An Investigation into Gender Differences in Participation in Higher Education among Final Year Secondary School Students in Cameroon

By

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Declaration

I wish to declare that this thesis is my own work, and this thesis or any part of it, has not been submitted for a degree at another university.

Abstract

The importance of female education is gradually being recognised and gender equality in education has been promoted through different international commitments (e.g., EFA, MDGs and SDGs). However, in sub-Saharan Africa, educational gender inequality remains, and the higher education participation rate is still low. Cameroon, in particular, has a low higher education participation rate compared with developed countries, along with gender gaps in participation in higher education. Students, particularly female students, might face barriers to participation in higher education in Cameroon. Therefore, this study was designed to investigate barriers to participation in higher education in Cameroon for final year secondary school students, with a particular focus on gender differences.

The conceptual framework for this study was based on the studies by Hyde (1993) and Gorard et al. (2007). Five types of barriers were discussed: economic barriers, socio-cultural barriers, institutional barriers, family barriers and personal barriers. This longitudinal study adopted an explanatory sequential mixed methods research design. In total, 1,975 questionnaires were collected with students from 14 schools in Cameroon, and 25 semi-structured interviews and 14 follow-up interviews were conducted. The questionnaire data was analysis through univariate, bivariate and multivariate analysis methods, interview data was analysis through thematic analysis.

This study revealed no gender differences regarding students' attitudes towards participation in higher education – both females and males were positive about continuing to higher education. However, their preferred higher education institutions and subject streams varied by gender. Parental and institutional factors were shown to be associated with students' higher education attitudes and choices. Strong gender stereotyped views were revealed from the interviews, yet these did not influence their attitudes towards higher education, implying that education might have provided a 'sanctuary' place for those final year students and they were somewhat insulated from the gender-biased views of wider society. The results of this study suggest that, if females can remain in education longer, their aspirations

to attend higher education will be similar to those of males. Therefore, one implication for policy makers is to intervene at earlier stages of education to ensure that females remain in the education system longer. Furthermore, the regional and institutional imbalance within Cameroon should also be dealt with by policy makers. Parents and students themselves should also change their mind sets and attitudes towards higher education.

Chapter One : Introduction

1.1 Introduction

There are concerns regarding gender equality in education in Cameroon, particularly gender equality in higher education. Females have a subordinated place in Cameroon society, and they are generally disadvantaged in obtaining education. To a certain degree, all students face challenges in getting access to education in Cameroon, but it is especially challenging for females remain in secondary school and also to access higher education (Johannes and Noula, 2011; UNESCO, 2010).

Over the past few decades, the worldwide increase in women's participation in higher education has been one of the most significant advances made in relation to gender equality (Mullen and Baker, 2015). International organisations (e.g., UN, UNESCO, World Bank) have made considerable efforts to improve gender equality in education and numerous studies have been conducted that focus on gender equality and widening participation (WP) in higher education (HE). However, most of these studies are based in the Western context and comparatively modest attention has been paid to developing countries, particularly Cameroon in sub-Saharan Africa (SSA) (e.g., Batey et al., 1999; Bowers-Brown, 2006; Casanova, 2015).

This study therefore is designed to investigate barriers to participation in higher education for final year secondary school students in Cameroon, with a particular focus on gender differences. The conceptual framework of this study is rooted in the classifications of Hyde (1993) and Gorard et al. (2007). The framework comprises five types of barriers: economic barriers, socio-cultural barriers, institutional barriers, family barriers and personal barriers. With this conceptual framework I aim to explore students' perceived barriers and experienced barriers in the process of participation in higher education and whether or not gender differences exist.

This chapter has five sections and starts with the brief introduction, followed by personal motivations for the study, a statement of the problem and the significance of the study. The chapter ends by explaining the structure of the thesis.

1.2 Personal motivation for the study

This study is motivated by my personal experience as a girl growing up in China, and also my experience as a volunteer Chinese language teacher in the Confucius Institute in Cameroon. When I was young, I was raised in a town near Confucius's hometown, and there was a very strong gender-stereotyped atmosphere based on traditional values. Specifically referring to gender, my grandma always told me that she liked my brother more than me, because I'm a girl and I will not belong to our family after I get married. My brother, on the other hand, is the one who is going to take care of the whole family and he is going to be the future of our family. When I was young, I was able to attend family events as a kid, such as marriages and funerals. However, as I got older, I was not obligated to attend unless I got married. Growing up in a small town filled with these kind of values, I didn't realise it was a problem until I left my hometown; meeting people with different experiences made me aware of the different values people might have and I started to reflect on why I, as a girl in the family, should be treated differently to my brother, and why we were not equally important for the family.

This doubt hit me again when I was in Cameroon. I chose to be a volunteer Chinese language teacher in Cameroon because my MA study was about African education and I was curious about what an African country truly looked like and how their education system was run. I applied for the volunteer Chinese language teacher project and was selected by the Confucius Institute Headquarters (Hanban) to be a Chinese teacher in Cameroon. The one-year experience there reminded me of what I had been through when I was young. Some of the Cameroonian girls told me that housework was theirs and their mothers' responsibility, while the fathers were

only responsible for earning money for their family – they did not need to do any housework at home. Their families also favoured boys over girls. Furthermore, my personal working experience left me with the impression that males were believed to have much more ability than females. For example, in the primary school where I taught Chinese language with a male Chinese colleague, most of the time the teachers from this school would speak to my colleague first and then to me. They also believed that my colleague was better than me at French speaking, which was not true. This also happened off campus. One day I went to buy something from a shop and I was happily talking with the shopkeeper in English, but the moment my colleague came into the shop she stopped talking with me immediately and started to talk with my colleague in French. She subconsciously thought that my colleague could speak French, although I had told her that our French was not good.

All those experiences inspired my research interest. I want to investigate the attitudes of students and their families towards receiving higher education, if gender discrimination exists in the schooling process, and whether or not gender plays a role in influencing students' participation in education.

1.3 Statement of the problem

Education was defined as a fundamental human right in the United Nations Universal Declaration of Human Rights in 1948 (UN, 1948) and the last several decades have witnessed increasing attention on education and the gaining of equal access to education (e.g., Ara and Malik, 2012; Balatchandirane, 2003; UNESCO-EFA, 2007). In Cameroon, providing a basic education for all children is the duty of the government; the Cameroonian constitution guarantees children's rights to education, and public primary education is compulsory and open to all children, regardless of gender, religion or tribe (UNESCO-IBE, 2006). Progress has been made in widening access to primary and secondary education for both girls and boys in Cameroon– the past decade has witnessed an increase in the completion

rate for primary education from 16.3% to 74.2% (JICA, 2015). Furthermore, by 2014, the number of girls per 100 boys in primary education was 99 while the figure for secondary education was 98. The picture of primary and secondary education in Cameroon is getting brighter. However, in higher education in Cameroon, increasing and widening access and achieving gender equality are still goals that require considerable effort.

Figures1-1 and 1-2 below indicate the gross enrolment ratio (GER)1 (the main indicator of participation rates) (Morley, 2012) in tertiary education in several regions of the world and in Cameroon. First of all, there was a big gap in 2012 between the GER in Cameroon and the world average level, and the gap between Cameroon and developed countries, North America and Western Europe, was much larger. For example, according to World Bank (2016), the GER in tertiary education in Cameroon was 11.93% in 2011, while that figure for developed countries was 76.3% and for developing countries was 24.23%. Although Cameroon has improved in terms of GER, compared to the SSA average level; it still lags behind the world average level for access to higher education. Simultaneously, regarding the GER in Cameroon, there was always a gender gap. The male gross tertiary enrolment in Cameroon is always higher than that of the female tertiary enrolment ratio. In 2011 that figure for male students was 13.7%, while it was 10.1% for females. The GERs have been continually increasing – by 2016 the male GER was 21.4% and female GER was 16.9%.

[1] According to the UNESCO Institute for Statistics (UIS), the gross enrolment ratio (GER) is used to measure the level of participation in a given level of education. It is calculated by expressing total enrolment in a specific level of education, regardless of age, as a percentage of the population in the theoretical age group for the same level of education. For example, for the tertiary level, the population used is that of the five-year age group following the official secondary school graduation age. UNESCO. 2016. *Gross enrolment ratio definition* [Online]. UNCESO. Available: http://uis.unesco.org/en/glossary-term/gross-enrolment-ratio [Accessed 15 December 2016].

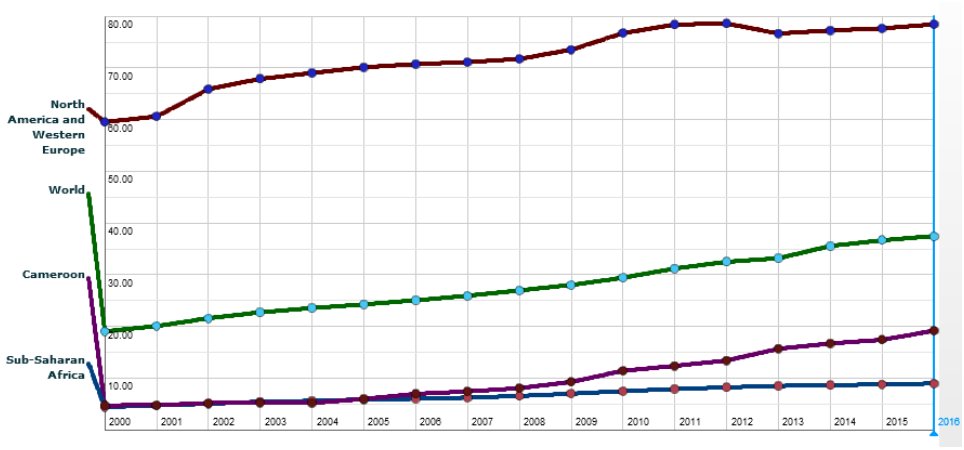

Figure 1-1 Gross enrolment ratio, tertiary, both sexes (%)

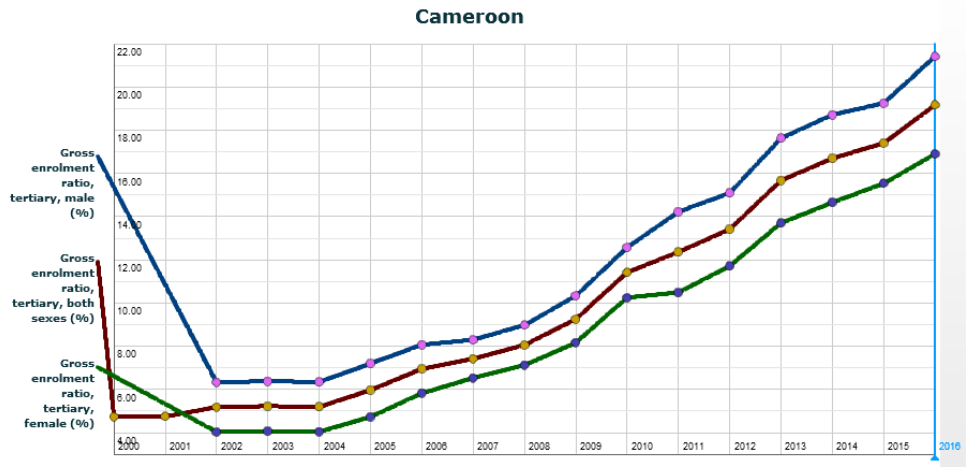

Figure 1-2 Gross enrolment ratio, tertiary, male & female in Cameroon (%)

Source: UNESCO, UIS (2016)

Considering the relatively bleak picture of the higher education enrolment rate in Cameroon, coupled with the importance of gender equality and equal access to higher education, the purpose of this study is to examine gender differences in participation in higher education in Cameroon and specifically the possible barriers to participation in higher education. With this in mind, the research has the following research questions:

1. To what extent are there gender differences in attitudes towards participation in higher education among final year secondary school students?

2. What are the perceived barriers to participation in higher education among final year secondary school students?

3. What are the actual barriers experienced by final year secondary school students that influence their participation in higher education?

1.4 Significance of the study

Investigating gender differences and students' barriers to participation in higher education in Cameroon can enrich our knowledge with respect to gender equality and access to higher education. As the country has a rich multi-cultural background (see Chapter 2.2), it can also provide us with important insights to advance our understanding of similar situations in other countries. Being a longitudinal study, this study follows up students from secondary school to higher education, which ensures rich data and generates a clearer picture of the higher education participation process in Cameroon.

Furthermore, understanding the gender differences in participation in higher education in Cameroon could attract attention from education stakeholders, such as parents, education practitioners, researchers, and policy makers, enabling them to recognise the importance of gender equality and promoting equal access to higher education. Findings from this research will be helpful to increase and promote fairer access to higher education in Cameroon. Furthermore, this study is based on a wider conceptual framework, bringing a much richer series of potential barriers into the analysis and enabling a more comprehensive analysis of the determinants of access to higher education. Finally, while international organisations focus on primary and secondary education through targets such as EFA (Education for all) and MDGs (Millennium development goals), this study specifically focuses on gender equality from secondary education to higher education, which can broaden and complement the international focus. This is also in line with the new SDGs which put forward the equal and affordable higher education for both male and female.

1.5 Structure of the thesis

This thesis consists of ten chapters. Starting with the introduction chapter, the personal motivation of the study was first proposed, followed by the statement of the problem. The significance of the study as well as the structure of the thesis were demonstrated in the final part of this chapter.

The second chapter is the background chapter, which sets up the context and rationale of this study. With a brief context of the national background and development history of the country, this chapter focuses on presenting the current education system in Cameroon, including secondary education and higher education, the Anglophone and Francophone subsystems, public and private school systems and the policies regarding gender and education in Cameroon. With an understanding of the basic education system in Cameroon, the next section demonstrates the current situation of access to education and gender inequality in education in sub-Saharan African countries, with an emphasis on Cameroon.

The third and fourth chapters are the literature review chapters, with a focus on gender and barriers respectively. The third chapter starts with defining the term 'gender' and describing the importance of female education, and it moves on to a discussion of international efforts to promote education and reduce educational gender inequality. Evaluation of international and national commitments is then addressed. The chapter builds up the rationale for promoting educational gender equality. The fourth chapter focuses on investigating barriers to participation in higher education. Starting with identifying the term 'barrier', the conceptual framework follows, which is used to guide the whole research. The main body of this literature review chapter demonstrates the different types of barriers to participation in higher education: personal barriers, family barriers, economic concerns, institutional barriers, and socio-cultural barriers. There is a broad discussion of the barriers generally, but with a specific focus on the SSA context.

The research design chapter, chapter five, describes the research design and methodology adopted in this study. It first presents the mixed methods

research design and the design of research instruments used in the study, then moves on to describe the data collection process, including the pilot study and main study. Ethical considerations, especially the ethical application process in Cameroon are also presented. Coding and data analysis approaches, and detailed model building process are discussed in the final part of this chapter.

Chapters six, seven, eight and nine are the findings chapters. Chapter six is the descriptive chapter presenting the univariate analysis of the data. Chapter seven is the further correlation chapter, exploring the interaction of two variables via bivariate analysis. Chapter eight is the advanced findings chapter building regression models. Chapter nine presents the interview findings and provides an explanation for students' higher education attitudes and choices.

Specifically, as the initial findings chapter, chapter six describes the distribution of the data, including a brief introduction to the schools that participated in this study and background characteristics of the students. A summary of students' attitudinal variables is presented in the final part of the chapter. This chapter establishes the background of the data distribution for further data analysis. Chapter seven focuses on exploring the interaction and relationship between different sets of variables. Starting with factor analysis collapsing students' attitudinal variables, the second section explores predictors related with students' higher education aspiration and choices. Relationships between the background variables and attitudinal variables were examined in the final part of this chapter. This chapter draws an advanced correlation picture of the variables for this study and excludes some of the factors that were not significant for the further multivariate analysis. Chapter eight establishes three models, including a multiple regression model identifying students' attitudes towards higher education, a binary logistic regression model investigating students' subject choices, and a multinomial logistic model predicting factors influencing students' higher education institution choices. The last interview findings chapter provides a detailed explanation of students' higher education choices and attitudes. It begins with a short profile of students and an explanation for their aspirations for higher education. Students' perception of different type of higher education

institutions are also discussed, followed by a detailed illustration of factors influencing students' attitudes and choices. This chapter ends with the summary of actual barriers experienced by students.

Finally, chapter ten is the discussion and conclusion chapter. Referring back to the research questions and research design, it discusses the research findings based on the previously discussed literature. It starts with a summary of the research background, research design and research questions, and then discusses gender issues in, and higher aspirations for, higher education. Subsequently, it demonstrates the factors contributing to students' higher education aspirations and choices. After the main discussion of the findings in terms of the literature, a refined conceptual framework is constructed for this study. The contribution of the study as well as the implications for relevant stakeholders are demonstrated. This chapter ends with limitations of the study and directions for further studies, and a conclusion of the whole thesis.

Chapter Two : Background to the study

2.1 Introduction

This chapter offers a brief background about the country. This overview is helpful to place the issues that are of interest to this research study in the national and regional context, and it narrows down to explain why this study focuses on final year secondary school students. The chapter begins with the national background of Cameroon – a history of the country and its educational development. The second part of the chapter presents the current education system in Cameroon. Access to education and gender inequality in education in sub-Saharan Africa (SSA) and Cameroon are discussed in the last two sections of this chapter.

2.2 National background of Cameroon

Situated mid-way between the West and Central regions of the African continent, Cameroon is often referred to as the hinge between West and Central Africa (Fonchingong and Gemandze, 2009). With approximately 183,500 square miles of territory, it is shaped almost like a triangle, with one coastal corner flanked by the Gulf of Guinea and Nigeria (DeLancey et al., 2010). Cameroon is frequently described as 'Africa in microcosm' or 'Africa in miniature' because it encompasses nearly every type of people and every form of landscape on the African continent (Fonchingong and Gemandze, 2009; West, 2011). Four major geographic zones are distributed in the country, costal lowlands in the south, highlands in the west, plateaus in the centre and south and Cha basin in the far north (UNESCO, 1995a; DeLancey et al., 2010). There are more than 275 ethno-linguistic groups in the country that use approximately 240 languages drawn from three major African languages (the Niger-Congo, Afro-Asiatic and Nilo-Saharan), as well as the European legacy of early trade and colonisation (a distinctive Cameroon Pidgin, German, French and English) (West, 2011). After Cameroon gained

independence in 1961, French and English became the official languages (Nelson et al., 1974). Approximately 80% of the population and eight out of ten provinces in Cameroon are in French-speaking regions, while English is spoken predominantly in the southwest and northwest regions (West, 2011). The country is divided into 10 administrative regions (DeLancey et al., 2010), 58 divisions and 360 sub-divisions (NIS, 2015). In 2014, there were around 22 million inhabitants in Cameroon. Young people were the majority group and 43% of the entire population were less than 15 years old, whereas those of 65 years and above accounted for 3.5% (NIS, 2015). There are three major religious groups in Cameroon, Catholics (38.4%), Protestants (26.3%) and Muslims (20.9%). Yaoundé is the capital city, whilst Douala is the economic centre; they are the largest cities in Cameroon (Nelson et al., 1974) (see the map of the country in Figure 2-1).

Map No. 4227 Rev.1 UNITED NATIONS

Department of Field Support

Figure 2-1 Map of Cameroon

Source: Map No. 4227 Rev.1 United Nations, July 2015

2.3 History of the country and educational development

The history of Cameroon can be divided into three stages: pre-colonial, colonial and independent Cameroon (DeLancey et al., 2010). This section predominantly focusses on the colonial and independent history of Cameroon,

which has a more direct link with the current education system. Nogh (1987) wrote the history of Cameroon from 1884, because 1884 marks the year when the country was colonised by Germany. The end of World War I brought Cameroon a change from colonial rule under Germany to British and French rule (Reid, 2011; Conrad, 2011). From 1916 to 1960, France and Britain administered Cameroon separately. Britain acquired the southwest and northwest of Cameroon, while larger portions of territory were under the control of the French government (Reid, 2011; Nogh, 1987; DeLancey et al., 2010). In 1960, French Cameroon gained independence from France with the first president, Ahmadou Ahidjo. The following year, British Southern Cameroon united with French Cameroon to form the Federal Republic of Cameroon (DeLancey et al., 2010). Ahidjo was in power from 1961 to 1982. Since then Cameroon has been ruled by president Paul Biya (West, 2011).

