Level science subjects within the context of Matabeleland North Province. The value of my study subsequently lies within the likelihood of emphasizing not only societal factors influencing female pupils' progression, but also winds up with recommendations, which expedites their progression in science subjects in the province. To guarantee that their identity will remain confidential pseudonyms will be used. In this case they will be given the privilege to select their own pseudonym and this name will be noted during the recording, transcribing, analysis, interpretation and during report compilation. This data will not be given to any third party in any manner, which could identify the participants. I will be the only one to gain access to the recorded audios. Individual data, which can allow for the identification of participants will not appear in any of my reports, thesis or other work that will be produced from the information generated from them.

WHAT IS THE POTENTIAL RISKS TAKING PART IN THIS STUDY?

I anticipate that participants will experience emotional disturbance of revoking examination fever, results collection and decision making process. In this regard I will be prepared to deal with participants' regrets on decision making process and those who will put the blame on their parents or guardians when it comes to doing science subjects or not at Advanced Level.

WILL THE INFORMATION BE KEPT CONFIDENTIAL?

As this study involves human subjects, it requires the safeguarding of information, which they disclose in a relationship of trust and with the expectation that it will not be disclosed to others without their permission, except in ways that are consistent with the original disclosure. In this context it requires investigator's agreement through participants' informed consent about how their information will be handled, managed and disseminated. This will be done at the initial stages of the study as confidentiality agreements will be acquired through the signing of informed consent forms and building trust with participants. In this study the keeping of data confidential will involve the putting of codes as participants' identifiers, for example their names will be replaced with pseudonyms and storing data in locked cabinets. Participants will be informed on the extent to which confidentiality of their data will be maintained during all phases of the study, including who will have access to the data, what security measures will be used, and where data will be stored. The issue of keeping participants' identities confidential will be considered vital due to the sensitivity of some issues, which might be discussed in the investigation.

HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?

Paper files containing data generated from interviews will be securely stored, with access to them restricted only limited to the supervisor, co-supervisor and the principal investigator. These will be locked in file cabinets in a preferably secure location (locked office) at the campus for a period of five years for future research and academic purposes. With digital records (electronic files and digital recordings) in this study will be stored in password protected files, preferably on university maintained server with regular and secured back-up. Tapes and other media supporting devices (USB) to be used for audio and/or video recordings will be stored in same way as paper records. Destruction of records will be performed in a way, which protects the confidentiality of participants. In this context paper records will be shredded, with tapes (audio) being erased and physically destroyed and the electronic media used to store data will be scrubbed after files are deleted. I will keep records stating what records will have been destroyed and when and how it was done. In the data, which will be retained it will be de-identified for future analysis in the context of why the study will have been generated for. Data will be considered completely de-identified when all links between individual identity and the data destroyed. I will not consider the data de-identified simple because names are removed instead if they still have information, which might identify the participants such as address, date of birth.

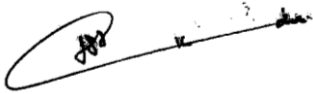
WILL THERE BE PAYMENT OR ANY INCENTIVES FOR PARTICPATING IN THIS STUDY?

In this study selected participants will not receive any form of payment or incentives for taking part in data generation activities.

HOW WILL THE INSTITUTION/ORGANISATION/COMPANY BE INFORMED OF THE FINDINGS/RESULTS OF THE STUDY?

For the feedback in terms of the findings of the study please contact: Mr. Chikuvadze Pinias on +263 777 358 002 or chikuvadzepinias@gmail.com. In case you might require further information on any aspect of the study please feel free to contact the study promoter Prof Lynette Jacobs on (+27) 51 505 1289 or JacobsL@ufs.ac.za or co-promoter Dr. Adré le Roux (+27) 51 401 2292 or lerouxad@ufs.ac.za.

Yours sincerely



Chikuvadze Pinias

APPENDIX 2: PERMISSION LETTER FROM THE MINISTRY OF PRIMARY AND SECONDARY EDUCATION

*All communications should be addressed to
"The Secretary for Primary and Secondary
Education"
Telephone: 799914 and 705153
Telegraphic address: "EDUCATION"
Fax: 791923*



ZIMBABWE

Reference: C/426/3
Ministry of Primary and
Secondary Education
P.O Box CY 121
Causeway
Harare
ZIMBABWE