2.3.1 Pre-colonial and colonial period

The development of education in Cameroon did not take place in isolation and is in line with the national historical development. Therefore, accordingly, the educational history of the nation can also be divided into three time periods: the pre-colonial, colonial and independent periods. During the pre-colonial period, indigenous educational traditions dominated the form of education, and were based on educational practices of communities in different tribes or groups, such as the Bantu, Semi-Bantu, Pahouin and Baya, etc (Nogh, 1987). Islamic education was the dominant education in northern Cameroon during the pre-colonial period and has remained so in northern Cameroon ever since (Nogh, 1987).

By the end of 19th century, European missionaries had introduced Western education to Cameroon, which also marked the start of the colonial education stage (Scanlon, 1964; Nelson et al., 1974). At first, the German colonial government left education programs exclusively to religions groups, but demanded the mission schools taught German language and culture. It then slowly became involved in the educational field by establishing purely

secular schools (Scanlon, 1964). During the pre-World War I (WWI) period the country started to develop a formal education system at primary and secondary level, with the colonial government schools having an emphasis on the necessity for vocational training and practical work. There were four kinds of primary schools in that time period: Bush School, Elementary School, Higher Elementary School and Post Primary courses (vocational and professional schools). Secondary education was classified into middle schools, advanced or secondary schools and seminaries (Fonkeng and Efuetngu, 2007).

Following Germany's defeat in WWI, the country was administered by Britain and France. They developed different education systems in Cameroon based on their own education systems. In French Cameroon there were three types of school: public pre-elementary schools, higher primary schools and mission schools. Public pre-elementary schools were made up of Village schools and Regional schools. Higher primary schools had three distinct sections, namely: teacher training section (Pedagogical section), training of administrative staff (General Education section), and Post and Telecommunications, Nursing, and Agricultural technicians (Technical section). Mission schools by then were of two types, namely the Recognised and Unrecognised. Recognised schools shared a similar curriculum with public schools, while Unrecognised schools were simply catechism schools without any precise programme from the French educational authorities (Fonkeng and Efuetngu, 2007). In British Cameroon, there were four types of primary school, including Government schools, Native (Authority) administration schools, Mission assisted schools and Mission unassisted or Hedge schools (Fonkeng and Efuetngu, 2007). Primary education was the focus of British Cameroon education, and there was no college in British Cameroon until 1939. The first secondary school was opened in 1939 at Sasse in the Victoria Division and the second secondary school was opened about ten years later (1949) (Nogh, 1987; Fonkeng and Efuetngu, 2007). Educational development during the colonial period laid the groundwork for the modern education system in Cameroon (Fonkeng and Efuetngu, 2007).

2.3.2 Independence period

Following independence from Britain and France, Cameroon went through three stages in its independence period: the Federal Republic of Cameroon (1960-1972), the United Republic of Cameroon (1972-1984) and the Republic of Cameroon (1984-). At the beginning of the Federal Republic of Cameroon, the first constitution of 1961 declared the country's official languages to be French and English (Kofele-Kale, 1980). The government kept the tradition of separate education systems from the British and French colonial administrations, which was consistent with the bilingual status of the country. The focus of education development during this period was mainly on reducing mission-organised schools and opening new schools in East Cameroon (Fonkeng and Efuetngu, 2007). In 1961, the government launched a Five-Year Development Plan to promote education development. The first university was built in 1962 in Yaoundé, the University of Yaoundé, and by 1993 was split into two universities (University of Yaoundé I and University of Yaoundé II).

In 1972, the name of the country changed from the Federal republic of Cameroon to the United Republic Cameroon after a referendum, so the educational structures were overturned in favour of a centralised system with some elements of decentralisation (Fonkeng and Efuetngu, 2007). The third Five-Year Development Plan (1971-1976) adjusted the educational efforts' direction towards the training of middle and senior executive personnel required by the economic development, and the fourth Five-Year Development Plan (1976-1981) emphasised the ruralisation of education (Fonkeng and Efuetngu, 2007). This time period witnessed a certain degree of increased enrolment at all education levels, but the University of Yaoundé remained the sole higher learning institution and secondary education was dominated by private agencies (Fonkeng and Efuetngu, 2007).

Table 2-1 The United Republic of Cameroon – educational structure

Age group	3 4 5 6	7 8 9 10 11	12 13 14 15 16 17 18	19 20 21 22 23 24
Level	I	II	III	IV
Stage	1	2	3	4
Compulsory				
School type Examinations	Nursery	Primary: Francophone (6 years) Anglophone (7 years)	Secondary general/ technical: Francophone (4+3 years) Anglophone (5+2 years) Post-primary/ craft centers	Higher education / Professional schools
	(A) External transfer examination and first school certificate		(B) Francophone – BEPC (first cycle) *Baccalauréat* Anglophone – General Certificate of Education: 'O' and 'A' Levels *Baccalauréat* or G.C.E 'A' level for entry to third level or equivalent	University Faculties

Source: Fonkeng and Efuetngu (2007).

In 1982, Paul Biya succeeded Ahmadou Ahidjo as the second president of Cameroon. Two years later, the constitution was again modified and the name of the country was changed from the United Republic Cameroon to the Republic of Cameroon (Nelson et al., 1974; Nogh, 1987). The education system under the Biya government led, with slight changes and developments, to the current education system in Cameroon.

2.4 The current education system

The current education system is an outcome of the lengthy and complicated historical development of the country. As can be seen from the country's history, the education system in Cameroon today is divided into Anglophone

and Francophone sub-systems. There are five separate education levels in both sub-systems (Figure 2-2): nursery education, primary education, secondary education, technical/vocational education and higher education (World Bank, 2014; Nogh, 1987). Examinations must be taken to gain access to higher-level certifications (Fonkeng and Efuetngu, 2007). In Cameroon, providing basic education for all children is the duty of the Cameroon government – the Constitution guarantees children's rights to education. Public primary education is compulsory and open to all children in Cameroon regardless of gender, religion or tribe (UNESCO-IBE, 2006). Figure 2-2 provides an overview of education system in Cameroon.

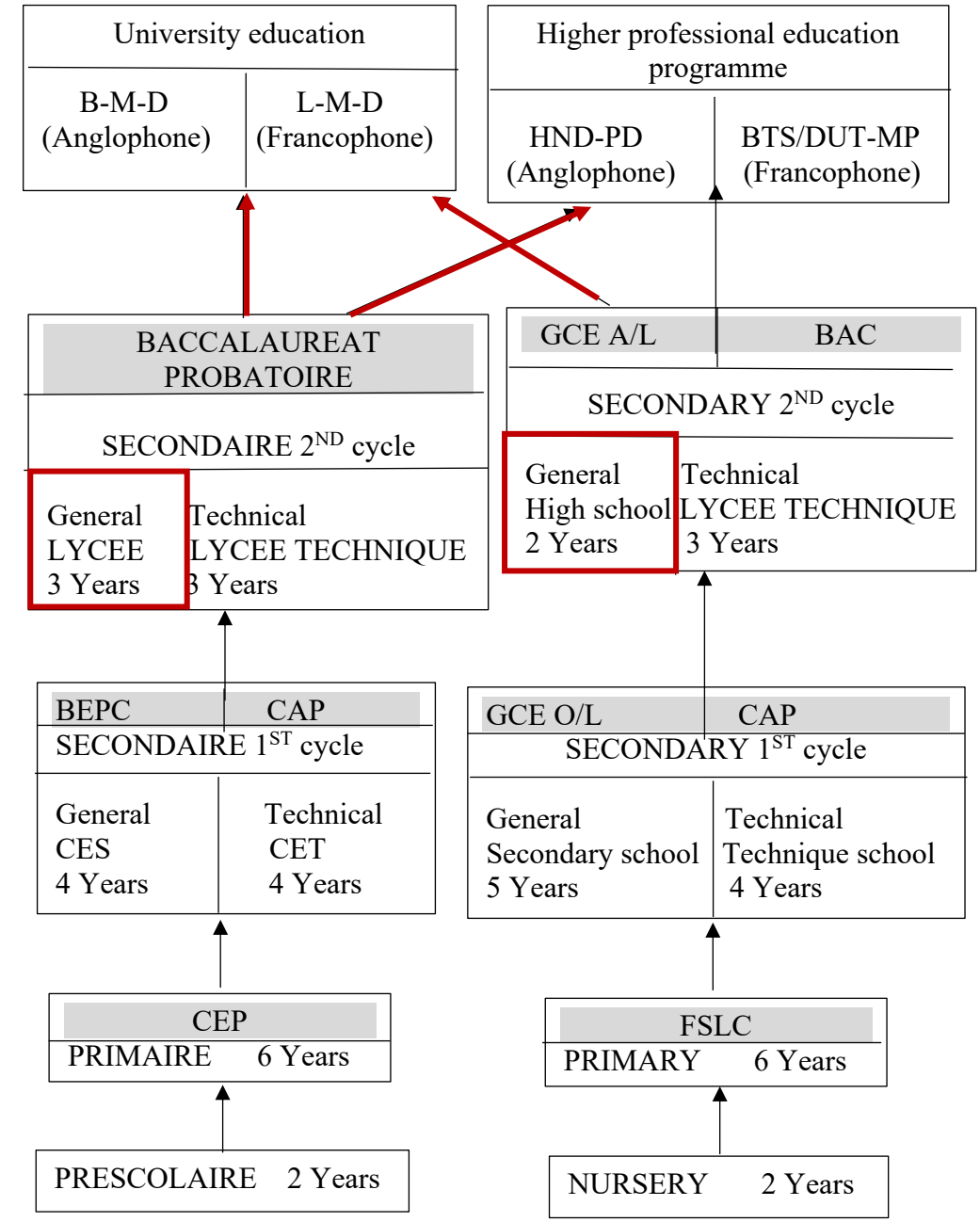

Figure 2-2 Current Cameroon education system

Source: Adapted from UNESCO-IBE (2006)

2.4.1 Secondary education

Secondary education is divided in both sub-systems into general secondary education and technical secondary education. General secondary education qualifications in the British system are the General Certificate of Education, Ordinary Level (GCE O/L) (lower secondary education) and Advanced Level (GCE A/L) (upper secondary education), which are awarded by the General Certificate of Education Board (GCE Board). General secondary education qualifications in the French system are the *Brevet d'Etudes du Premier Cycle du Second Degré* (BEPC) and the *Baccalauréat de l'Enseignement Secondaire,* which are awarded by the *Office du Baccalauréat du Cameroun*. *Baccalauréat* and GCE A/L holders can apply to enter higher education.

Technical secondary education in the British system is roughly the same as the general one, except that the qualification is the General Certificate of Education Commercial or Technical. In the French system, secondary vocational education is taught by *Collèges d'Enseignement Technique Industrielle* (CETIs) at a junior level and *Collèges d'Enseignement Technique Industriel* (CETIs) and *Lycées Techniques* at a senior level. These diplomas grant access to an advanced higher professional education programme (Nogh, 1987; Fonkeng and Efuetngu, 2007; World Bank, 2014).

2.4.2 Higher education

Higher education in Cameroon is divided into higher professional educational programmes and university education. There are variations in admission qualifications for higher education in Cameroon. Specifically, access to higher education requires the obtaining of a *Baccalauréat* (in Francophone system) or GCE A/L (in Anglophone system). In addition to these qualifications, some universities, particularly public professional schools, require students to pass a competitive entrance examination (World Bank, 2014).

Since 2007, the university education system has consisted of B-M-D and L-M-D structures in Anglophone and Francophone systems respectively. These two systems are similar. The Bachelor (B) and *Licence* (L) degree last for three years, the second cycle of the Master (M) and *Maîtrise* (M) degree lasts for one to two years, the 2-year programme grants access to PhD (D) courses. PhDs and *Doctorat du Troisième* are the last cycle and last for three years (World Bank, 2014; Fonkeng and Efuetngu, 2007; Nogh, 1987).

Students graduating from secondary school can also choose to participate in higher professional education programmes. Higher professional education has two cycles. The first cycle is the *Brevet de Technicien Supérieur* (BTS), the *Diplôme Universitaire de Technologie* (DUT) in French and the Higher National Diploma (HND) in the British system. Both systems require two years study prior to grant access to the third year of higher professional education. The third year of higher professional education is the second cycle, which comprise the Postgraduate Diploma and *Maîtrise Professionnelle* respectively (World Bank, 2014; Fonkeng and Efuetngu, 2007).

There are eight public universities in Cameroon and 68 private higher education institutions (contains private universities and private professional schools) by 2010 (DoHE, 2010). The public professional schools are generally independent departments affiliated to public universities. The University of Buea is the only English medium public university, and the University of Bamenda is a public bilingual university located in the English-speaking region. The other six public universities all run on the Francophone model, although they are principally bilingual universities (DoHE, 2010). In Cameroon, the operation of public universities and institutions depends on tuition fees and government funding (UNESCO-IBE, 2006). There are also other sources of finance for education, including donor countries and international bodies, and local councils (Fonkeng and Efuetngu, 2007).

2.4.3 Public sector vs private sector

In addition to the Francophone and Anglophone educational subsystems, there are also public and private education sectors, from nursery to higher education. Private education and public education share the same system, except that the education providers are different. Private education in Cameroon can be traced back to 1844 when the first mission school was opened, and private schools have been an integral part of the education system of Cameroon ever since. In the private sector, schools can be classified as denominational and non-denominational schools (Fonkeng and Efuetngu, 2007). Denominational schools are considered by most parents to be prestigious institutions; they are generally smaller in size, and the campuses are impressive with elaborate recreational facilities and better teaching staff compared to public schools. The non-denominational institutions are mainly a commercial venture, and also offer high standards of teaching and better facilities (Fonkeng and Efuetngu, 2007). All in all, private schools are either religious-related or profit-concerned, with are all providing better education environments. Hence, tuition fees in private schools are expensive by local standards (CamerounWeb, 2017). For example, the tuition fee in an international private secondary school – the American School of Yaoundé – ranges from 2,900,000 CFA (£3,865) to 11,000,000 CFA (£14,662) per year (Hub, 2018). The general private mission schools' tuition fees can be $1000 (£775), while the minimal tuition fee for public secondary school is $60 (£46) per year for day students and $600 (£465) for boarding students (Hali, 2018). Compared with the free primary education, public secondary school tuition fees are already beyond the affordability of many poor families, let alone private secondary school tuition fees (CamerounWeb, 2017). Therefore, the tuition fees for secondary schools might present economic difficulties for students in obtaining access to education, and students who were able to afford to attend private sector education tending to come from relatively affluent families.

Specifically referring to higher education and considering that this study focusses on participation in higher education, there are three types of local

higher education institution that students can choose from: public university, private university and professional school. Public universities are run by the government and aim to train qualified human resources for the country. In order to meet the high demand for higher education in Cameroon, the academic and financial requirements for entrance to public universities are fairly low (Njeuma et al., 1999; Fonkeng and Efuetngu, 2007). The academic requirements for gaining access to public universities are to obtain a *Baccalauréat* in the Francophone system or pass two papers at GCE A/L in the Anglophone system. Tuition fees are low in public universities when compared with other institutions – the general standard tuition fee is 50,000 CFA (approximately £70) per year. The non-selective admission of large numbers of students to public universities results in some problems (Njeuma et al., 1999). Facilities are insufficient for the continuously-rising number of students, for example, lecture halls can be overcrowded with up to 1000 students scrambling for 700 seats (Fonkeng and Efuetngu, 2007; Nyuyfoni, 2016). Public universities are often under-equipped in terms of the infrastructure, short of teachers and have limited internet connectivity. Furthermore, graduates are less qualified and not readily employable (Nyuyfoni, 2016).

Private universities, on the other hand, are generally more profit-driven and most of them have sufficient infrastructure and better facilities (Fonkeng and Ntembe, 2009). However, they are also costly to attend compared with public universities. The tuition fee rates vary between 280,000 CFA (£373) and 1,500,000 CFA (£2,000) a year depending on the institution and the nature of the training (DoHE, 2010; Fonkeng and Ntembe, 2009). According to Banya (2001), generally students attending private higher education in Africa do not protest against higher tuition fees.

Professional schools are in line with the distinction between public and private branches of higher education regarding tuition fees. Public professional schools have the similar tuition fees as the public universities, while private professional schools charge similar tuition fees to the private universities. Professional schools are more attractive to some students

because they specialise in training for vocational skills, such as training teachers at the Advanced Teachers Training College (ENS), military officers at the Combined Military Academy (EMIA), etc. Over 85 percent of students who graduate from professional schools can find a job within one year (Nyuyfoni, 2016). Besides, the lower tuition fees in public professional schools make them much more popular and competitive. Therefore, an additional entrance examination (*Concour*) is required for attending professional schools, and the *Concour* can be very competitive (Njeuma et al., 1999).

Overall, private schools have better facilitates and more expensive to attend at all education levels. With respect to higher education institutions, students may hold various preferences regarding the differences between institutions. Specifically, regarding the affordability of tuition fees, public higher education institutions are the cheaper choice than private ones; considering the entry requirements, universities are have lower requirements than professional schools; in terms of the teaching quality and facilities, professional schools and private universities are more attractive than public universities.

2.4.4 Contrasts between Anglophone and Francophone system

As a bilingual country, there's conflict and integration between the two subsystems, and this can sometimes cause problems. The term 'Anglophone problem in Cameroon', refers to the various political, economic, and social problems that the British Cameroonian community has faced since independence in 1961 (Konings and Nyamnjoh, 1997, p.207). Given that eight out of ten provinces in Cameroon are French-speaking regions, the country is Francophone-dominated and Anglophones often have the feeling of being 'marginalised' and 'exploited' (Konings and Nyamnjoh, 1997). The Francophone system has overwhelmingly dominated the country. In 2016, a strike erupted, whereby the Anglophones protested against the overflow of French-speaking lawyers and teachers into Anglophone regions (Kouega,

2018). The strike has become severe and long-lasting. It began with a sit-down strike and peaceful protest, but the situation has since spiralled out of control and turned into an armed conflict, with kidnappings, decapitations and the burning of entire villages in Anglophone Cameroon (Stone, 2018). Public schools have been closed in Anglophone regions since 2016. Over 180,000 Anglophone people have fled the violence to Francophone cities. For those stuck behind, getting education for their children is difficult, and as explained earlier private education is much more expensive (three times as expensive as public education) (Stone, 2018). The severe strike also prevented me from collecting data from the Anglophone regions during my fieldwork visits. I met a student in one of the private schools in Yaoundé who came from the Anglophone region. According to her, she was lucky to have family in Yaoundé and her family can afford for her to attend private school – many of her classmates have dropped out and no longer receive schooling back in their hometown.

The bilingual schools in Cameroon, under most circumstances, are a juxtaposition of two monolingual schools in one institution under a single school principal, instead of one co-educated school teaching students in both languages (Tatangang, 2011; Cockburn et al., 2017). Moreover, as the capital city is located in the French-speaking area, there were no public Anglophone schools in Yaoundé. Therefore, in the following data analysis chapters, Anglophone and Francophone sections in bilingual schools were treated as separate schools.

2.4.5 Gender and educational policies in Cameroon

In order to legislate for education development and cope with gender issues in educational development, Cameroon has subscribed to some international and regional commitments, and also constructed its own national policy framework. Cameroon has pledged to meet international and national commitments aimed at the full development of education for women, notably the Universal Declaration of Human Rights, the Convention on the

Elimination of all forms of Discrimination Against Women, the International Conference on Population and Development, the Beijing Platform for Action, the Millennium Development Goals and the Sustainable Development Goals (see Chapter 3) (Cameroon Government Report, 2011). The Cameroon government has also joined regional commitments, for example, the Declaration of Heads of State and Government of the African Union on equality between women and men, the Additional Protocol to the African Charter on Human and Peoples' Rights and on the Rights of Women in Africa. Female Education in Mathematics and Science in Africa (FEMSA) was also launched to promote girls' participation in mathematics and science education at the primary and secondary school levels (Cameroon Government Report, 2011).

In addition to these international and regional commitments, the Cameroon government has also issued several national education and gender policies to promote national education development and gender equality. Above all, as mentioned in the previous section (Chapter 2.4), education has been recognised as a basic human right by the government in the Constitution of Cameroon, and public primary education is compulsory and open to all children regardless of gender, religion or tribe. Regarding gender policies, the Constitution of Cameroon, enacted in May 1972, declares that respect for human rights is its principle and that men and women are equal. In August 1994, Cameroon ratified the U.N. Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) (JICA, 2015). In 1997, the Cameroon Government designed and adopted its first policy document on women's empowerment: The Women in Development Policy. This document defines government priorities and strategies in women's development and was combined with the National Action Plan for Women in Development (NAPWID) to promote women's development through seven areas of intervention (Cameroon Government Report, 2011). A National Population Policy Declaration (NPPD) was updated following the 1994 International Conference on Population and Development (ICPD) and the Millennium Summit in September 2000. The NPPD was released in 2002, aimed at ensuring universal primary education, improving the literacy of men and

women, and reducing gender disparities in all areas of economic and social development (Cameroon Government Report, 2011). Based on the various international, regional and national efforts in advocating equal development, the country has also resolved to implement a National Gender Policy (JICA, 2015; Cameroon Government Report, 2011). The National Gender Policy can be taken as a foundational guide for planning and applying government initiatives to promote gender equality and equity in all spheres of society (Mefire et al., 2017). The first strategic aspect it has identified is education and the problem of unequal access to education among girls/women and boys/men (Cameroon Government Report, 2011).

In short, the Cameroon government has identified the importance of education and the problem of gender inequality in society, and corresponding policies have been released to deal with the problems. However, the current situation of education and gender issues is still not quite optimistic.

2.5 Access to education in sub-Saharan Africa and Cameroon

In the last two decades, the international, regional and national policy frameworks have emphasised the efforts to expand access to education and close the gender gap in education (Omolewa et al., 2006; UNESCO, 2003; UN, 2000a). In particular, after Western colonies gained their independence in the last century, the issue of access to education came to be central to many countries' national development plans (Lincove, 2008; Omolewa et al., 2006). Globally, all countries have been making steady progress towards achieving universal primary education (Clemens, 2004; Easterly, 2009). As can be seen from Figure 2-3, by 2017, the gross enrolment ratio (GER) for primary education in SSA was 98%. Remarkable achievements have been made in secondary education, according to UNESCO-EFA (2015), secondary education enrolment increased 27% globally between 1999 and 2012. There is an upward trend in sub-Saharan Africa, although the secondary education GERs have always been the lowest compared with other regions of the world (43% for 2017).

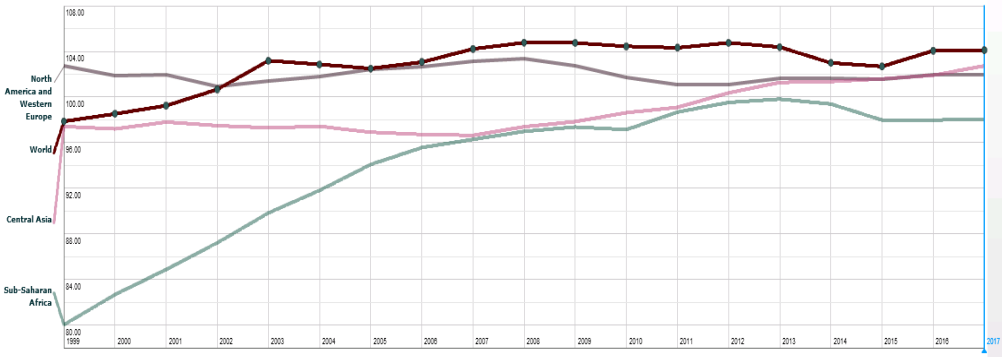

Figure 2-3 Gross enrolment ratio, primary, both sexes (%)

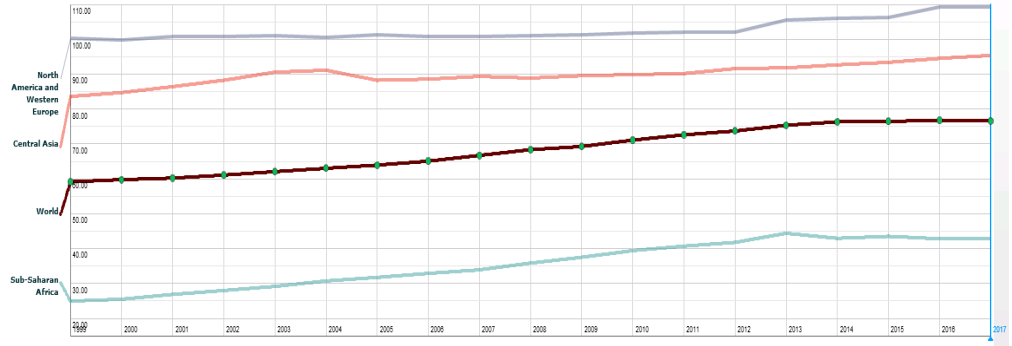

Figure 2-4 Gross enrolment ratio, secondary, both sexes (%)

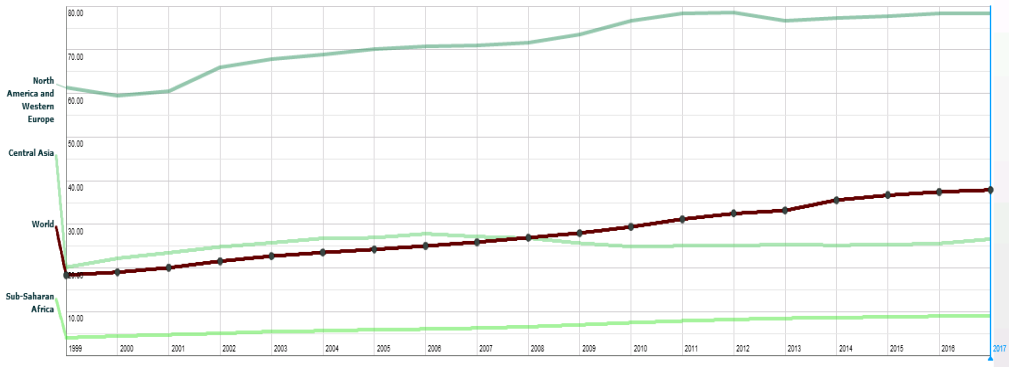

Figure 2-5 Gross enrolment ratio, tertiary, both sexes (%)

Source: UNESCO, UIS database (2017a)

The picture of tertiary education is the least optimistic overall, compared with primary education and secondary education, and it is not part of compulsory education in any country. Higher education has been treated as a positive strategy to promote economic growth and poverty reduction for many countries, especially in SSA (World Bank, 1994; Bloom et al., 2006). The higher education participation rates in SSA have witnessed an average increase of seven percentage point per year between 1991 and 2004, and the

number of students enrolled in higher education in SSA soared from fewer than 200,000 in 1970 to 4.5 million in 2008 (Morley et al., 2007; UNESCO, 2010). However, the overall higher education participation ratios for SSA in the last couple of decades are still very low compared with other regions (Varghese, 2004; Lewin and Sabates, 2011; UNESCO, 2010; Altbach et al., 2009), and the GERs have remained under 10% until 2017. For example, in 2017, the higher education GERs in the USA and the UK were 88% and 59% respectively, while that figure in Cameroon was 19%.

Given the relatively low GERs for higher education, in addition to the crucial role it plays in society, expanding participation in higher education as a key contemporary social issue has gained more and more attention worldwide. Developed countries like the United Kingdom have strived to expand higher education since the 1950s and particularly after the 1990s (Marr, 2013). This has led to a substantial expansion in tertiary enrolment in England over the past several decades (Chowdry et al., 2013). For example, by the start of 21st century, the number of students in higher education in the UK was 1.8 million, which is ten times of the number in 1971 (Hayton and Paczuska, 2003). Furthermore, with more attention from the government and increasing studies on higher education in the developed context, the focus of participation in higher education has moved from increasing numbers to widening participation (e.g., Gorard et al., 2007; Gibbons and Vignoles, 2012; Bravenboer, 2012; Ilieva-Trichkova and Boyadjieva, 2014). Widening participation in higher education deals with structural inequalities and involving more underrepresented groups, such as ethnic minorities, adult students, lifelong learners, male participation, students from disadvantaged backgrounds entering elite traditional universities, and females choosing STEM subjects (Moore et al., 2013; Hinton-Smith, 2012). However, the situation in developing countries, especially SSA countries, is different. Higher education enrolment ratios in SSA countries are overall lower than those of developed countries. Therefore, instead of discussing widening participation in higher education, increasing access to higher education has been more suitable for the sub-Saharan Africa context.

Regarding individual countries in SSA, some countries showed relatively higher GERs. For example, in 2009, Mauritius (25.9%), Cape Verde (14.9%), Guinea (9.2%) and Cameroon (9.0%) had higher GERs that exceeded the regional average figure of 7.0%. GERs remain low in countries such as: Burkina Faso (3.4%), Burundi (2.7%), Central African Republic (2.5%), and Chad (2.0%) (UNESCO, 2010). By 2016, the GER figures had increased in all the countries, notably: Cameroon (19.2%), Cape Verde (21.9%), and Mauritius (37.4%). Countries still below the average include Burkina Faso (5.6%) and Burundi (6.0%) (see Table 2-2).

Table 2-2 Gross enrolment ratio, tertiary, both sexes (%) in some SSA countries (2012-2017)

Country	2012	2013	2014	2015	2016	2017
Angola	..	8.9	..	8.5	..	..
Burundi	3.9	4.7	5.3	..	6.0	6.2
Cameroon	13.4	15.7	16.7	17.4	19.2	..
Cabo Verde	20.7	22.8	23.3	21.8	21.9	21.7
Chad	..	..	3.4	..	..	..
Congo	9.9	9.3	..	..	..	..
Democratic Republic of the Congo	8.3	6.9	..	..	6.6	..
Ethiopia	8.1	..	8.1	..	..	..
Guinea	10.2	10.7	11.3	..	..	..
Kenya	..	..	..	9.4	11.7	..
Mauritius	38.9	40.0	39.1	37.4	..	38.8
Namibia	..	..	18.6	19.3	20.6	..
Zimbabwe	5.9	5.9	..	8.5	..	..

Source: UNESCO, UIS database (2017)

Overall, SSA lags behind other regions regarding access to education through primary, secondary and tertiary education, although Cameroon has had a relatively better performance among SSA countries.

2.6 Gender inequality in education in SSA and Cameroon

The relatively low and uneven GERs in SSA countries have been problematic; what makes things worse is that there is also a gender gap regarding access and participation in education, especially higher education. With global

efforts to pursue gender equality in participation in education, by 2006 the overall higher education participation rates worldwide were slightly higher for women than for men, principally in developed regions (UNESCO-EFA, 2015). However, the gender gap remains in the latest data available – in 2017 the gap between the proportion of male and female students who participated in higher education globally was 5 percentage points. In North America and Western Europe, there were 19% more females than males participated in higher education. However, female higher education participation rates in sub-Saharan Africa were still lower than that of their male counterparts (UN Millennium Project, 2005; Morley and Lussier, 2009; Vincent-Lancrin, 2008). According to Table 2-3, by 2017 the overall female higher education participation rate in sub-Saharan Africa was 7.5%, while the figure for males was 10.5%.

Table 2-3 Gross enrolment ratio (GER), tertiary, female & male (%)

Time	Indicator	1990	1995	2000	2005	2010	2015	2016	2017
World	GER, tertiary, female	12.8	15.1	18.9	24.8	30.5	38.7	39.7	40.2
	GER, tertiary, male	14.4	15.9	19.1	23.7	28.4	34.7	35.3	35.7
Central and Eastern Europe	GER, tertiary, female	36.9	34.9	46.8	65.7	76.9	82.1	84.3	84.6
	GER, tertiary, male	31.6	30.4	39.5	52.1	61.5	72.6	75.9	76.3
Central Asia	GER, tertiary, female	..	23.0	22.1	28.0	25.7	26.3	26.4	27.2
	GER, tertiary, male	..	22.6	22.4	25.9	24.1	24.4	24.9	26.0
North America and Western Europe	GER, tertiary, female	51.8	65.1	65.9	79.9	87.2	87.5	88.2	88.2
	GER, tertiary, male	45.9	55.2	53.4	60.8	66.7	68.2	69.1	69.1
South and West Asia	GER, tertiary, female	3.7	3.9	6.9	8.7	14.9	24.2	24.4	24.4
	GER, tertiary, male	7.6	7.2	10.5	11.7	19.5	25.5	25.5	25.4
sub-Saharan Africa	GER, tertiary, female	1.9	2.7	3.6	4.7	6.0	7.3	7.5	7.5
	GER, tertiary, male	4.1	4.6	5.3	7.1	8.9	10.2	10.4	10.5

Source: UNESCO, UIS database (2017)

When we take a closer look at the picture in Cameroon, according to previous studies, girls' drop-out and repeat rates at all education levels in Cameroon were higher than boys, and their pass rates in primary leaving certificate and

secondary entrance examinations were lower than boys (Cooksey, 1982). The number of boys in school amongst 15-19-year olds was twice that of girls, and the gender ratio among the 20-24 age schooling group was 6:1 (boys/girls) in Cameroon (Cammish and Brock, 1994).

With the national and international efforts to promote gender equality and women's development, the gender gap in access to education has been reduced to a certain degree in Cameroon. According to Table 2-4, higher education participation rates in Cameroon have being increasing and the gender gap has been closing over the last decade, but female participation still lags behind that of males. The latest available data reveal an almost 5 percentage point gap between female and male students in the tertiary GER. According to a recent study from Johannes and Noula (2011), in Cameroon males are more likely to enrol in school than females, and this kind of tendency is more noticeable at higher levels of education. Although Cameroon is doing well among sub-Saharan countries, the GER is still quite low compared to developed countries, in addition to the ongoing gender gaps. As has been argued by Ilie and Rose (2016), it will be quite challenging to achieve the Sustainable Development Goals (SDGs, see Chapter 3) of equal access to higher education by 2030 in SSA countries.

Table 2-4 Cameroon Gross enrolment ratio, tertiary (%)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Female	4.0	4.1	4.0	4.7	5.8	6.5	7.1	8.2	10.3	10.5	11.7	13.7	14.7	15.5	16.9
Male	6.3	6.4	6.3	7.2	8.1	8.3	8.9	10.3	12.6	14.2	15.1	17.6	18.7	19.3	21.4

Source: UNESCO, UIS database (2017)

The lower higher education enrolment rate in Cameroon and gender inequality in the higher education enrolment rate lead to the focus of this study – looking at the barriers and gender differences in the process of participation in higher education among final year secondary school students. Specifically, target research groups in this study are final year general secondary school students in Cameroon – the age groups for upper general secondary students are 17-19 in the British system and 16-19 in the French system (World Bank, 2014). There are two reasons for choosing final year

general secondary school students in this study. First, gender gaps in GERs in Cameroon are more noticeable in higher levels of education (Johannes and Noula, 2011). As shown above, gender parity in access to primary and secondary education is about to be achieved. Hence, a focus on access to higher education enables this study to identify whether or not there are gender differences among male and female students and the extent of gender differences in access to higher education. Secondly, the end of secondary education is a critical time when decisions to participate in higher education need to be made, whether by parents or by students themselves, and higher education is more of an optional choice compared to primary and secondary education. On the other hand, the final year secondary school students might be the more advantaged group as they have remained in education until their final year, and might have overcome barriers of cultural, economic and social nature in order to remain in school. In this sense, they might be somewhat 'privileged' compared with students who dropped out earlier, or who did not make it to their final year. However, this subgroup of students are still worth exploring to understand how their aspirations are (or indeed, are not) different from those of other students.

2.7 Conclusion

The colonial history of Cameroon has resulted in the distinctive Anglophone and Francophone subsystems in the country. This, coupled with Cameroon's multi-cultural background, made this study of significant importance for the country. The national history and corresponding education development are demonstrated by three stages – the pre-colonial, colonial and independent periods. The historical development also led to the current education system of Cameroon. The confliction between Anglophone and Francophone regions and the difference between the public and private sectors, along with the education and gender policy frameworks, are all important for understanding the context of this study. Considering the wider regional context, the SSA countries have the lowest education participation rate and largest gender gaps.

Although Cameroon performs relatively well among SSA countries, more attention and effort is still needed in regard to expanding access to education and closing the gender gaps. Therefore, the focus of this study narrows down to gender equality in the process of participation in higher education.

Chapter Three : Educational inequality and female access to education

3.1 Introduction

In order to examine gender differences in barriers to participation in higher education in Cameroon, this study analyses the status of gender equality in access to education and specific barriers to participation in higher education. Accordingly, the literature review chapter sets out existing literature thematically. The first theme deals with educational gender inequality and female access to education, which is the focus of this chapter. The second theme focuses on higher education and barriers to participation in higher education, and this will be discussed in Chapter 4. These are vast areas with a large amount of studies carried out worldwide, and with more studies have been conducted in developed countries than in less developed countries. Therefore, with the attempt to place more weight on the developing context, particularly the SSA countries, the evidence from the developed context was also considered in this study.

This chapter starts with the clarification of term 'gender' and then demonstrates the importance of female education. International efforts to reduce educational and gender inequality are subsequently illustrated. The evaluation of these international efforts, along with the current situation in the SSA context, are covered at the end of this chapter.

3.2 Terminology - Gender

Before moving on to the discussion of gender inequality and female access to education, the rationale for using the term 'gender' and the meaning of gender in this study is explained. Numerous scholars have undertaken studies regarding 'gender' and its application in sociological studies (e.g., West and Zimmerman, 1987; Butler, 2004; Unger, 1979). Unger (1979, p.1093) refers

to gender as 'the traits and behaviours considered characteristic of and appropriate to the members of each sexual category'. Whereas West and Zimmerman (1987) argue that instead of referring to gender as a set of traits and roles, gender is constituted through everyday interaction. Though arguments about the specific use and underpinnings of gender are still going on, scholars are in agreement that gender is a sociological term and relies on the social and cultural side of the dichotomous construct distinguishing male and female, while sex is more of a biological term and refers to the biological and physical dimensions of being male or female (Pavlic et al., 2000). According to the World Health Organisation (2018), gender refers to the socially constructed characteristics of women and men, such as norms, roles and relationships of, and between, groups of women and men; gender varies from society to society and it can be changed.

This study is based in the social and cultural context of Cameroon and investigates the different barriers between male and female students, which has an emphasis more on the social and cultural aspect. In addition, as educational sociological research, this research emphasises the shaping effect of culture over biology. For this reason, I choose the term 'gender' rather than 'sex'. 'Gender' in this research is used as a dichotomous term – male and female. Transgender and intersex people were not considered in the study and I was not aware of any participants identifying as such.

3.3 The importance of female education

Historically, marginalisation and lack of finance used to be the dominant characteristics of women's education (Spender, 1982). Women and girls throughout the world constitute the largest single category of people that are disadvantaged in pursuing equal opportunities for education, and thus, girls are less likely to be enrolled in school compared with boys (UNESCO, 1995b; Boyle et al., 2002; Assie-Lumumba, 2006). For example, in 1990, two-third of illiterate adults were women (Haggis, 1991). According to the estimated world population in the 12-17 age-group enrolled in formal education and out

of school in 1995, nearly half (48.3%) of the world's female students were estimated to be out of school, while the percentage of such male students was 40.5% (UNESCO, 1995a). However, with the development and moderation of society, the importance of female education has gradually been recognised (Shabaya and Konadu-Agyemang, 2004; Hill and King, 1993; Deem, 1978). Educated females have been suggested to play a fundamental role in different spheres of life (Ara and Malik, 2012; Goetz, 2003). In this section, the importance of female education is addressed via the relationships between female education and economic growth, and between female education and social development. At the end of this section, the importance of female education specifically in developing countries is discussed in terms of the national context of this study.