3 January 2018

Pinias Chikuvadze
20 620 Pumula South
P. O. Pumula
Bulawayo
Zimbabwe

**RE: PERMISSION TO CARRY OUT RESEARCH IN MATABELELAND NORTH
PROVINCE: BINGA; BUBI; HWANGE; LUPANE; NKAYI; TSHOLOTSHO
AND UMGUZA DISTRICTS**

Reference is made to your application to carry out a research in the above mentioned districts in Matabeleland North Province on the research title:

**"AN INVESTIGATION ON FEMALE PUPILS' PERSPECTIVE ON SOCIETAL
FACTORS INFLUENCING THEIR PROGRESSION IN ADVANCED LEVEL
SCIENCE SUBJECTS IN ZIMBABWE"**

Permission is hereby granted. However, you are required to liaise with the Provincial Education Director Matabeleland North, who is responsible for the districts which you want to involve in your research. You are required to seek consent of the parents/guardians of all learners who will be involved in the research.

You are required to provide a copy of your final report to the Secretary for Primary and Secondary Education.

Dr. S. J. Utete-Masango
For: **SECRETARY FOR PRIMARY AND SECONDARY EDUCATION**



APPENDIX 3: RESEARCH STUDY INFORMATION LEAFLET AND PARENTAL CONSENT FORM

DATE

November 2017 – November 2018

TITLE OF THE RESEARCH PROJECT

Female pupils' perspective on societal factors influencing their progression in Advanced Level science subjects in Zimbabwe

RESEARCHERS NAME(S) AND CONTACT NUMBER:

Chikuvadze Pinias (Student number 2015333988) Phone +263 777 358 002

FACULTY AND DEPARTMENT:

Faculty of Education, School of Education Studies

STUDYLEADER(S) NAME AND CONTACT NUMBER:

Prof Lynette Jacobs +27 (0)51 505 1289

WHAT IS RESEARCH?

Research is something we do find new knowledge about the way things (and people) work. We use research projects or studies to help us find out more about children and teenagers and the things that affect their lives, their schools, their families and their health. Research also helps us to find better ways of helping, or treating children who are sick. We do this to try and make the world a better place!

WHAT IS THIS RESEARCH PROJECT ALL ABOUT?

Framed by the qualitative approach and transformative-emancipatory paradigm, this study will provide insights from female pupils' perspective on societal factors influencing their progression in Advanced Level science subjects. This will therefore provide the basis for understanding barriers undermining their progression and will guide me to provide comments on what best can be done to attain impartiality in science subjects in the Zimbabwean context.

WHY HAVE YOUR CHILD BEEN INVITED TO TAKE PART IN THIS RESEARCH PROJECT?

In a bid to provide answers to the main research question, the sample will entail female pupils who did and passed science subjects at Ordinary Level, which are a pre-requisite for one to progress with them at Advanced Level. Therefore, participants to be source of information will be those female pupils who chose to do Advanced level science subjects and those doing other combinations. These identified participants will be considered a rich source of lived experiences, memories and expectations pertaining to the issue under discussion.

WHO IS DOING THE RESEARCH?

I am Chikuvadze Pinias, a Principal Curriculum and Research Officer, in the Department of Quality Assurance and Standards (Curriculum Research and Development), Ministry of Higher and Tertiary Education, Science and Technology Development, Zimbabwe, conducting this study a requirement for the fulfilment of the demands of the Doctor of Philosophy degree in Philosophy & Policy Studies in Education.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received approval from the Research Ethics Committee of UFS. A copy of the approval letter can be obtained from the researcher:

Approval number: UFS-HSD2017/1006

WHAT WILL HAPPEN TO YOUR CHILD IN THIS STUDY?

Participants' involvement is dependent upon their parents or guardians' consent, with them assenting to be part of the sample for the study. Participants during data generation will be involved in personal interviews and focus group discussions. It should be noted that during this data generation ethical considerations will be taken care of.

CAN ANYTHING BAD HAPPEN TO YOUR CHILD?

I will take a supportive role during the discussions, as narrating possible negative experience can be therapeutic. In case participants encounter any challenges during discussions in data generation, I will encourage them to tell their parents or guardians. With their permission, I will report it to the schools authorities for support.

CAN ANYTHING GOOD HAPPEN TO YOUR CHILD?

In this study, it is assumed that the knowledge generated will enable participants to be aware of societal factors' influence with regards to their progression in science subjects, barriers they encounter in their progression and possible strategies, which can be used to overcome them.

WILL ANYONE KNOW YOUR CHILD IS PART OF THE STUDY?