A large number of pieces of works were discussed in this section to highlight the importance of female education; however, the relationship between female education and economic development and social development are more symbolic in nature, they are interactive and mutually influence each other, and the specific relationship between them were difficult to test empirically. For example, Lincove (2008) uses large-scale, cross-cultural and 30-years' worth of longitudinal data to reveal that female schooling can increase their participation in economic activities. However, it is difficult to claim the relationship between female education and socio-economic development, as the social-economic development might have contributed to the increase in female education opportunities over the years. Nonetheless, with the acknowledgement of the mutual influence and interaction of female education and social economic development, and the difficulties inherent to the empirical tests, it is still the case that education has been taken as a key policy focus at the national and international levels; it is also core policy strategy, as evidenced throughout the MDGs and SDGs.

3.3.1 Female education and economic growth

The idea that education can contribute to economic growth is generally agreed, and education is considered a promising strategy to promote human development. This can be illustrated by human capital theory, as well as by the attention paid to education by more advanced countries (Hanushek and Wößmann, 2007; Balatchandirane, 2003). The core idea of human capital theory is that increasing an individual's knowledge, or human capital, can raise their productivity in the economic market, and schooling or on-the-job training can help to realise potential gains in productivity (Becker, 1993; Olaniyan and Okemakinde, 2008; Grossman, 2000). Thus, investment in education is a major part of the investment in human resources (Becker, 2009; Becker, 1993). Education can increase the productivity and earnings of both men and women (Omolewa et al., 2006; Hartnett and Heneveld, 1993) – econometric studies have estimated that each additional year of schooling can increase an individual's income by as much as 10 to 20 per cent.

Scholars have also underlined the high return of female education described by human capital theory (Schultz, 2002; Lincove, 2008). As for women, gains in schooling are related to their future labour market opportunities, which in turn can encourage their parents to invest in them (Schultz, 1960; Schultz, 2002). When women get access to education equal to men they have more economic opportunities and bring broad productivity gains (Manda and Mwakubo, 2014; Summers, 1994; Spohr, 2002). More educated women have a positive impact on the labour supply, which has favourable consequences for the national tax base and economic growth (UNESCO, 2003). In Japan, investment in women's education yields higher returns than investment in men's education, educated women play a very important role in initial technology transfer into Japan and later economic development (Balatchandirane, 2003). However, generally speaking, the argument made based on these assumptions were made more out of theoretical discussion rather than empirical evidences.

Researchers have identified a U-shape relationship between female participation in the labour market and national income, which shows that low-

income countries and high-income countries have high female participation and middle-income countries have low female participation in economic activities (Sinha, 1967; Goldin, 1994; Mammen and Paxson, 2000). However, Lincove (2008) replicated previous models and carried out a longitudinal analysis of increasing female schooling over 30 years which reveals that female education can contribute to the labour market productively. She also recommends that investment in female education can avoid the potential reduction of female participation in the labour market in low-income developing countries. Furthermore, gender gaps in participation in schooling influence the economic productivity of the country: with similar capital and labour resources, countries with a large gender gap in education will have lower economic productivity than countries with a smaller gender gap (Hartnett and Heneveld, 1993).

3.3.2 Female education and social development

In our knowledge-driven society, access to education and societal development are closely linked (Hartnett and Heneveld, 1993; Hill and King, 1993; Omolewa et al., 2006). As an old adage says, ‘educate a man, and you educate an individual; educate a woman, and you educate a whole nation’ (Shabaya and Konadu-Agyemang, 2004). Educating females can promote social development by empowering women and facilitating their personal development, which also benefits families and future generations, and promotes social equality.

First of all, for females themselves, education helps them fulfil their personal development. According to the capability approach, education can expand individuals’ abilities and the opportunities they have – individuals can develop their capability to choose a life that they have reasons to value (Walker, 2005; Robeyns, 2005; Saito, 2003). Specifically, education can bring changes in women’s cognitive abilities, which will be beneficial for their personal lives, and female literacy is also linked to future opportunities (Kabeer, 2005; Venniker, 2000). Moreover, schooling can enhance women’s

abilities to access information and participate in various social and economic processes (Omolewa et al., 2006).

Secondly, the benefits of educating females go beyond girls and women themselves, they are also beneficial to families, and investing in female education is one of the best ways to ensure that the next generation will be educated (Hill and King, 1993; Summers, 1994; UNESCO, 2003). Under most circumstances, the level of female education, and the gender gap in participation in education, are important in determining family wellbeing and household productivity (Hill and King, 1993; Lincove, 2008). Arguments for this are based on the assumption that women will have families and take the roles of wives and mothers. Educated women with basic literacy and number skills, analytical thinking and hygiene knowledge can become competent housewives and improve their home productivity (Jejeebhoy, 1995; Deem, 1978).

Furthermore, a better-educated mother can bring up fewer and better-educated children and raise a healthier family (Hill and King, 1993; Lincove, 2008). Educated mothers are also more likely to support their children, especially daughters, to get access to education (Hartnett and Heneveld, 1993). Ensuring women's access to education plays a key role in the transition from an investment in child quantity to an investment in child quality (Hill and King, 1993; Omolewa et al., 2006). For example, in Brazil, women with primary education have a dramatically lower birth rate than those of uneducated women, and woman with secondary education show both a lower fertility rate and higher labour force participation than uneducated women (Lam and Duryea, 1999). In Pakistan, female education and family-planning are considered necessary for fertility decline (Alam et al., 2003). Maternal education may influence the traditional balance of family relationships, and most importantly affect child mortality – in Indonesia, a study revealed that an extra year of maternal schooling in primary and secondary schools are estimated to reduce the probability of child mortality by 1.7 percent and 2.0 percent respectively (Mellington and Cameron, 1999).

Thirdly, the necessity of expanding female access to education goes beyond idealism, it's also an important component of social justice (Omolewa et al., 2006). Educational inequalities result in social inequalities, which is also a reflection of social disparities. This can be explained by the comparison of literacy rates between China and India during the 1980s and 1990s. During that time period, China had a better performance in increasing its literacy rate, partly because it had a relatively lower level of social disparities, while India was embedded with caste, class and gender disparities (Balatchandirane, 2003). Education is also useful in helping to reduce the number of women suffering from violence (Kabeer, 2005). According to an ethnographic study carried out by Mkandawire-Valhmu et al. (2009) in Malawi, limited education has a strong relationship with women's vulnerability status in marriage and in domestic service. Simister (2010) clarifies the importance of female education in reducing domestic violence in Kenya – 'Female Genital Mutilation' and 'Gender Based Violence' are rare in highly educated Kenyan families.

Therefore, according to many scholars (Hill and King, 1995; Psacharopoulos and Patrinos, 2004; Kane, 2004), educating females has a beneficial effect on overall social well-being and the returns from investment in female education are higher than those of male education. As a consequence of this Schultz (2002) argues that increasing investment in female education is a crucial strategy for national development plans.

3.3.3 Female education in developing countries

Female education is a universal topic and the importance of female education has been well documented from economic and social perspectives, and it has also been reaffirmed in the recent release of the United Nations (UN) Sustainable Development Goals (SDGs) (UN, 2015b). The fourth SDG goal emphasises the target of providing inclusive and equitable quality education for all women and men. The extent and nature of female education varies between countries (Brock and Cammish, 1997), in addition to the various

regional and national contexts. The following section explores the importance of female education in developing countries, with a specific focus on the countries in sub-Saharan Africa. The statements below are derived from the literature and they outline the various benefits of educating women and girls in the developing context.

Female education can reduce fertility rates/ population growth rates

Population growth rates are high in most sub-Saharan African countries. According to Caldwell and Caldwell (1990), SSA contributed to 9 percent of the world's population in 1950 and 12 percent in 1990. The recently published World Population Prospects from the UN reveals that the fertility rate in sub-Saharan Africa is following a general path from high to low and that fertility rate is declining, but SSA still has the highest fertility rate in the world (UN, 2012).

Female education is effective in reducing fertility rates in countries where fertility rates are high (Schultz, 2002). Wasao (2001) reveals that educational attainment can contribute to the change of fertility – improvements in women's education can increase women's marriage ages and their abilities to access health services, thereby reducing total fertility. In Cameroon, education is one of the socioeconomic factors that has a powerful influence on fertility rates and urban residents' low fertility rates have been associated with higher levels of education (Wasao, 2001). According to Kane (2004), in Africa, educated women tend to have fewer children and have them later, and the age gap between their children is also wider. Also, educating females has a stronger effect on fertility than educating males. Research carried out in Zimbabwe revealed that one additional year of female secondary schooling delays the first birth by around 0.3 years, and educated women desire fewer children (Grépin and Bharadwaj, 2015).

Female education can reduce mortality rates

Mortality rates and children's health and nutritional status in developing countries remain a significant problem, and sub-Saharan Africa is one of the

regions that has the greatest burden of maternal mortality rates (Ronsmans et al., 2006; Hill and King, 1993). For example, in 2007, the maternal mortality rates for a sub-Saharan African women was 1/16, while the figure for developed countries was 1/3800 (UN, 2007). Moreover, this region contributed approximately half of the deaths of children under five years old worldwide (Liu et al., 2015).

Educated mothers with improved knowledge regarding hygiene and nutritional practices can help to reduce both maternal mortality rates and the mortality rates of children under five years old (Shabaya and Konadu-Agyemang, 2004). In sub-Saharan African countries, with more knowledge and improved health practices, each additional year of female schooling is estimated to decrease the mortality rate of children under the age of five by up to 10% (Hartnett and Heneveld, 1993). And children with mothers who received secondary or higher education are three times more likely to survive than children with mothers had no education (UN, 2015a). According to Monden and Smits (2013), mothers' education levels not only contributed to the overall reduction in the under-five mortality rate, but was also especially beneficial for girls. For example, in sub-Saharan Africa and Southern Asia, educated mothers have a 'gender neutral' status for the mortality chances of boys and girls, while the girls' mortality rate is higher than boys among non-educated mothers.

Female education can improve the social status of women

Increasing female access to education is repeatedly put forward as a development strategy for the full promotion and improvement in the status of women in wider public life (Para-Mallam, 2010; Shabaya and Konadu-Agyemang, 2004). Shabaya and Konadu-Agyemang (2004) point out that in developing countries, especially in the African context, female education is beneficial for many female-headed households' survival as educated women can be better equipped to gain a paid job, and educated women tend to play a more active role in civic matters in their communities. Educated women in Nigeria know much more about family planning than uneducated ones, and women who have achieved a secondary education have an in-depth

understanding on the subject of personal hygiene and health care (Kabeer, 2005). These all enable women to be independent and thus improve their social status.

Female education can promote socioeconomic development

Under the guidance of human capital theory, education was expected to be a powerful instrument for addressing the structural inequality embedded in society during the 1960s when most African countries acquired their independence (Assie-Lumumba, 2006). African countries with low socioeconomic development can also benefit economically and socially from promoting educational equality and female education. As Hartnett and Heneveld (1993) suggest, with a relatively large gender gap in educational access coupled with the significance of female education, there is an enormous need for sub-Saharan African countries to include female education in their policy discussions. For example, the Cameroonian government has resolved to implement a National Gender Policy to promote gender equality and the full development of women (Cameroon Government Report, 2011). Hill and King (1993) emphasise this sentiment by stating that a strong link exists between female education and national well-being in developing countries, and as education plays a crucial role in various dimensions of social development, females not obtaining access to education will be a constraint to the fulfillment of the benefits that education can bring.

Additionally, education affects wages and broader workforce outcomes; therefore, receiving education in developing countries enables females to work in a more formal sector to obtain a regular income from their employment (Spohr, 2002). Browne and Barrett (1991) also state that women's education is a crucial component of sub-Saharan Africa's successful economic development and it is valuable in increasing the productivity of farmers' work. This is because agricultural work is predominantly undertaken by women; thus, investing in women's education can increase agricultural output in sub-Saharan Africa. For example, research conducted in rural areas of sub-Saharan Africa indicates that there is a high correlation between a lack of schooling and food insecurity and poverty, for the reason that the lack of

schooling reduces rural people's productivity and earning capacity, and increases the risk of suffering from hunger and extreme poverty (FAO and UNESCO-IIEP, 2006).

In summary, female education, broadly speaking, can be one of the fundamental factors in promoting economic growth and social development. In developing countries, particularly in the African context, female education can also contribute to reducing fertility rates and mortality rates, improving women' social status and enhancing the socioeconomic development of the country. As has been discussed before, although the relationship between female education and social economic development can be interactive, the benefits of female education were still underlined by research from different perspectives and different contexts, female education still a key policy focus throughout the EFA, MDGs and SDGs, which will be discussed in the subsequent section.

3.4 International efforts to reduce educational and gender inequality

Given the growing recognition of the importance of education and the emphasis on female education in the developing country context, considerable international and national efforts have been made to promote educational equality and widen female students' access to education.

The principle that education is a fundamental human right has been widely accepted by most countries in the world and has been enshrined in the Universal Declaration of Human Rights since 1948 (Makagiansar et al., 1989; UN, 1948). The United Nations General Assembly proclaimed the Declaration of the Rights of the Child in 1959 and the Declaration on the Elimination of All Forms of Discrimination in 1960, principles pertaining to education and against discrimination in education were mentioned in these declarations (Makagiansar et al., 1989). However, by the year 1990, the right to education remained a challenge for millions of children and nearly one thousand million adults were illiterate (UNESCO, 1990; UNESCO, 2000b). In response to this situation, and to draw more public attention to the

importance of education, the executive heads of UNESCO, UNICEF, UNDP and the World Bank convened the World Conference on Education for All (EFA) in 1990 (Haggis, 1991). The ultimate goal of the world declaration on Education for All was to meet the basic learning needs of everyone, and the declaration also set out an action framework to meet this goal (UNESCO, 1990). By 2000, significant progress had been made in many countries. However, the target of education for all was not achieved. Consequently, it was re-affirmed in the Dakar Framework for Action in 2000 and six EFA goals were defined for 2015 (UNESCO, 2000a):

- Goal 1: Expand early childhood care and education
- Goal 2: Provide free and compulsory primary education for all
- Goal 3: Promote learning and life skills for young people and adults
- Goal 4: Increase adult literacy by 50 percent
- Goal 5: Achieve gender parity by 2005, gender equality by 2015
- Goal 6: Improve the quality of education

Education for All opened up a new wave of attention to education equality and gender equality and the end of the 20th century witnessed education and gender equality being mentioned in a series of international conferences: the World Conference on Human Rights (1993), the World Summit for Social Development (1995) and the Fourth World Conference on Women (1995) (UNESCO, 1995a). This was a time when education and gender equality gained increasing public awareness; international organisations were increasingly involved in making policy on gender education with national governments (Fennell and Arnot, 2008). This trend was later enhanced by the Dakar Framework for Action and the publication of the United Nations Millennium Development Goals in 2000.

The Millennium Development Goals (MDGs) were time-bound and quantified targets committed to by 189 United Nations member states (there are now 193 states) following the adoption of the United Nations Millennium Declaration in September 2000 (UN, 2000b). The MDGs had a wider focus and expressed the world's targets for reducing extreme poverty and

promoting basic social indicators with the intention of creating a more peaceful, prosperous and just world (UN, 2000a; Binagwaho and Sachs, 2005). One of the goals related to the education sector. The eight Millennium Development Goals (UN, 2000b) were:

- Goal 1: Eradicate extreme poverty and hunger
- Goal 2: Achieve universal primary education
- Goal 3: Promote gender equality and empower women
- Goal 4: Reduce child mortality
- Goal 5: Improve maternal health
- Goal 6: Combat HIV/AIDS, malaria, and other diseases
- Goal 7: Ensure environmental sustainability
- Goal 8: Develop a global partnership for development

Among these goals, the second and the third goals related to access to education and gender equality. These two goals collectively led to the highlighting of educational opportunities and gender equality issues worldwide. Specifically, the target in Goal two was that, by 2015, all children, girls and boys, could complete a full course of primary schooling. The target for Goal three was eliminating gender disparity in primary and secondary education, preferably by 2005, and at all levels by 2015. In 2015, the United Nations made a summary of the significant achievements that had been made in the implementation of the MDGs over the previous 15 years. It concluded that, despite significant achievements, the MDGs had not been fully achieved by the end of the term.

Subsequently, the Sustainable Development Goals (SDGs) were announced by the United Nations in 2015 in *Transforming our world: the 2030 Agenda for Sustainable Development* (UN, 2015b). The SDGs are built on the MDGs and attempt to complete what they had not achieved. There are 17 Sustainable Development Goals with 169 targets. There are two Goals that related with education and gender equality in education. Goal 4 is Quality education, aims to ensure inclusive and equitable quality education and promote life-long learning opportunities for all. Goal 5 is Gender equality, focuses on achieving gender equality and empowering all women and girls.

3.5 Evaluation of Education for all and Millennium development goals

International commitments to promote education for all and gender equality in education have been ongoing for decades, the UN and UNESCO and other public agencies have monitored and evaluated the implementation of the EFA, MDGs and SDGs annually. Broadly speaking, remarkable achievements have been made over the years, yet the progress was uneven among different regions and countries.

In the EFA and MDGs global monitoring report, UNESCO-EFA (2015) and the UN (2015a) summarised global progress towards the EFA goals and MDGs from 2000 to 2015. First of all, the most successful step in that progress lied in primary and secondary educational levels, including universal primary education and reducing gender participation gaps at early ages. For instance, the UN stated that the number of out-of-school primary school age children worldwide decreased by approximately half by 2015. Universal primary education was about to be reached in all regions except sub-Saharan Africa, although the primary education enrolment in sub-Saharan Africa had increased by 20% between 2000, when the MDGs were established, and 2015 (UN, 2015a). UNESCO-EFA (2015) have recognised the progress made in improving gender equality in education, with females having more or less attained improved access to educational opportunities all over the world. In the primary education, from 2000 to 2015, the number of girls enrolled for every 100 boys increased from 92 to 97, and the secondary education enrolment changed from 91 to 97. Globally, according to available data, 69% of countries were expected to have reached gender parity in primary education by 2015, while the figure for secondary education was 48% (UNESCO-EFA, 2015). Another contribution of these international commitments was that they have increased the recognition of the importance of good quality education and awareness of gender inequality. This will help with promoting quality education and eliminating gender inequality in education (UNESCO-EFA, 2015; UN, 2015a).

International and national efforts to promote education equality and gender equality have made noteworthy progress, while the SDGs continue as the

strategy for the years to come. However, shortfalls still exist and there are lessons learnt from the implementation of EFA and the MDGs (Lewin, 2009). First of all, the process of achieving EFA and the MDGs was uneven across regions. Specifically, there were huge disparities in achieving the MDGs among sub-Saharan Africa and other regions (Sachs and McArthur, 2005). For example, at the beginning of the implementation of the MDGs, sub-Saharan Africa was already in a disadvantaged position, with extreme poverty and a large population. As the 2005 evaluation of the UN Millennium Project and the progress towards achieving the MDGs worldwide show, sub-Saharan Africa was progressing, but still lagging in both Goal two and Goal three. As can be seen in Figure 3-1, SSA had the lowest primary enrolment rate of all regions worldwide, whereas developed countries maintained the highest primary education enrolment rate since the start of EFA and the MDGs (UNESCO-EFA, 2015).

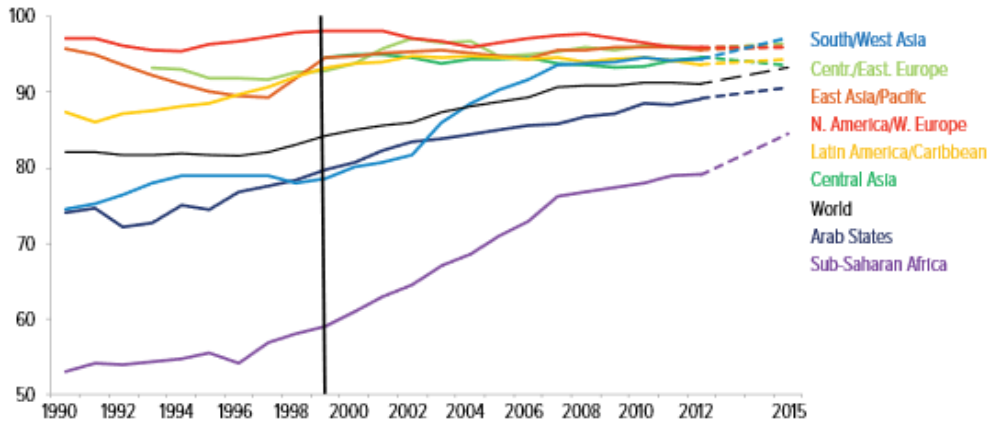

Figure 3-1 Primary adjusted net enrolment ratio, world and regions, 1990-2012 and 2015 (projection)

Source: UNESCO-EFA (2015, p.19)

Furthermore, the differences in achieving EFA and the MDGs became wider as the education level increased. As has been stated before, the most outstanding achievement was in primary education, regarding universal primary education and the reduction of gender disparity. The progress was moderate in secondary education and least optimistic in tertiary education. Regarding the education participation rate, universal primary education was achieved in the majority of countries worldwide, and in SSA – the most

disadvantaged region with daunting challenges – the primary education enrolment reached 78% in 2012. The global lower secondary education gross enrolment ratio (GER) increased from 71% in 1999 to 85% in 2012, and the global tertiary education participation rate in 2012 was 32%, while that figure in SSA was only 8%. The education participation rates get lower as the education level increases. Regarding gender disparity, by 2012 over 64% of countries in developing regions had reached gender parity in primary enrolment, while that figure for secondary education was 36 percent of countries (see Figure 3-2). Only four percent of countries achieved gender parity at the tertiary education level (UN, 2015a).

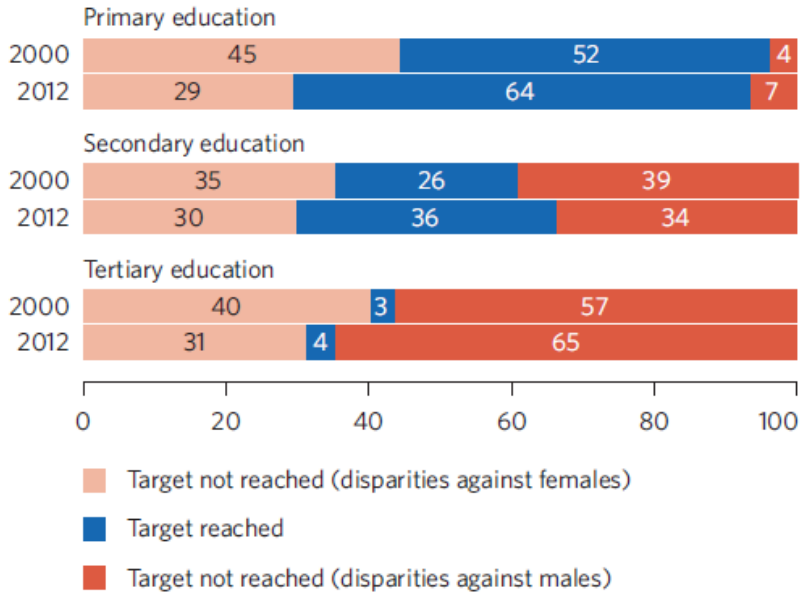

Figure 3-2 Distribution of countries[2] in the developing regions by status of gender parity target achievement in primary, secondary and tertiary education, 2000 and 2012 (percentage)

Source: UN (2015a, p.29)

Therefore, more efforts could be paid to post-compulsory education in the less developed regions. The SDGs have now shifted the emphasis to higher levels of education, including universal secondary education and equal access

[2] Based on available data for 164 countries or territories for primary education, 148 countries or territories for secondary education, and 122 countries or territories for tertiary education

to tertiary education (UNESCO-EFA, 2015). Target 4.3 of the SDGs is to ensure equal access for all women and men to affordable quality technical, vocational and tertiary education, including university, by 2030 (UN, 2015b).

The uneven regional process of implementing EFA and the MDGs, along with the wider gap in access to higher levels of education, made the SSA region the most disadvantaged region and students from SSA, particularly females, face more barriers to participation in education. As has been stated in Chapter 2, underrepresentation of female students in their education systems has always been a characteristic of the majority of African countries (Assie-Lumumba, 2006; Kane, 2004). According to the earlier UNESCO report on education in Africa (1995), in the 1990s, one challenge that African countries faced in their attempts to achieve EFA was female access to education, where more than half of the girls in sub-Saharan Africa did not receive any formal education and the gap between men's and women's literacy rates in these countries was over 10 percent (UNESCO, 1995b). The estimated adult illiteracy number in sub-Saharan Africa in the year 2000 was 142 million, and among these people, 63% are women (Omolewa, Oduaran et al. 2006). By 2015, significant achievements had been made, but no country in sub-Saharan Africa had achieved the EFA goal on gender parity in both primary and secondary education levels, with the poorest girls still the disadvantaged group for access to education (UNESCO-EFA, 2015). In Mali, 84% of girls had never been to school and in Ghana one in three women had never attended school (Shabaya and Konadu-Agyemang, 2004). Research undertaken in six Anglophone and seven Francophone countries in sub-Saharan Africa explored growth patterns of participation in universal primary education. The results indicate that the progress towards EFA has occasionally been disappointing: children from poor families were more likely to drop out earlier and girls' dropout rates were higher than that of boys' in most Francophone countries (Lewin and Sabates, 2011). According to Boyle et al. (2002) girls' education was most affected from an early age in the poorest households of the seven developing countries investigated, and girls were expected to take on the house chores, including water collection, younger sibling care etc., so their education was affected.

This is affirmed by a national report in Cameroon regarding implementation of the MDGs which indicates that a very high disparity exists among the net enrolment rates based on gender and residence area; from 2004 to 2011 in Cameroon, boys and students from urban areas had higher net enrolment rates in primary education than girls and rural area students (NIS, 2014). Gender disparity in education among males and females has declined in general in Cameroon, yet the gender gap still persists (JICA, 2015).

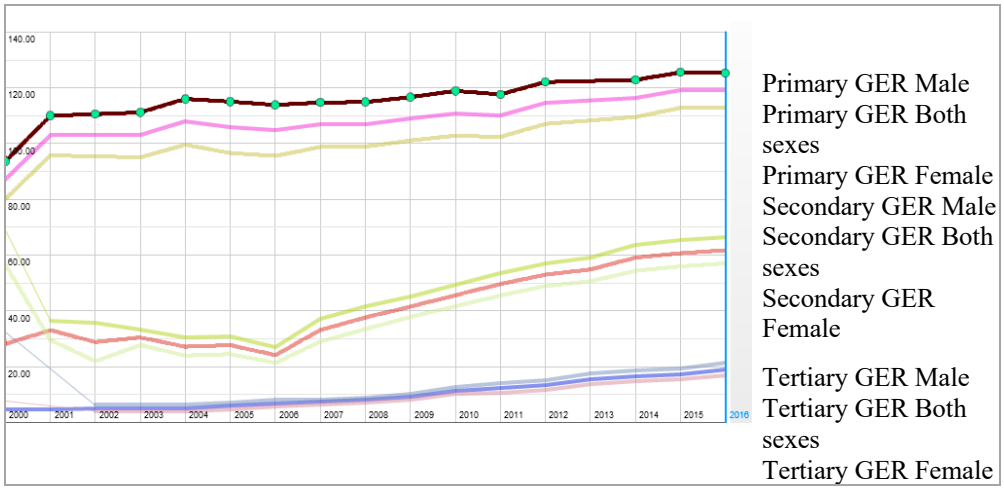

Figure 3-3 GERs in primary, secondary and tertiary education in Cameroon (2012-2016)

Source: UNESCO UIS database

Statistically, the primary education GER in Cameroon was 119% in 2016, and the secondary education GER was 61%, while the tertiary education GER was only 19.2%. Regarding the gender gaps, males outnumbered females in all three stages of education. The tertiary education GERs for males and females were 16.9% and 21.4% respectively (see Figure 3-3). Therefore, universal primary education has been achieved in Cameroon, and secondary education has increased during the past decade. Yet, access to tertiary education still lags behind - the expansion has been minor and gender gaps remain. Therefore, more focus should be placed on access to higher education, particular female access to higher education. This leads to the focus of the study being narrowed down to gender differences in participation in higher education.

3.6 Conclusion

This chapter has highlighted the fundamental role that female education can play in different aspects of society, especially for developing countries. Broadly speaking, female education is conducive to economic growth and the social development of a nation. Specifically, for developing countries, female education helps with reducing fertility rates and child mortality rates. It also contributes to improvement in the social status of women and the whole socioeconomic development of the country. With the gradual recognition of the importance of education and female education, considerable international and national efforts have been made worldwide to promote universal education and gender equality in education. Under the guidance of EFA and the MDGs and SDGs, remarkable achievements have been made with regard to realising universal primary education and promoting gender equality in education. However, the unfavourable situation of female education persists, especially in deprived African countries; females still face challenges to participation in education in SSA. Moreover, as the education level increases enrolment rates and gender parity both declines. Therefore, in terms of access to higher education, it is not only females who face challenges, but both males and females may encounter barriers to participation in higher education. Therefore, the next section narrows down the focus to access and participation in higher education.

Chapter Four : Barriers to participation in higher education

4.1 Introduction

With the picture drawn in the previous chapters, the importance of education, and female education in particular, was highlighted, and the relatively depressed higher education picture in sub-Saharan African countries was underlined. This chapter, therefore, moves on to the discussion of barriers to participation in higher education. Starting with the conceptual framework that will be used to guide the discussion, this chapter demonstrates various barriers that are most influential in the process of participation in higher education.

Again, in developing the research questions, the emphasis was placed on literature regarding developing countries, especially those in SSA. However, due to the large amount of literature relating to the developed context, this literature and its relevance to Cameroon was also considered. Huge differences might exist between different nations, and also potential conflicting research evidence can be found. Moreover, given the nature of the study, the relevant barriers can be numerous, yet not all the barriers are appropriate for the Cameroon context and not all the barriers can be dealt with in one study. The rationale for including each factor is discussed in this chapter. Due to a paucity of studies and limitations of space any account will be partial, however, the best summary of key evidence in the field and its relation to the aims of this study has been covered in this chapter.

4.2 Why use the term 'barrier'?

Increasing and widening access to higher education has been a worldwide priority and area for development for some time, and overall higher education enrolment has gradually increased (Altbach, Reisberg et al., 2009).

Nonetheless, the practice of expanding access is not a smooth process. For developing countries, principally within SSA, gross enrolment in higher education is relatively low, and increasing access to higher education is difficult to deliver (Oketch, 2003). Countries may face challenges in expanding access to higher education, while students themselves may be confronted by barriers to participate. Given the national context of this study, in addition to the overall low higher education enrolment rate, gaining access to higher education remains a problem and students still face barriers to participation in higher education, regardless of gender. The term 'barrier', according to Gorard et al. (2007), is an attractive one because it suggests that there is an explanation for differences in participation between different groups, and it also implies that barriers can be overcome with solutions. Therefore, this study adopts the notion of 'barriers' to underpin the conceptual design of the study and consider the current low participation rate in higher education in this context.

4.3 Conceptual framework

There is a large amount of literature describing barriers to participation in higher education, and research suggests several categories for presenting and grouping barriers. For example, Hyde (1993) investigates factors influencing women's educational status in SSA countries and develops a framework for educational decision-making. She looks at the factors using three dimensions: family influence, societal influence and school characteristics. Gorard et al. (2007) deal with this topic with a focus on barriers to participation in higher education. They detect four types of barriers that students need to overcome in order to participate in higher education: cost, time and travel, motivation and institutional barriers. Brock and Cammish (1997) developed a group of nine factors to explore female participation in education in seven developing countries. The factors they investigated were geographical, sociocultural, health, economic, religious, legal, political/administrative, educational, and initiatives. A recent study by Smith (2012) identifies the barriers to participation in higher education as institutional, dispositional and situational

barriers. Those studies provide different groups of barriers affecting education and higher education participation in different national contexts, and the specific barriers included in each study, and the roles they play, also depends on the background setting of the literature.

In order to develop the research questions, and to guide the research design of this study, a conceptual framework was developed based on the classifications of both Hyde (1993) and Gorard et al. (2007). Hyde's classification was adopted because it is based on research in Africa, which makes it suitable for the national setting of this study. However, it is specifically focussed on female education – male education is not discussed in her study. In addition, Hyde explores female education from a general perspective and is not specifically focussed on female access to higher education. Therefore, more attention needs to be paid when applying this framework to participation in higher education and with male students. Gorard et al.'s study, on the other hand, deals with this topic from a more direct perspective with a focus on barriers to participation in higher education, considering both male and female students. However, Gorard et al.'s study was based in the UK, which is a developed national setting. Therefore, factors from both classifications were selectively included in this study to take account of the nature of this study and its setting within a developing nation. Hence, with the classifications from these two studies, in addition to other relevant factors discussed in the SSA studies, such as gender stereotypes, religion and academic achievement, a five-category conceptual framework, based around the most influential barriers, was developed (see Figure 4-1). The framework contains economic barriers, socio-cultural barriers, institutional barriers, family barriers and personal barriers.

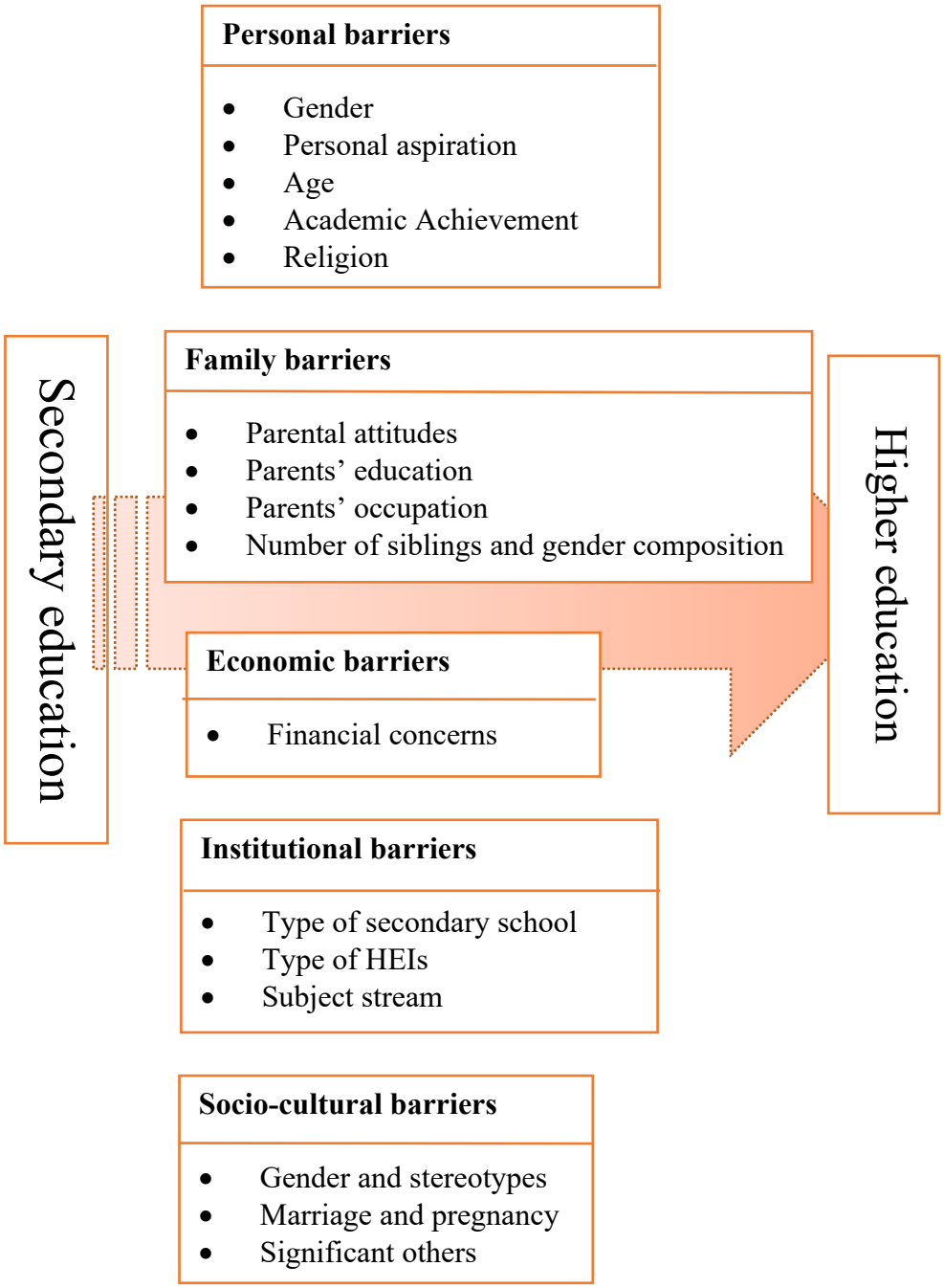

Figure 4-1 Conceptual framework for the present study

The factors are grouped into five categories of barriers for the purpose of discussion. The remainder of this chapter examines in more detail the rationale for employing these barriers and the role that each barrier can play in facilitating or mitigating against participation in HE.

4.4 Barriers to participation in higher education

Studies have been conducted in relation to the factors associated with participation in higher education from different perspectives in different national settings (e.g., Batey et al., 1999; Bowers-Brown, 2006; Chowdry et al., 2013). The associated factors may be different depending on the national context. For example, Brock and Cammish (1997) found that economic factors were the biggest barriers preventing female participation in higher education in developing countries, along with an overwhelming cultural bias against females, while in the UK, motivation and institutional factors can be barriers preventing students from gaining access to higher education (Gorard et al., 2007).

This section presents a discussion of the specific barriers and their role in relation to the process of participation in higher education, under the five themes. Considering that this study is based in Cameroon, more weight was placed upon the developing countries context. The first section illustrates personal barriers: aspiration for higher education (HE), age, academic achievement and religion. Subsequently, family barriers are demonstrated, including parental attitudes, parental education and occupation, number of siblings and children's gender composition. In this study, economic barriers mainly refer to financial concerns regarding the affordability of tuition fees. Institutional barriers are clarified under the discussion of secondary school type, higher education institutions (HEIs) and subject choice. The last category is socio-cultural barriers, comprising gender stereotypes, marriage and pregnancy, and the influence of significant others.

4.4.1 Personal barriers

Personal barriers in this section are students' personal aspirations for HE, their age, academic achievement and religion.

Aspiration for HE

Regarding participation and gaining access to HE, the first and key element is the students' personal attitudes and aspirations towards HE. Scholars have increasingly found this element impacts students' choice for or against continuing to higher education (Freeman, 1997; Croll and Attwood, 2013; Gale et al., 2013). Low expectation and aspiration for HE weakens a student's willingness to continue their studies: Freeman (1997, p.537) states that, among some African Americans, 'college never is an option' and 'loss of hope' are two psychological barriers to their participation in higher education; with students worrying that the economic expenditure and return for higher education are not proportional. With concerns like this, students' motivations to participate in higher education may be weakened. Considering that aspiration for participation in higher education can be a high predictor of actual participation (Croll and Attwood, 2013), many scholars have proposed that promoting and improving students' aspirations for HE can be a way to tackle widening participation in HE. Alongside the worldwide efforts to widen participation in HE and the improving tertiary GERs, recent literature reveals that students' attitudes and aspirations towards HE are becoming more positive. According to scholars from Australia, students from different regions of that country share roughly the same high proportion (70%) of positive aspirations for attending university (Gale et al., 2013; Bowden and Doughney, 2010). A large body of studies undertaken in the developed context reveal a relatively positive picture of students' aspirations to participate in higher education. However, there are insufficient relevant studies in the developing context, especially in Africa. But what we do know is that there is a continuing increase in demand for access to higher education, alongside the governmental efforts to promote higher education as national development strategy (Teferra and Altbachl, 2004). These situations might suggest a positive picture of student participation in higher education, however, students' personal attitudes and aspirations towards higher education have not yet been fully researched in the SSA context, especially Cameroon.