Data to be generated will not be given to any third party in any manner. I will be the only one to gain access to the recorded audios. Any identifiable information will be removed before I even share it with my supervisor. Individual data, which can allow for the identification of participants will not appear in any of my reports, thesis or other work that will be produced from the information generated from them.

WHO CAN YOU TALK TO ABOUT THE STUDY?

Prof Lynette, Jacobs (Promoter) (+27 51 505 1289), Dr. Adré le Roux (Co-Promoter) (+27 51 401 2292) and Mr. Pinias Chikuvadze (Investigator) (+263 777 358 002)

WHAT IF YOU DO NOT WANT YOUR CHILD TO DO THIS?

In this study participation is voluntary and there is no penalty for non-participation. In my study participants are under no obligation to assent their participation, if they decide to take part, they will be asked to sign a written assent forms. Participants are free to withdraw at any time and without giving a reason.

PLEASE RETURN

Name of child: _____

Name of Parent: _____

- Do you understand this research study and are you willing to let your child take part in it? Yes ☐ No ☐
- Has the researcher answered all your questions? Yes ☐ No ☐
- Do you understand that you can withdraw from the study at any time? Yes ☐ No ☐
- I give the researcher permission to make use of the data gathered from my child's participation Yes ☐ No ☐

Signature of Parent

Date

APPENDIX 4: RESEARCH STUDY INFORMATION LEAFLET AND PARTICIPANT ASSENT FORM

DATE

November 2017 – November 2018

TITLE OF THE RESEARCH PROJECT

Female pupils' perspective on societal factors influencing their progression in Advanced Level science subjects in Zimbabwe

PRINCIPAL INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):

Chikuvadze Pinias (Student number: 2015333988) Phone +263 777 358 002

FACULTY AND DEPARTMENT:

Faculty of Education, School of Education Studies

STUDY LEADER(S) NAME AND CONTACT NUMBER:

Prof Jacobs Lynette +27 (0)51 505 1289 / +27 79525 2525

WHAT IS RESEARCH?

Research is something we do to find new knowledge about the way things and people work. We use research projects or studies to help us find out more about children and teenagers and the things that affect their lives, their schools, their families and their health. Research also helps us to find better ways of helping, or treating children who are sick. We do this to try and make the world a better place!

WHAT IS THE AIM/PURPOSE OF THE STUDY?

This study will provide insights on societal factors influencing female pupils' progression in Advanced Level science subjects. This aim will be attained based on understanding of challenges undermining their progression and guide me to provide comments on what best can be prepared to attain impartiality in science education in the Zimbabwean context.

WHO IS DOING THE RESEARCH?

I am Chikuvadze Pinias, a Principal Curriculum and Research Officer, in the Department of Quality Assurance and Standards, Ministry of Higher and Tertiary Education, Science and Technology Development, Zimbabwe, conducting this study as a requirement for the fulfilment of the demands of the Doctor of Philosophy degree in Philosophy & Policy Studies in Education.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received approval from the Research Ethics Committee of UFS. A copy of the approval letter can be obtained from the researcher:

Approval number: UFS-HSD2017/1006

WHY ARE YOU INVITED TO TAKE PART IN THIS RESEARCH PROJECT?

In a bid to provide answers to the main research question, the sample will entail female pupils who did and passed science subjects at Ordinary Level, which are a pre-requisite for one to progress with them at Advanced Level. Therefore participants to be source of information will be those female pupils who chose to do Advanced Level science subjects and those doing other combinations. These participants will be identified from the respective school enrolment registers with the permission from responsible authorities. The target participants will be purposively sampled as they are considered to be a rich source of lived experiences, memories and expectations pertaining to the issue under discussion. For this study my sample will be comprised of twenty-five participants to be selected from those who chose not to do science subjects at Advanced Level and twenty doing science subjects at Advanced Level.

WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?

In this study participants will be involved in focus group discussions and semi-structured interviews. These methods of data generation will be centred on the following major themes: General demographic questions, laws and policies that direct education for girls in general and science education in particular and main discourses amongst female pupils on their progression in education, particularly in the context of Advanced Level science subjects. The expected duration of the semi-structured interviews and focus group activities will be thirty and sixty minutes respectively. During data interactions in semi-structured interviews and focus groups due to diversity in terms belief systems some participants might feel offended when their customs are being critiqued. It is against this background that during my introductory remarks I will highlight that no dialect, culture or religion will be looked down upon in the discussions, hence participants will be encouraged to be factual in their contributions without offending other in the process.