Moreover, there is a large volume of published studies, especially in developed countries, exploring the aspiration differences, in particular between different subgroups, gender groups and groups of different socio-economic status (SES). The evidence is sometimes conflicting, given the difference in research settings. For example, Gale et al. (2013) reveal that in Australia females display higher aspirations for HE than their male counterparts, yet SES background was not found to be a factor in distinguishing the difference in students' aspirations for higher education. However, the conclusion drawn from Gale et al. (2013)'s study uses a sample of 250 students, which as a relatively small number, the associated robustness of the findings could be challenged. Another study undertaken in the UK suggests that students' aspirations for participation in higher education are highly correlated with their SES backgrounds and school-level academic achievements (Croll and Attwood, 2013). Therefore, students' aspirations in different background settings, and the relationship between aspiration and other factors in different settings, should be specifically investigated.

In addition to aspirations for higher education, a handful of studies also investigate students' aspirations for different types of higher education institution. Students may encounter different barriers in obtaining access to different types of HEIs. This is further clarified in the section on institutional barriers (see Chapter 4.4.4).

In this section, aspiration for HE is discussed as a potential deterrent to students' participation in higher education. This was because education is an ongoing process and by the time someone is 18 years old, they are likely to have formed their aspiration for university. Hence, to a certain degree, the aspiration can be a potential barrier that mitigates against a student's willingness to attend higher education. On the other hand, it can also be taken as an explanatory factor, given that other factors might contribute to students' aspirations towards higher education, such as their earlier educational experiences and age. Moreover, to some extent, it is difficult to untangle aspiration for higher education from aspiration for education more generally. Students' aspirations for higher education are cumulative and not isolated. Previous educational experiences have a certain influence on students' higher

education aspirations. Students who have been in education longer are also those who tend to have higher aspirations for education, i.e., final year secondary school students might have higher aspirations for higher education than those who dropped out earlier. Therefore, aspiration can be an overarching theme that influences all other factors. Therefore, aspiration is both a dependent and explanatory variable in the later analysis of this study.

Age

Age, under some circumstances, can also be a barrier deterring students' from participating in higher education. Age is discussed in this study since the range of students' ages within grades is still wide in many SSA countries (Hunt, 2008). For example, in Ghana, the age range for senior secondary school is 14 to 20 years old and a similar pattern can be found in Kenya (Lewin, 2009). The wide age range of students is either because of repetition of a particular grade or late entrants. A number of studies have linked school age with drop-out possibility, where overage students are more likely to drop out before completion (Colclough et al., 2000; Grant and Hallman, 2008; Nekatibeb, 2002; Rose and Al-Samarrai, 2001; Wils, 2004). Lewin (2009) argues that the late entrants imply that overage students come from a disadvantaged background, especially when the late entry is due to poverty; therefore, the possibility of dropping out for those students is higher. Another reason is that, when children get older, they feel more pressure to work (Hunt, 2008). Moreover, according to a study conducted in Tanzania and Ghana, mature students are severely underrepresented in universities in both countries – they are more likely to experience the learner identity of 'other' compared to younger students (Morley et al., 2007). Age can be more of a deterrent for female students due to early marriage, which is discussed in the marriage section. Therefore, age was included in this study as a potential barrier preventing student's participation in higher education.

Academic Achievement

Whether students can go to university or not is predicated primarily on their Academic Achievement (AA). Therefore, academic achievement, as one of

the fundamental determinants of whether or not students can gain access to higher education, should be discussed. In this study, AA includes the grades in secondary school (O/L for Anglophone students and *Probatoire* for Francophone students) and the future examinations for graduation (A/L for Anglophone students and *Baccalauréat* for Francophone students) and potential university entrance examinations.

The relationship between AA in secondary school and access to higher education is straightforward. Under most circumstances, if the entrance requirements are met, students can gain access to university. A number of studies have suggested that there's a relationship between AA and students' aspirations for further studies (Gil-Flores et al., 2011; Muijs, 1997; Rojewski and Hill, 1998; Hunter and May, 2003). Low AA students, or those who fail a grade, are more likely to drop out of school (Boyle et al., 2002). Similarly, higher AA is associated with higher expectations for further studies (Sanders et al., 2001). Chowdry et al. (2013) also demonstrate that low AA in secondary school is the most crucial factor in explaining low participation among students from low SES backgrounds in the UK. It has been argued that, in order to promote low SES background students' participation in higher education, more attention should be paid to improving the AA of those students (Croll and Attwood, 2013). Berzin (2010) also reveals that academic performance contributes significantly to students' educational aspirations among low-income youths.

Furthermore, AA does not exist independently, it can be related with other factors such as parents' education, family environment, teachers and schools (Hunt, 2008; Muijs, 1997; Rivkin et al., 2005). For example, parents' education, especially the mother's education, was found to have a substantial relationship with student's achievement (Akyeampong et al., 2007) – the better the parents' education, particularly the mother's education, the higher the chance of their children having a better AA. Parental involvement has been indicated as having significant influence for secondary school students' AA (Jeynes, 2007; Fan and Chen, 2001). Sirin (2005) also reveals a medium to strong correlation between SES and AA in a large-scale literature review, with the correlation depending on school level, minority status and school

location. Therefore, as a potential barrier hindering students from participation in higher education, AA is discussed in this study. Moreover, it is also a factor that might be influenced by other factors.

Religion

Religion has been identified as one of the factors contributing to inequality in higher education participation (Altbach et al., 2009; Samoff and Carrol, 2004), with the majority of the literature revolving around the discourse of Muslim students and the comparison between Muslim and Christian students.

It has long been discussed that, in most Muslim countries, fewer boys are enrolled in formal schooling than in non-Muslim countries under similar economic conditions (Caldwell, 1986). According to Al-Samarrai and Peasgood (1998), in Tanzania, Muslim boy students were 8.7% and 6.8% less likely to attend and complete secondary school than Christian boy students respectively. Although the authors have argued that the result might be due to the sampling location being in a Christian-dominant region, they further identify that having an Islamic belief lowers by more than a quarter the probability of attending secondary school for both boys and girls. This is also seen in India, where Muslim students are the underrepresented group in higher education: their higher education GER in 2004 being only 7.6% (Altbach et al., 2009).

Furthermore, in some religiously conservative areas the education of women may be less of a priority for some families, especially female access to higher education. According to Brock and Cammish (1997), the majority of religious practitioners and leaders are male, which creates a powerful image beneficial to men, therefore, religious practice generally has a negative influence on female education, especially in some Islamic areas. Altbach et al. (2009) also confirm that some Islamic cultures believe women should not have access to the same education that is available to men. Religion has been identified as restricting girls' education for Muslims in Uganda (Kwesiga, 1993), and it is also one of the factors affecting female participation in education in seven developing countries (Brock and Cammish, 1997). Brock and Cammish

(1997) also demonstrate that limited access to education for girls and negative attitudes towards female education in Northern Cameroon can be explained by it being a largely Muslim area.

Although there is a difference between identifying as belonging to a religious group and the role it plays in one's life, religious culture is associated with students' educational attitudes, particularly in a religiously diverse county – Cameroon. Furthermore, as a multi-religious continent, there are numerous religion affiliated HEIs in Africa. There are a large number of private HEIs supported or sponsored by Christian organisations in Africa, including Cameroon (Varghese, 2004; Altbach et al., 2009; Mama, 2003). Hence, religion can also function as a criterion for students choosing HEIs and will also be considered in this study as a potential barrier.

4.4.2 Family barriers

Family barriers come mainly from the parents' attitudes, influence from their parents' education levels and occupation types. These are discussed in this section, along with the influence of the number of siblings and children's gender composition in the family.

Parental attitudes

The decision to participate in higher education is, sometimes, not only a choice of the students themselves, but is also influenced by their parents' opinions and attitudes (Hyde, 1993; Kwesiga, 1993). It has been well documented that parental attitudes are crucial in predicting students' educational aspirations (Gale et al., 2013; Benner and Mistry, 2007; Collier et al., 2003; Gil-Flores et al., 2011; Marjoribanks, 2002). Parents play an important role in making decisions that affect their children's future plans (Sathar, Lloyd et al., 2003). Research carried out in 12 countries reveals that parents' attitudes, especially the mother's attitude has a significant positive effect on a student's aspiration for higher education (Buchmann and Dalton, 2002). This has also been confirmed in the study undertaken in Central

Queensland, Australia among 250 students from 14 public schools, according to Gale et al. (2013), regardless of parents' educational level, 84% of students (94% of indigenous students) stated that the views of their parents were important or extremely important in formulating their future plans, especially whether to attend university or not. Benner and Mistry (2007) also state that the mother's educational expectation for their children has a direct effect on their children's university attendance. A recent study reveals that, in a rural area of Pakistan, up to 96% of the females students agreed that their parents showed a highly positive attitude towards their participation in higher education, although overall female education is lower in that country (Laila et al., 2016). However, the authors fail to indicate how positive attitudes will contribute to actual female higher education participation in Pakistan. Furthermore, the parental attitudes were students perceived parental attitudes, and students who remain in education might have biased views in their parental attitudes towards participation in higher education, which also indicates the necessary of following up the students to understand their actual participation rate.

Furthermore, parents' encouragement, as a kind of positive parental attitude, has been suggested as important in influencing students' choices for attending HE (Terenzini et al., 2001; Sewell and Shah, 1968; Hossler et al., 1999). Sewell and Shah (1968) argue that parental encouragement, along with intelligence and socioeconomic status, have a substantial impact on both male and female access to higher education among a sample of 10,318 high school seniors in Wisconsin, USA. Perna (2000) suggests that parental encouragement has different effects on students' likelihood for college attendance among different race groups in the USA, where parental encouragement can increase Whites' college enrolment, yet have no influence on African Americans' and Hispanics' college attendance. Terenzini et al. (2001) further confirmed the role of parental encouragement as one of the powerful factors shaping low SES students' aspirations and expectations for higher education in the USA. Similarly, in the UK, Collier et al. (2003) investigated working-class students' plans for participation in higher education and reveal that one third of students who received strong

encouragement from mothers plan to obtain HE, while the figure for students who received mild encouragement and no encouragement declines to 1/10 and 1/20 respectively.

Broadly speaking, parental attitudes towards their children's higher education are positive, and parents are more likely to encourage their children to continue their studies. A large body of literature acknowledges the significance of parental attitudes to a certain degree. However, although much attention has been paid to the developed national context, especially low SES students from developed nations, parental attitudes have not been fully investigated in the developing context. Therefore, the specific impact of parental attitudes in Cameroon needs to be explored.

Parental education and parental occupation

The influence of parental education and occupation on children's education has been widely discussed (Hyde, 1993; Coleman, 1966; Bourdieu, 1986; Gil-Flores et al., 2011), and a large body of literature (e.g., Davies and Guppy, 1997; Smith, 2011; McKay and Devlin, 2016) has used SES background as an indicator of family background.

Starting with Bourdieu's cultural capital, cultural capital is generally invested by the family – parents can provide their children with cultural capital by transmitting their knowledge and attitudes, and this can affect their children' educational actions and scholastic yield (Bourdieu, 1986). Students from a higher-class background are likely to possess more resources, which enables them to gain higher educational credentials than their lower-class counterparts. Bourdieu's theory underpins numerous studies emphasising the influence of family, and also influences this present study. However, Bourdieu did not fully define what cultural capital is and how cultural capital is converted into educational credentials (Sullivan, 2002; Schuller et al., 2000). Therefore, Bourdieu's cultural capital was adopted as a small tier to support the potential influence from family background. Specific influence from parental education and occupation levels was employed in this study, rather than adopting Bourdieu's cultural capital theory. Furthermore, in

addition to family background, other barriers were also detected in this study to identify the influence of each barrier and find out the most important barriers.

Either with or without Bourdieu's cultural capital as an underpinning, many studies have shown that the parental education level, especially the mother's education level, has a significant influence on children's education opportunities at different education levels (Hill and King, 1993; Harris, 1998; Kwesiga, 1993; Harris and Halpin, 2002; Davis-Kean, 2005; Hyde, 1993). Parental education and occupation are both shown as being positively related to children's access to higher education, whereby they pass corresponding levels of aspiration onto their children (Gil-Flores et al., 2011). In the Coleman (1966) report, the impact of family background is found to exceed that of differences between schools. The influence of the parents' education has been verified in numerous studies undertaken in the developed context. For example, in OECD countries, students with parents who have a higher education level are 4.5 times more likely to attend higher education than others (OECD, 2015). Similarly, Konstantinovskiy (2012) states that in Russia the likelihood of a child participating in higher education is only 20% if his/her parents do not have higher education degrees. Research undertaken in Greece shows that students with parents who have received higher education are overrepresented in prestigious higher education departments (Tsiplakides, 2018). Furthermore, parents' education is identified as a major factor in affecting children's higher education choices, and students with better educated parents are more likely to apply to better institutions (Chapman, 1981; Dunnett et al., 2012). However, research in Canada reveals that parental influences are greatly diminished once other factors, such as academic achievement, are included, with parental income being a significant factor contributing to children gaining access to higher education (Finnie and Mueller, 2008). However, one can also argue that a student's academic achievement is also influenced by the parents.

Contrasting with Coleman's report, and the Western accepted view of the role of family background and education, the Heyneman-Loxley (HL) hypothesis points out that differences exist between developed and less developed

nations. In developed countries, family background matters more, and school resources less, while the reverse is the case for lesser developed countries (Heyneman and Loxley, 1983). Although the HL hypothesis focuses on student achievement and does not directly refer to access to higher education, students' achievements are closely linked to their attitudes and to access to higher education, so it is seen as relevant for the purposes of this study. However, some recent studies have revisited the HL hypothesis and suggest that the HL hypothesis had been declining over time in some countries (Baker et al., 2002; Bouhlila, 2015; Huang, 2010). Baker et al. (2002) argue that the cross-national effect of the HL hypothesis is reducing gradually and poorer countries do not show stronger school effects, and the family background influence on student achievement is similar across countries regardless of national income. Huang (2010) also re-examined the HL effect in the Philippines with a longitudinal study of 1,790 students and reveals that schools only contribute 3-5% of the overall variance of the students' achievement scores.

Moreover, many studies have illustrated the link between parental education and occupation background, and students' access to higher education in developing nations (Akyeampong et al., 2007; Al-Samarrai and Peasgood, 1998; Hunt, 2008). For example, Hill and King (1993) argue that, in the developing context, a better-educated mother can bring up better-educated children. This is reconfirmed in some recent studies in Africa; according to Shabaya and Konadu-Agyemang (2004), the mother's education level is an important predictor of children's attainment in schools, especially for girls. However, these arguments were more based on literature rather than empirical evidences. In a study conducted in Tanzania, if a mother received primary education, there is a 9.7% increase in the probability of girls enrolling in secondary school, while mothers receiving secondary education can increase girls' enrolment in secondary school by 17.6% (Al-Samarrai and Peasgood, 1998). Similarly in Ghana, the parental educational influence is also significant, although it is diminishing over generations. Among the older generation (age 55 and over), men with fathers who had received secondary education had a 40% chance of attending higher education, which was 33

times higher than those with fathers who had no schooling experience, while men with mothers who had received secondary education were 67 times more likely to attend higher education than those with a mother who had had no schooling. For the younger generation, the likelihood of attending higher education if their father or mother had received secondary education was 4 and 7 times greater respectively than those with parents who had had no schooling (Schultz, 2004). These findings are similar in Côte d'Ivoire, where the parents' education can also be taken as a basis for identifying the differences in higher education attendance (Schultz, 2004).

Therefore, substantial research has illustrated the relationship between parental influence and access to education. While some literature emphasises that institutional factors exceed parents' influence, the majority of recent research acknowledges the significance of parents' influence. Yet the specific extent of parents' influence on students' aspirations for higher education in the Cameroonian context is still worth exploring. Moreover, in order to consider specific barriers that might affect students' attitudes towards higher education, parental education and parental occupation are discussed separately instead of adopting a collapsed category of SES status.

Number of siblings and children's gender composition

This item can also be referred to as the sibling influence on an individual's educational opportunities within the family. The number of children in a family and their gender composition have an effect on the educational opportunities that they can expect to receive (Hunt, 2008; Lloyd et al., 2005).

Under most circumstances, in the developing nations' context, the greater the number of siblings, the lower the chance of schooling (Boyle et al., 2002; Eloundou-Enyegue and Williams, 2006). For example, in Kenya, a large average household size (10-14) is one of the reasons explaining the high dropout rate of children from schooling, as there are disparities between limited family income and compulsory school expenditure (Boyle et al., 2002). However, the impact of the number of siblings on educational opportunity differs in different backgrounds (Hunt, 2008; Eloundou-Enyegue

and Williams, 2006). According to Colclough et al. (2000), no evidence was found to support the association between number of siblings and schooling status among low income households in Guinea, and data from Ethiopia reveal a reverse relationship between number of siblings and schooling chance – this is because, in poor and larger families, with more siblings sharing the housework the chance of a particular child going to school is improved. Eloundou-Enyegue and Williams (2006) re-examined the surprisingly weak relationships between family size and schooling found in SSA and argue that there is an association between number of siblings and schooling in the Central province of Cameroon. Yet, when considering the country as a whole, the association only exists in urban areas and not the rural areas. It should be more prudent to generalise the country or region-specific findings into the SSA context or other context, which may account for the conflicting empirical evidence in these studies.

Furthermore, gender composition and birth order also matter in determining access to higher education (Boyle et al., 2002) and, more specifically, barriers experienced by female children in the family. Within large families, there is the possibility that some children can get access to school while others need to work at home or on the farm, and in most African countries it is boys that can generally gain this educational advantage (Hyde, 1993; Lloyd and Blanc, 1996). Girl children are frequently the ones dropping out from school to take care of younger ones in the family (Brock and Cammish, 1997). In Nepal, girls are more likely to be withdrawn from school with the intention of schooling their younger siblings (generally a boy) (Boyle et al., 2002). Different studies carried out in the United States, Japan and Turkey draw a similar conclusion, that the larger the family the less opportunity women have for getting access to higher education (Vincent-Lancrin, 2008).

Therefore, the relationship between number of siblings, gender composition and schooling opportunity suggests that in general having a larger number of siblings and being a girl in the family are factors likely to hinder a student's educational opportunities. However, the specific relationship needs to be investigated further in relation to the Cameroon context.

4.4.3 Financial concerns

Concerns about the direct and indirect financial costs for higher education can be a deterrent for students' participation in higher education, both in developed and developing regions (Gorard et al., 2007; Kahlenberg, 2004; Lewin, 2009; Eloundou-Enyegue et al., 2004). For students from developed countries, 'financial concerns' refers mainly to concerns about accumulating debt during their undergraduate studies. There is a considerable body of research that inspects the influence of debt on students' access to higher education in this context (Gorard et al., 2007; Connor et al., 2001; Callender and Jackson, 2005; Bowers-Brown, 2006). For students in the UK, cost and potential debt can be a barrier preventing them from participating in higher education (Archuleta et al., 2013), although more commonly the debt concerns push students to choose HEIs close to home or HEIs in areas with a low cost of living or better employment opportunities (Callender and Jackson, 2008). This is more noticeable among students from lower SES groups. Therefore, in research carried out in the developed context, particular attention has been paid to disadvantaged groups, such as students from poorer families and low SES backgrounds. For example, according to Kahlenberg (2004), low income students in the United States were left behind in participation in higher education, with lower college enrolment rates and particularly for prestigious colleges. Specifically, the percentage of HE students in college that came from low income families was less than 60%, while the figure for highest income families was 90%. The student proportion in top colleges was much more imbalanced, with only 3% of students coming from the poorest backgrounds (Kahlenberg, 2004). Although specific recruitment efforts have been made for the disadvantaged groups, recent studies show that low participation rates remain for low SES background students (Tight, 2012). For students from families with a difficult financial situation, entering the labour market and earning money might be their priority instead of continuing their studies (Konstantinovskiy, 2012). In the UK, students from privileged backgrounds are two times more likely to go to university than those from less advantaged backgrounds (Croll and Attwood, 2013).

A considerable body of studies exists in the developed context with more focus placed on low SES background students, however, in developing countries financial concerns can be overwhelming (Croll and Attwood, 2013; Lewin, 2009). They not only influence students' access to higher education, but also impact upon students in obtaining primary and secondary education (Lewin, 2009; Eloundou-Enyegue et al., 2004). According to the EFA and MDGs reports, household income has been an indicator for children's primary and secondary education participation among developing counties, with students from the poorest households in 63 developing countries being four times as likely to be out of school as those in the richest households (UN, 2015a; UNESCO-EFA, 2015).

Lewin (2007a) argues that family income remains one of the most powerful determinants for gaining access to Grade 9 and beyond in SSA countries (Grades 9 or 10 are often defined as the end of the basic education cycle). Figure 4-2 illustrates the schooling participation gaps among household income and gender for 15-19 year old students in SSA countries, where students from richer families consistently outnumber those from poorer families, and females from the same wealth-level families are always less represented than males (Lewin, 2007a).

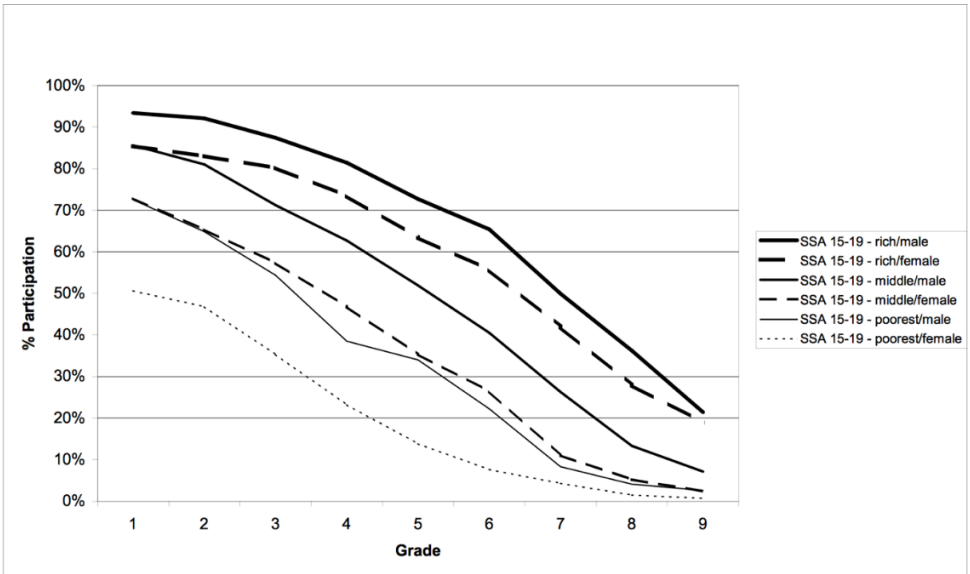

Figure 4-2 Highest grade reached by wealth and gender – SSA

Source: Demographic and Health Surveys (DHS), various (Lewin, 2007a)

Lewin (2009) further confirms that students from the richest families have six times the chance of being enrolled in Grade 9 than those from the poorest families, and urban children are approximately four times more likely to reach Grade 9 than their rural counterparts. In Cameroon, lack of money has been one of the primary factors leading to school dropout (Eloundou-Enyegue et al., 2004). Furthermore, while family income is a key determinant of a child's likelihood of attending school, this is more the case with girls – being female in poorer households has double the detrimental effect on schooling. A study carried out in seven developing countries indicates that economic factors are one of the most influential elements in a family's decision to support their daughters in gaining education (Brock and Cammish, 1997). In Kenya, when a family faces difficulties in sending their children to school, boys' education is favoured over girls' – fees are generally part of the obstacles to parents deciding to send their daughters to school (Johannes, 2010). A study conducted in Malawi in 1990 demonstrates that, when faced with financial difficulties, parents decide who they will send to school, with 31% of the parents choosing to send their sons to school, whereas only 10% of parents would send their daughters to school (Kainja, Mkandawire, cited by Grant-Lewis, Horne et al., 1990).

With specific reference to higher education, while family income is a determinant for access to primary and secondary education, especially for low SES students and females in developing countries, the affordability of higher education tuition fees is more of a major determinant for students' participation in higher education (Morley et al., 2007). According to Johannes and Noula (2011), in Cameroon, students from the poorest income families are less likely to attend higher education, and the GRE for females from the poorest families are approximately one percent, which is the lowest among the different income quintiles. In China, parental income is also significant in influencing higher education attendance, with students from high income families having more chance of attending elite universities than those from low and middle income families (Li, 2007). In both Ghana and Tanzania, while higher education participation is increasing, the students participating in higher education are predominantly from wealthier backgrounds (Morley

et al., 2009). The impact of family income refers mainly to the influence of financial concerns and the affordability of tuition fees. Students from the poorest households, especially females, are less likely to participate in higher education. For example, on all the universities' programmes in Ghana and Tanzania, students from low socio-economic backgrounds were severely under-represented. For those financially disadvantaged groups, even though they gained access to university, most of the students in the study chose the subject area of education, which is the subject with the lowest tuition fees (Morley et al., 2007). It has been pointed out by Schultz (2004) that a major shortcoming of higher education among African countries is that more benefits are given to children from upper economic classes, children who living in urban areas and children with better educated parents. Also, Msigwa (2016) suggests that more opportunities and student loans should be provided to students from low SES backgrounds in Tanzania.

From a broad perspective, personal financial concerns and difficulties in affording tuition fees are also linked to the national economic status. Tertiary education in many African countries offers very limited options for securing adequate funding and additional resources from the government or society (UNESCO, 2010; Teferra and Altbachl, 2004; Oketch, 2016; Oketch, 2003). Although there is a history of free higher education in some Africa countries, including Kenya, Zambia, and Mozambique, Wangenge-Ouma (2012) argues that in South Africa free higher education might have a potential negative equity impact for the whole country. For example, it may be reinforcing the inequality when distributing schools and resources in that country. In Cameroon, the operation of public universities and institutions depends on tuition fees and government funding (UNESCO-IBE, 2006) (see Chapter 2.4.2). Completely free higher education is not available in Cameroon, and there is limited funding from government for higher education, leaving financial concerns a potential barrier for students to participate in higher education (Schultz, 2004).

In this section, financial concerns were discussed as a potential barrier to participate in higher education. A large body of the literature links this issue to the discussion of SES backgrounds, where students from low SES

backgrounds experience greater financial concerns with regard to gaining access to HE. However, SES background is an indicator of a combination of family income, parents' occupation and parents' education, and is not entitled to a clear classification criterion. Previous work has not elaborated on the classifications used in their own studies, and hence the categories they discussed might be vary from country to country, from study to study. Therefore, SES background, as a category, was not adopted in the present study, and financial concerns refer to students' concerns regarding the affordability of tuition fees.

4.4.4 Institutional barriers

In this study, institutional barriers refer to the secondary schools that students come from and the potential HEIs they would like to attend – both might have a relationship with students' access to higher education.

Secondary school

Secondary school itself can be a factor related with students' future schooling plans – the type of school and the experience of schooling both matter for the student. Many researches have discussed the differences between public and private schools, which might influence students' experience of schooling. In the SSA schooling system, public schools dominate, whereas private schools mainly meet the needs of relatively wealthy people (Tikly et al., 2003; Lewin, 2007a). Private schools tend to have better facilities, more teachers and smaller classes. And the cost of attending private schools is higher than that for public ones, so marginalised people are less likely to choose private schools (Lewin, 2007b). Therefore, students from private schools tend to come from more affluent backgrounds, and the better-off the families, the more the possibility of participation in higher education (Croll and Attwood, 2013; Lewin, 2009).

The school's teaching language also matters in a bilingual country, especially as this study was undertaken in Yaoundé, the Francophone region of

Cameroon. Although, as an officially bilingual country the government has put efforts into implementing a bilingualism policy in schools, however, students fail to be bilingual from the primary education level, with students from Francophone regions not acquiring proficient English and Anglophones are not required to attain proficient French (Kouega, 2003). According to Kouega (2018), even in Anglophone secondary schools the courses are taught mainly in French and Pidgin English (English-based creole language), and examinations are set in French and poorly translated into English, which increases the failure rate of students. The reason for this can be referred to the 'Anglophone problem in Cameroon', where Anglophones are 'marginalised' (see Chapter 2.4.4). However, scholars (e.g., Anchimbe, 2005; Fonyuy, 2010; Enongene, 2013) have pointed out that there is a rush in demand for English-medium education in contemporary urban Cameroon. According to Fonyuy (2010), there's 'stiff competition' between Anglophone and Francophone families scrambling for places for their children in English-medium schools. Approximately half of the Anglophone primary school students in Yaoundé are Francophones (Anchimbe, 2005). Receiving English-medium education in Francophone regions can be more expensive than French-medium education, hence, since this study was undertaken in the central province of the country, an assumption can be made that students in the Anglophone section come from relatively more affluent family backgrounds.

From another point of view, Anglophone students might encounter more obstacles when considering higher education in Francophone regions such as Yaoundé. French has an overwhelmingly dominant place in the country, where Anglophone people are marginalised to a certain degree (Kouega, 2003; Fonyuy, 2010). For example, Anglophone students who performed very well in GCE A/L might not able to pass the entrance examinations into professional schools given the examination programmes were mainly based on the *Baccalauréat* syllabus (Kouega, 2018). Moreover, even if Anglophone students gained access to higher education, the French language dominates the higher education curriculums (six out of eight public universities are run on the Francophone model), which also puts Anglophone students in a disadvantaged position. Anglophone students are compelled to follow the

same course taught in French as their Francophone classmates (Kouega, 2018; Fonyuy, 2010). Furthermore, from primary school, students are educated in either the Anglophone or Francophone system – it is difficult to switch between the two systems. Therefore, students might see the teaching language as a barrier and foresee potential difficulties in attending the HEIs.

Students' experiences in secondary school can also be a potential factor in determining whether or not students want to continue their studies (Payne, 2003; Attwood and Croll, 2011). Students' attitudes towards school are not only related to the teacher, which is discussed in the 'significant other' section (see Chapter 4.4.5), but is also related to the courses they attend, the knowledge they acquire, and the school as a whole.

Scholars have found associations between attitudes towards secondary school and students' intentions for gaining access to higher education (Attwood and Croll, 2011; Croll et al., 2008; Payne, 2003). It is not surprising to notice that students are unlikely to stay in the education system if they are not enjoying their schooling experiences (Payne, 2003). In developed countries, such as the UK, students generally hold positive attitudes towards secondary schools and they have intentions for staying in the education system (Attwood and Croll, 2011; Payne, 2003). Lee and Burkam (2003) suggest that offering a greater number of academic courses is more likely to attract students to stay in the schooling system. The positive relationship between academic achievement and aspirations for education has been described earlier (see Chapter 4.4.1). Yet few studies examining the impact of the secondary schooling experience on the shaping of aspirations for higher education have been carried out in developing countries, particularly in SSA. More often, existing literature explores the association between school experience and 'dropping out'. For example, poor facilities and lack of resources in the classroom have an impact on the students' schooling experience, which leads to drop-out in developing countries (Hunt, 2008). Therefore, the secondary school experience itself as a potential deterrent is also included in this study to consider its role in shaping students' higher education aspirations.

Choice of Higher Education Institutions (HEIs)

Given the overall increase in higher education enrolment globally, students broadly hold positive attitudes towards higher education, hence, the different types of HEIs students would like to attend has a crucial effect on which potential barriers they may face. Students might encounter different perceived and actual barriers according to their different preferred types of HEIs. Various studies have examined the preference patterns of different groups applying to different types of HEIs, e.g., gender groups, low and high SES groups (Baker and Brown, 2007; Vincent-Lancrin, 2008; Mullen and Baker, 2015).

Although the broad picture, mainly in the developed countries, shows that the number of females participating in higher education is greater than males, Mullen and Baker (2015) argue that, in the United States, a large gender gap persists in the types of institutions they attend. Females make up nearly 70% of students in the least selective institutions, while males are more concentrated in the highly selective institutions (the more selective an institution, the higher the admissions test scores and the fewer the number of enrolments), and this trend has not changed since the early 1990s. Vincent-Lancrin (2008) also identifies the gender pattern in different types of HEIs men and women follow in some OECD countries: women generally study in colleges, while men tend to be more prevalent in universities. Also, Buchmann (2009) argues that the overall gender segregation in the type of institutions students attend is gradually reducing.

Differences in tuition fees and institutional culture are also found to be linked with students' choices of institutions. According to Perna and Titus (2004), in the United States, public policies regarding tuition fees and financial aid to students are influential for students when deciding the type of college they want to attend. As discussed previously, parents having obtained higher education themselves is a major factor related with their children's higher education choices and students with better-educated parents are more likely to apply to better institutions (Chapman, 1981). However, the student college choice model suggested by Chapman (1981) is based on literature from

different backgrounds, and some of the factors included in the model is less relevant given the outdated context, such as the influence of printed recruitment materials. Yet, some recent studies reveal that the role of tuition fee remains ever since. For example, Dooley et al. (2012) reveal that in Canada, as the cost of education increases, including tuition and mandatory fees, so does the share of students from higher income backgrounds, as opposed to middle and low income students. Similarly, in the UK, some empirical evidence is provided to support the relationship between students' SES background and their choice of HEI type (Dunnett et al., 2012). Under-representation of low SES students is severe in Africa, according to Morley et al. (2007) – disadvantaged SES students are under-represented on all programmes in higher education in both Tanzania and Ghana, and those students are totally absent from some programmes. It is also most likely that the lower SES students will enter into lower status programmes and institutions (Morley et al., 2009). Imenda et al. (2004) argue that racial group has been a crucial factor in South African society, as students who chose historically black institutions were more concerned with financial constraints, while that didn't apply to students who chose historically white institutions. Therefore, tuition fees broadly have a certain impact on students' HEI choices, yet the specific impact in different national settings should be investigated separately.

In African countries, private universities are prevalent as a result of the limited public university capability and increasing demand for higher education. For example, in 2008, only 46.9% of the applicants gained a place in the public university - University of Ghana (Okrah and Adabor, 2010). Private higher education institutions, therefore, also provide opportunities to gain access to HE. However, private higher education is expensive compared with public universities in African countries (Banya, 2001). According to Teferra and Altbachl (2004), private institutions are mainly located in major cities with larger numbers of students and better infrastructure. So the problem with attending private higher education is the relatively greater educational expenditure. For example, a Catholic university in Cameroon charges approximately US$ 2700 (£2,051) per year in tuition fees, room and

board (Banya, 2001), while that cost for a state university is 50,000 XFA (approximately £64) (UNESCO-IBE, 2006).

Furthermore, there's a relatively new trend for African students to study abroad (UNESCO, 2010; UNESCO-UIS, 2011). According to UNESCO, large numbers of students from SSA and the Southern Africa Development Community (SADC) pursue higher education abroad. Students are more likely to choose to study abroad than before, and the SADC shows a higher outbound mobility ratio of 6%. The number of mobile students from sub-Saharan Africa accounts for 4.9% of the national higher education enrolment rate in 2010 (UNESCO, 2010). Cameroon was one of the countries with the largest number of students studying abroad (15,897), following Nigeria (21,697) and Zimbabwe (15,940) (UNESCO-UIS, 2006). Regarding the destination for internationally mobile students from SSA countries, South Africa hosted about one fifth of these students in 2008, another two-thirds of mobile students chose North America and Western Europe. Students from Cameroon were more likely to choose France and Canada as their first option, given the language considerations (UNESCO, 2010). The motivation to study abroad varies. According to studies, getting access to education, the quality of education and employment opportunities are some of the most important drivers leading students to pursue higher education in a foreign country (Chien et al., 2011; Maringe and Carter, 2007). However, Maringe and Carter (2007) discuss the risks and anxieties of studying abroad from African students' perspectives and reveal that financial risk might be the most important factor for African students studying abroad, in addition to other risks including opportunity costs, social-cultural risks, legal administrative risks and academic risks. Therefore, with the growing trend of studying abroad and the globalisation of international higher education, students are open to more opportunities for studying abroad; however, that choice might require students to overcome more barriers if it is to be achieved.

In summary, although overall higher education participation has been increasing, the different types of HEIs that students choose also implies different barriers they might encounter, with students from more affluent

family backgrounds having a higher chance of attending more prestigious HEIs.

Subject stream

This category refers to the courses students attended in secondary school and the subjects they would like to pursue in higher education. Subject choice can be a factor lowering student's willingness to participate in HE, such as if they didn't enjoy what they studied in secondary school or the HEIs do not offer them their preferred subject (Shulruf et al., 2008; Görlitz and Gravert, 2018). Furthermore, more commonly, subject choice follows gender stereotypes.

Gender stereotyped subject choice has been widely noted and discussed for a long time, with females dominating in the arts and social science subjects (i.e., art, history, education and language), and males overrepresented in the science subjects (also known as STEM subjects – science, technology, engineering and mathematics) (Thomas, 1990; Francis, 2000; Jacobs, 1996; Buchmann, 2009). Bradley (2000) reviews the gender differentiation by field of study in a wide range of countries from 1965 to 1990 and finds that women were more likely to graduate from education, arts, humanities and the social sciences, while men mainly graduated from natural sciences, mathematics and engineering, with the gender distinction declining very little over the past years. Gender stereotyped subject choice starts in secondary school, when students are offered the choice between social science and science, with fewer girls opting for the sciences. This phenomenon is prevalent in both developed and developing countries. For example, in the early 1960s in the United States, over 70% of female undergraduates majored in only six subjects: education, English, fine arts, nursing, history and home economics (Jacobs, 1996). In Malawi, the number of boys choosing biology and mathematics was almost twice that of girls (O'Connor, 2003). A study carried out in Uganda indicates that limited subjects or courses offered to girls reduces their chances of participating in a variety of HEIs (Kwesiga, 1993). Regarding the unbalanced and seriously gender stereotyped subject choices, many strategies have been employed to promote female participation in science subjects, such as Gender and Science & Technology Education, and Female Education in Mathematics

and Science in Africa (FEMSA) Project. The FEMSA project was launched by UNESCO in four African countries, Cameroon, Ghana, Tanzania and Uganda, and this project aims to improve female students' access to, and performance in, Science, Mathematics and Technology at the primary and secondary education level (UNESCO, 1997; UNESCO, 1996).

Gendered segregation is gradually reducing, with more and more females engaging in science subjects, however, the low enrolment of females in STEM subjects persists. For example, in Tanzania, the average percentage of female undergraduates in Maths and Engineering in 2007 was 20.23% and 24.88% respectively. Similarly, in Ghana, 26.18% of undergraduates enrolled in the Optometry programme were female. The entry rates of mature and low SES female students into these programmes were particularly low (Morley et al., 2007). Therefore, the impact of subject choice on participation in HE in Cameroon is also discussed in this study.

4.4.5 Socio-cultural barriers

Social-cultural barriers are discussed in this section, including gender and gender stereotypes, marriage and pregnancy, and significant others.

Gender and gender stereotypes

Gender has been shown to be a crucial factor associated with students' access to HE (Aderinto et al., 2006; Carrington and Pratt, 2003; European Students, 2008; Mullen and Baker, 2015). As discussed in the previous chapter (Chapter Three), there is a gender gap, or gender imbalance, between males and females in access to HE, which implies that gender might be a barrier that discourages students from participation in HE or a factor that would potentially influence students' choices of HEIs. However, situations vary across different contexts. For instance, in developed regions such as the UK, more women than men participate in HE, while in the less developed regions, female students are still left behind in the overall number attending higher education (Lewin, 2007a; Lewin, 2009; Eloundou-Enyegue et al., 2004;

Johannes, 2010). Gender itself can potentially be a criterion for distinguishing differences, while students' socio-cultural understanding of being a female or male might influence the interpretation of their educational opportunity, and hence influence students' attitudes towards higher education. This section focuses on gender stereotypes and their potential impact on access to higher education. Gender stereotypes can also influence students' subject choices in universities (see Chapter 4.4.4).

Social role theory points out that physical-originated sex differences are socialised and form societal stereotypes whereby men and women tend to develop appropriate personality traits and skills and play gendered roles in society (Eagly et al., 2000). For example, traditionally, men were treated as the breadwinner of the house, while females took the role of caretakers of the home (Eagly and Kite, 1987; Eagly and Wood, 2011). Those stereotyped views can shape people's behaviour, creating different expectations for males and females. It is common in both developed and developing countries to assume that women are expected to become child carers, whereas men will be the earners, and thus women's career development is less important than men's (Donovan et al., 2005; Aderinto et al., 2006; Cammish and Brock, 1994).