CAN THE PARTICIPANT WITHDRAW FROM THE STUDY?

Participation is voluntary hence at any given time participants are free to withdraw from the study without giving an explanation to that effect and no one will be penalised for taking that decision. Therefore involvement in this study will be voluntary and participants will not be coerced to participate in the data generation activities. Those who decide to participate in this study will be requested to sign the written consent form attached.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

In this study it is assumed that knowledge to be generated will enable participants to be aware of societal factors' influence with regards to their progression in science subjects, barriers they encounter in their progression and possible strategies, which can be used to overcome them.

WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?

I anticipate from the participants emotional disturbance of revoking examination fever, results collection and decision making process. In this regard I will be prepared to deal with participants' regrets on decision making process and those who will put the blame on their parents or guardians when it comes to doing science subjects or not at Advanced Level.

WILL WHAT I SAY BE KEPT CONFIDENTIAL?

As this study involves human subjects, it requires the safeguarding of information, which they disclose in a relationship of trust and with the expectation that it will not be disclosed to others without their permission, except in ways that are consistent with the original disclosure. In this context I will agree with participants through informed consent about how their information will be handled, managed and disseminated. This will be done at the initial stages of the study as confidentiality agreements will be acquired through the signing of informed consent forms and building trust with participants. In this study the keeping of data confidential will involve the putting of codes as participants' identifiers, for example their names will be replaced with pseudonyms and storing data in locked cabinets. Participants will be informed on the extent to which confidentiality of their data will be maintained during all phases of the study, including who will have access to the data, what security measures will be used, and where data will be stored. The issue of keeping participants' identities confidential will be considered vital due to the sensitivity of some issues, which might be discussed in the investigation.

HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?

Paper files containing data generated from interviews will be securely stored, with access to them restricted only limited to the supervisor, co-supervisor and the principal investigator. These will be locked in file cabinets in a preferably secure location (locked office) at the campus for a period of five years for future research and academic purposes. With digital records (electronic files and digital recordings) in this study will be stored in password protected files, preferably on university maintained server with regular and secured back-up. Tapes and other media supporting devices (USB) to be used for audio and/or video recordings will be stored in same way as paper records. Destruction of records will be performed in a way, which protects the confidentiality of participants. In this context paper records will be shredded, with tapes (audio) being erased and physically destroyed and the electronic media used to store data will be scrubbed after files are deleted. I will keep records stating what records will have been destroyed and when and how it was done. In the data, which will be retained it will be de-identified for future analysis in the context of why the study will have been generated for. Data will be considered completely de-identified when all links between individual identity and the data destroyed. I will not consider the data de-identified simple because names are removed instead if they still have information, which might identify the participants such as address, date of birth.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

In this study selected participants will not receive any form of payment or incentives for taking part in data generation activities.

HOW WILL THE PARTICIPANT BE INFORMED OF THE FINDINGS / RESULTS OF THE STUDY?

If you would like to be informed of the final research findings, please contact Chikuvadze Pinias on +263 777 358 002 or chikuvadzepinias@gmail.com. In case you might require further information on any aspect of the study please feel free to contact the study promoter Prof Lynette Jacobs on (+27) 51 505 1289 or JacobsL@ufs.ac.za or co-promoter Dr. Adré le Roux (+27) 51 401 2292 or lerouxad@ufs.ac.za

Thank you for taking time to read this information sheet and for participating in this study.

ASSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my assent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet. I have had sufficient opportunity to ask questions and am prepared to participate in the study. I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable). I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

I agree to the recording of the *inserted specific data generation method*.

I have received a signed copy of the informed consent agreement.

Full Name of Participant: _____

Signature of Participant: _____ Date: _____

Full Name(s) of Researcher(s): _____

Signature of Researcher: _____ Date: _____

APPENDIX 5: FOCUS GROUP DISCUSSION SCHEDULE

Introduction: Welcome and thank you for coming forward to take part in this discussion. You have been requested to play a part as your point of view is important.

This discussion is designed to gain insight into your current thoughts and feelings about your experiences as female pupils in science subjects. The discussion will take no more than two hours. May I audio-tape this discussion to make easy looking back? (If yes, switch on the recorder).

Ethical issues: In spite of the proceedings being put on tape, I would like to give surety that it will be anonymous beyond this discussion. The records will be kept securely in a tamper-proof facility until they are transliterated word for word. As soon as the research is complete, it will be shredded. The transcripts of the discussions will not contain any personal information. It will not be possible to link any individual participants with particular statements. Answer back and comment as precisely and candidly as possible.

In order to protect all participants, the discussions should remain confidential within this group. Please do not discuss anything beyond the discussion here. If you feel afterwards that there are issues that you want to raise, please raise it directly with me. If there are any questions that you might not desire to take part in, you are not obliged; however please try to be immersed in the discussion as possible.

Ground rules

- Only one participant speaks at a time (There may be a temptation to jump in when someone is talking but please wait until they have finished).
- There are no right or wrong answers
- You do not have to speak in any particular order
- When you do have something to say, please indicate by lifting your hand slightly.
- You do not have to agree with the views of other participants in the group
- Does anyone have any questions? (Answers)
- OK, let's begin

Warm up

- First, I do like to give the participants numbers, which will be used for identification purposes during the discussion) (previous speaker).

Introductory question

I will give you a couple of minutes to think about your experience in science subjects either at Ordinary or Advanced Level. Is there anyone who is happy to share it with us?

Guiding questions

1. Which law(s) and policies support female pupil's progression in education in general and Ordinary or Advanced Level science subjects in particular?
2. How has legislation been crafted towards the inclusion of the females in education and science subjects in particular?

-
3. How do laws and policies encourage or cut down female pupils' progression in education in general and in particular in science subjects?
 4. Does your school have a gender policy? How is it used to advance interests of female pupils in education in general and science subjects in particular?
 5. Explain how the level of education of family members influences female pupils' progression in education in general and science subjects in particular.
 6. How does family background (social, political, economic and religious) influence female pupils' progression in education in general and science subjects in particular?
 7. Could you specify other factors, you think might object to or promote female pupils' progression in education in general and Advanced Level science subjects in particular?
 8. How do these contribute to female pupils' progression in Advanced Level science subjects?
 9. What perceived barriers weigh in to female pupils' under-representation in Advanced Level science subjects?
 10. How do perceived barriers slow down female pupils' progression in Advanced Level science subjects?
 11. What strategies can be employed to deal with barriers encountered by female pupils in their progression in Advanced Level science subjects?

Concluding question

- Of all the things we have discussed in this session, what would you say are the most important issues?

Conclusion

- Thank you for taking part. This has been a very fruitful conversation
- Your sentiments will be appreciated in this study
- We hope you have found the dialogue thought-provoking
- I wish once again to let you know that any remarks starring in this study will remain anonymous

APPENDIX 6: INTERVIEW GUIDE

Thank you for agreeing to be interviewed. My study focus particularly on societal factors influencing female pupils' progression in Advanced Level science subjects in rural secondary schools. As an Advanced Level pupil, I believe you can make a significant contribution with regard to gaining insight into the issue under investigation.

I am going to ask you some questions, which you are free to elaborate in ways you consider fit. In case you do not feel like answering the question, you are at liberty to say so. I would like to let you know from the start that your personal and school details will not be included in the final report. In addition, transcribed interviews will be available to you and you will be accorded the opportunity to make corrections on areas, deemed inaccurate or should be withdrawn or something should be added to it.

1. What are the norms and values defining femininity and masculinity in your culture?
2. What are the roles and obligations of females and males in your tradition?
3. Do you know of any legislation that has been crafted as affirmative action towards the inclusion of the females in education and Advanced Level science subjects in particular?
 - How do the legislation and policies assist you or not to create an environment conducive to female progression in education and Advanced Level science subjects?
4. Are you aware of any education policies that guide selection of pupils at Advanced Level?
 - How do these policies influence female pupils' choice when it comes to area of specialization at Advanced Level?
5. Does your school have a gender policy?
 - How is it used?
6. How did you select these subjects?
 - What role did your parents or guardians play in the choice of area of specialization at Advanced level?
 - Which part does gender play in the selection of subjects at Advanced Level?
 - Why do you think more males participate in science subjects at Advanced Level?
7. You can easily relate with males and/or females? Why?
 - Pupils have been observed opting out of Advanced Level what do you think are the reasons for males or females dropping out of the subjects?
8. Do you feel that you are part of Advanced Level science subjects group? (Explain).
9. Would you encourage other female pupils to pursue Advanced Level science subjects? Why?
 - Do you think the home environment can influence female pupil's progression in Advanced Level science subjects? Why?
 - To what do you relate the success or failure of female pupils in Advanced Level science subjects? Why?
 - Which societal practices promote or discourage female pupils from participating in Advanced Level science subjects? Why?

10. Thank you for your co-operation