Gendered stereotypes are widespread, especially in Africa (Para-Mallam, 2010; Nsamenang, 2000). According to Johannes (2010), in the African tradition, girls must be kept at home to perform domestic and farm labour, and also they need a husband as breadwinner for their future family, where they will take care of their children in return. Women are treated as second class citizens and are in a marginal position in some regions and social groups in Africa (Cammish and Brock, 1994; Cornwall, 2005). Nsamenang (2000) discusses fatherhood in Cameroon, stating that, as a male-dominated society, Cameroonians place women in a subordinate position to men. For example, woman's decisions have limited effect, mainly among womenfolk, while men's decisions can affect both males and females, and the whole of society. Similarly in Nigeria, the public believes that 'women are inferior and therefore subordinate to men', and girls' future expectation of roles is as caring housewives, so they are educated to choose low status, service-

oriented and caring professions after leaving school (Obasi, 1997, p.165). Moreover, gendered stereotypes can also be illustrated by who gets the most freedom. As in many societies, social norms give boys much more freedom, whereas girls might face more restrictions and limitations in their freedom of movement. The socially constructed gender roles leave little space for girls to express their own aspirations and hopes (UNFPA, 2017).

The prevalence of gender-biased traditions and stereotypes restrict the expectations of females, resulting in various problems regarding female participation in education (Brock and Cammish, 1997). In SSA, one challenge that females face is the belief, from parents and the community, that a boy's education is more important than a girl's, and parents, teachers and even girls themselves tend to have lower expectation for female education (Johannes, 2010; Obasi, 1997). Males, as future breadwinners, are generally given priority in relation to education (Rousso, 2003; Aderinto et al., 2006). In Cameroon, parents also favour a son's education in accordance with their culture (UNDP, 2008). According to available data from the UN (2015a), of the 33 million students who were not at school in SSA, 55 per cent of them were girls. Similarly in Bangladesh, gender stereotypes of the parents disfavour female education in rural areas, with parents holding the opinion that educating boys would guarantee more economic returns for their family (Sarker et al., 2017). Azam and Kingdon (2013) reveal that India has a persisting pro-male gender bias in household education expenditure allocation, whereby the parents will invest more in a son's education. For example, they prefer to enrol sons in secondary school rather than daughters and they spend more on boys by sending them to private schools, while daughters attend free government schools.

Efforts have been made to promote female education and encourage more females to access education, for example, the implementation of national free and compulsory Universal Primary Education (UPE), EFA and MDGs. However, the gender gap still persists to some extent, and it widens as the educational level increases (UN, 2015a). Achieving gender equality and empowering all women and girls has been reaffirmed in the SDGs for further development. As Para-Mallam (2010) demonstrates, the pervasive Nigerian

traditional and religious gender biases persistently undermine women's and girls' educational opportunities, therefore, merely widening female access to education is not enough to reduce gender inequality in Nigeria without challenging the pervasive cultural and religious values.

Numerous studies demonstrate the widespread gender stereotypes and their impact on access to education, especially in SSA. We can assume that, under most circumstances, females face a gendered stereotype barrier, which can prevent them from participating in education. Yet, to what extent and how gender stereotypes prevent students from participating in higher education has not been fully discussed, particularly in the Cameroon context. Therefore, gender stereotypes are included in the discourse on barriers.

Marriage and pregnancy

Marriage and pregnancy can interrupt education participation, particularly female education participation (Boyle et al., 2002; Hyde, 1993). As has been argued by many scholars, the age of marriage has a relationship with whether or not students can continue their studies – early marriage will generally lead to females dropping out of school (UNESCO, 2014; UNESCO, 2003; Nguyen and Wodon, 2012). In certain communities, early marriage is quite common. According to Nguyen and Wodon (2012), it is estimated that up to 40% of females from low and middle income countries are married before they are 18 years old; although the prevalence is decreasing slowly, the risk of early marriage still exists. In Zimbabwe, 21% of the children, mainly girl children, are married before 18 year old (Sibanda, 2011). Early marriage is also common in rural regions in Cameroon (Brock and Cammish, 1997). In Cameroon, 13% of girls are married before they are 15 years old and more than one third (33%) are married between ages 15 and 19 (Bekhouche et al., 2013).

Similarly with pregnancy, adolescent pregnancy usually results in girls discontinuing their education in many countries (UNESCO, 2003; Psaki, 2015; Grant and Hallman, 2008). In sub-Saharan Africa there are 14 countries where 30% of women aged 20-24 give birth before they are 18 (Loaiza and

Liang, 2013). Pregnancy accounts for up to 17.7% of secondary school students dropping out across SSA countries. It is also one of the leading causes of girls dropping out in specific countries, for instance, it is the second leading cause of dropout in Cameroon, constituting 22% of all dropouts (Eloundou-Enyegue, 2004). Pregnancy is also the principal reason for females dropping out from secondary schools in Botswana and Ghana (Dunne et al., 2005). The relationship between marriage and fertility management, and female participation in higher education, has been well documented (Vincent-Lancrin, 2008; Eloundou-Enyegue, 2004; UNESCO, 2003; Devolution and Planning, 2013). Specifically, if a woman chooses to get married and give birth at an earlier age, their opportunity to participate in secondary and higher education will be lower. In Cameroon, approximately 25% of pregnancies happen to teenage girls who are at school, and 20% of the girls do not return to school after they get pregnant (Kindzeka, 2017).

Furthermore, cultural practices associated with marriage in some societies can also influence a female's life. There are two marriage systems in Cameroon: monogamy and polygamy. Polygamy has been identified as a contributing factor to the lack of development in sub-Saharan African countries, and moreover, it also strengthens gender inequality in social life (Tertilt, 2006). For example, a very large literacy gap remains for women living in polygamous countries and their right to make their own marriage decisions is limited and mostly controlled by their fathers (Tertilt, 2006). Cammish and Brock (1994) state that, in rural Cameroon, polygamy tends to mitigate against female participation in education – within the polygamous marriage customs, women are treated as just an extra pair of hands working for free in their husband's fields. Therefore, the marriage format is also discussed in this study as a family background factor, given that students in this study had not yet reached the stage of getting married.

In short, the literature demonstrates the negative influence of marriage and pregnancy on students' educational opportunities. Although some positive figures were employed to illustrate that the marriage-related and pregnancy-related risks of leaving school have declined over time for SSA countries (Lloyd and Mensch, 2008), a closer look into the impact of marriage and

pregnancy on students' access to higher education, specifically in Cameroon, is of worth.

Significant others

Significant others refers to 'persons who exercise major influence over the attitudes of individuals' (Woelfel and Haller, 1971, p.75). Woelfel and Haller (1971) identity how significant others can influence an individual's attitudes, and these attitudes in turn impact on an individual's academic performance and their later educational attainment. There is a range of research regarding how students' educational performance and expectations are related with the influence of significant others, such as teachers, peers and close relatives (Haller and Woelfel, 1972; Cheng and Starks, 2002; Rosenthal and Jacobson, 1968; Raffini, 1993; Wentzel, 1998). Parents have also been identified as significant others in many studies (e.g., Perna, 2006; Woelfel and Haller, 1971; Wentzel, 1998). Considering the extent of influence that parents can play, the parent's influence (parental attitudes, parental education and occupation) is untangled from the significant others group and discussed separately in this study.

Teachers as significant others are widely discussed to have certain impact on students (Benner and Mistry, 2007; Lee and Burkam, 2003; Boonen et al., 2014; Roorda et al., 2011). To start with, teachers' expectations are associated with students' performance and achievement. This can be illustrated by the Rosenthal–Jacobson study, in which teacher's expectations were shown to be positively related to students' performance, i.e., teachers' expectations can enhance students' performance to a certain degree (Rosenthal and Jacobson, 1968). The authors argue that this is also related to students' self-fulfilling prophecies (Rosenthal and Jacobson, 1968), and some recent studies suggest that self-fulfilling prophecies are real but typically small in the classroom (Jussim and Harber, 2005; Schultz and Oskamp, 2000). Nonetheless, the implications of teacher's expectations should not be ignored. Moreover, regarding the specific impact on students' achievements, Kuklinski and Weinstein (2001) find a positive association between teacher's high expectations and student's reading achievements in a primary school. Benner

and Mistry (2007) also suggest that teachers' expectations strongly influence students' own educational expectations and their achievement outcomes. However, the secondary data used in this study failed to test the potential mutual influence of these two factors.

Furthermore, teachers not only influence student achievement, but can also be a role model for students to pursue higher education (Lee and Burkam, 2003; Alcott, 2017; Wentzel, 2002). Teachers as role model can be a reason for students being motivated to achieve certain academic and social outcomes (Wentzel, 2002). Lee and Burkam (2003) argue that, when students have a positive relationship with their teachers, they are less likely to drop out from high school. This is because, with positive social relationships, students have a more powerful incentive to come to school. A study in England also identified how teacher encouragement does have a significant positive impact on students' advanced high school courses and university studies (Alcott, 2017). On the other hand, low expectations from teachers can weaken students' schooling motivation and performance. For example, some research has found that teachers (often male teachers) in schools in Africa tend to have lower expectations for girls, which may in turn deter the schooling of girls (Benson, 2002). Benner and Mistry (2007) also demonstrate that there is a higher percentage of low teacher expectations on students from low-income families, which has a significant influence on the students' competency and performance. Therefore, secondary school teachers, as significant others, have a critical role in shaping student's aspirations and attitudes towards higher education.

In addition to teachers, peers also play a role in contributing to students' attitudes towards higher education and their future plans (Vincent-Lancrin, 2008; Terenzini et al., 1994; Chenoweth and Galliher, 2004). A student, as an independent individual, cannot avoid influence from the environment and people around him/her, and personal interactions with friends can also help increase knowledge about studying at university (Willett, 1989; Vincent-Lancrin, 2008). Having an acquaintance who has already attended college can provide important support for a student's transition from high school to college (Terenzini et al., 1994). Furthermore, peer influence varies among

different subgroups. For example, Chenoweth and Galliher (2004) reveal a gender difference in peer influence, with males more influenced by their friends' college plans in their own decisions regarding college, while females' decisions regarding college are not closely related to their friends' plans. However, there are also research showing evidence against peer influence. For example, Cohen (1983) suggests that the peer influence on college aspirations has been inflated by over 100 percent when controlled for peers' initial similarity in aspirations; hence, he believes that peer influence on higher school student aspirations for college is weak. Moreover, Perna (2000) points out that peer encouragement has no influence on students' college enrolment for three race groups in the United States – Hispanics, African Americans and Whites. Therefore, considering the conflicting evidence, the specific impact of peer influence is also discussed in the context of this study.

The influence of siblings and close relatives were included in this research, given the Cameroon cultural context and the commonly found large family sizes and extended families in Africa (Tikly et al., 2003; Eloundou-Enyegue and Williams, 2006). The specific influence from siblings has been discussed in the above section on number of siblings and gender composition (see Chapter 4.4.2), so is not be covered here. In most of Africa, the extended family is one of the cultural traditions (Tikly et al., 2003). This has also been confirmed by studies with African Americans (Cheng and Starks, 2002; Scritchfield and Picou, 1982), whereby African American children are more likely to identify extended family members as important others when considering their educational expectations, and rely more on extended family networks. This also applies to the African context as well as some communities in other contexts. The extended family in SSA can help to increase the number of students who participate in schooling as they can help the biological parents to pay for their children's education (Lloyd and Blanc, 1996; Eloundou-Enyegue and Williams, 2006). Therefore, in this study based in Cameroon context, relatives as significant others is also highlighted.

According to research conducted in 12 countries, the influence from significant others (parents, peers, teachers) is one of the important factors that related with students' educational ambitions, it can influence students

positively and negatively, while the degree of impact varies in different national and institutional settings (Buchmann and Dalton, 2002). Therefore, the specific role of significant others as a potential barrier is investigated in this study. Significant others, relevant to the school life and future educational plans of the final year students discussed in this study, are teachers, peers, siblings and close relatives.

4.5 Conclusion

Starting with a conceptual framework rooted in studies by Hyde (1993) and Gorard et al. (2007), this chapter reviewed a substantial body of literature regarding barriers to participation in higher education under different national contexts using five categories: personal barriers, family barriers, economic barriers, institutional barriers and socio-cultural barriers. Literature from both developed and developing national settings was reviewed in this chapter, with a focus on studies of SSA countries. The influence and extent of influence of each barrier has been well discussed, and conflicting evidence can be found based on different national settings. Factors and evidence from developed countries should be cautiously reviewed when applied to the developing context, considering the national and socio-cultural differences between countries. Therefore, the specific impact of each barrier is worth exploration in this study based on the Cameroon context.

Furthermore, based on the literature review, knowledge gaps are acknowledged for this study. First of all, compared to Western countries, sub-Saharan African countries have gained relatively less attention, and research coverage is relatively limited in this region. A large body of literature regarding the aspirations for HE, parental impact on participation in HE, and influence from significant others is based on developed countries, with a small amount of studies being conducted in developing countries. Moreover, regarding gender studies conducted in Africa, female education has gained more attention while males were ignored to a certain degree in the previous studies. Given the overall low GER in African countries, both males and

females might encounter barriers to participation in higher education. Specifically referring to Cameroon, educational studies have been conducted separately at primary, secondary and higher education levels (Santen, 2014; Fanso, 1989; Endeley and Ngaling, 2002), but the transition of students from secondary education to higher education have not yet been covered. In particular, no study has investigated students' attitudes towards participation in higher education in Cameroon.

In conclusion, considering the paucity of studies in Cameroon, with reference to the low higher education participation rate and gender gap, this study focuses on exploring the potential and actual barriers that might prevent final year secondary students from participating in higher education, with an emphasis on gender differences.

Chapter Five : Research design and methodology

5.1 Introduction

This chapter outlines the research design and research methodology that have been applied in this study. Starting with the mixed methods design chosen for this study, the research instruments' design, including questionnaire design and formulation of the interview schedules, is subsequently demonstrated. It then presents the data collection process, including the pilot study and main study. Ethical considerations, data coding and data analysis techniques are discussed before the last section of the rationales and procedures of model building. Before discussing the research design and methodology, it is worth reiterating the research questions that this study aims to answer:

1. To what extent are there gender differences in attitudes towards participation in higher education among final year secondary school students?

2. What are the perceived barriers to participation in higher education among final year secondary school students?

3. What are the actual barriers experienced by final year secondary school students that influence their participation in higher education?

5.2 Mixed methods research design

This section justifies the choice of mixed methods research design. According to Creswell and Plano Clark (2007), the choice of research design principally depends on the research questions chosen – different research approaches can be used to answer different questions (Pring, 2015).

The purpose of this study is to identify barriers that final year secondary school students might encounter to participation in higher education, and to

investigate whether there are any gender differences regarding these barriers. This kind of study should be better answered with large scale of quantitative data to understand the specific phenomenon or fact in a national setting. However, the research participants in this study are students who are individuals coming from different social, cultural and family backgrounds. Qualitative data should also be collected to draw an explanation of students' personal understanding and experience regard their attitudes towards participation in higher education. Therefore, both quantitative and qualitative methods are used in this study to answer the research questions. Qualitative data is adopted to lessen the potential one-sidedness of the numerical quantitative research conclusions; in-depth personal understandings and explanations from the qualitative research can also complement the generalised findings from the quantitative research.

Mixed methods has emerged over recent decades as an alternative to the dichotomy of quantitative and qualitative traditions (Teddlie and Tashakkori, 2009). Creswell and Plano Clark (2007, p.5) define mixed methods research as 'a research design with a philosophical assumption in addition to methods of inquiry'. Mixed methods is often described as combining techniques or methods of collecting and analysing data (Creswell, 2003; Creswell et al., 2003), and aims to answer research questions using both numerical and narrative forms of information (Teddlie and Tashakkori, 2009). Hence, in a mixed methods research study, both quantitative and qualitative approaches are applied in the entire research process, from the research questions, research methods, data collection and research analysis (Teddlie and Tashakkori, 2009; Creswell, 2013).

Scholars have, for a long time, discussed possible approaches to combining quantitative and qualitative methods in one study and they express different opinions on types of mixed methods designs (Creswell and Plano Clark, 2011; Teddlie and Tashakkori, 2009; Tashakkori and Teddlie, 2010; Seale, 2012). The most common classification is the one provided by Creswell and Plano Clark (2011), which consists of the four most frequently mentioned basic mixed methods designs: Convergent parallel design, Embedded design, Exploratory sequential design and Explanatory sequential design (Bryman,

2016; Creswell, 2013). The explanatory sequential design is a two-phase mixed methods design, the first phase quantitative method is followed by a qualitative method phase; the central premise of this research design is that qualitative data from the second phase helps to explain or elaborate upon the initial quantitative phase of data (Creswell and Plano Clark, 2011; Bryman, 2016).

The explanatory sequential design is applied in this study for the following reasons. First, this is a longitudinal study and there is a sequence required for answering the research questions. In the first stage of data collection the first and second questions should be investigated before students graduate from secondary school, to ascertain their perceived barriers to participation in higher education. Subsequently, the third research question will be examined after the students have entered universities or discontinued studies, to detect the actual barriers they encountered. The investigation of the students' actual barriers to participation in higher education is particularly crucial as much of the research in this field has investigated students' intentions and aspirations for higher education (e.g., Croll and Attwood, 2013; Gale et al., 2013; Hyde, 1993; Gorard et al., 2007; Buchmann and Dalton, 2002) but few studies have followed this up to find what actually happened to the students. This study aims to find out the actual, as well as intended, destinations in the process of participation in higher education. The second reason for an explanatory sequential design is that the second phase of qualitative data aims to explain why perceived barriers stop them from participating in higher education as well as their personal understanding of these barriers. The qualitative data is employed to supplement and explain the initial principal quantitative data, which indicates this is an explanatory research design.

Therefore, what is explored in the research questions, and the chronological order of the research questions, determines the particular nature of the research design, and explanatory sequential design is the most appropriate design for this study. Specifically, the first phase of data collection is quantitative research with data collected by survey questionnaires, whereas semi-structured interviews are employed to collect qualitative data in the second phase of the data collection. The third phase of follow-up interviews

investigate actual barriers experienced by students (see Figure5-1). The specific data collection methods are discussed in the following section.

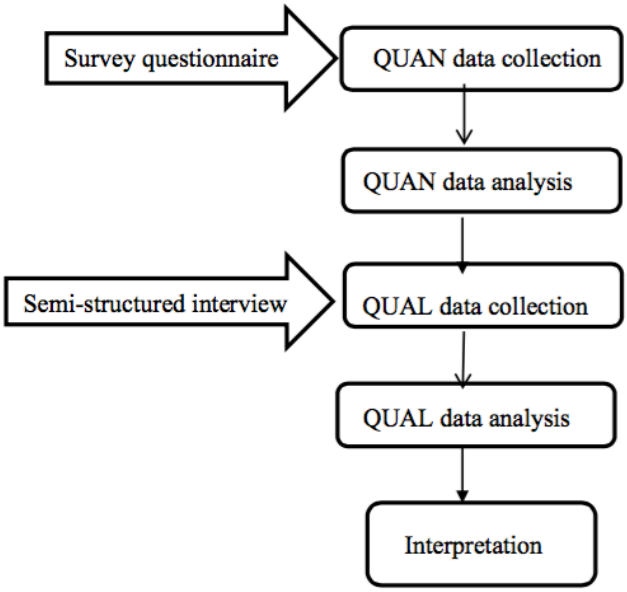

Figure 5-1 Framework of the explanatory sequential design of this study

Source: Adapted from Creswell and Plano Clark (2007), p.73.

5.3 Research instruments selection and design

Questionnaire surveys and semi-structured interviews were both employed in this study because they are the most appropriate instruments for addressing the research questions. This section clarifies the specific reasons for selecting these two data collection instruments and describes their design and complementation.

5.3.1 Selecting the research instruments

Regarding the specific data collection methods within this research design, the first phase of quantitative research employs an on-site self-administered

questionnaire survey for the following reasons. First, in order to sum up and generalise the gender differences in students' perceived barriers to participation in higher education, and to enable cross group comparisons, a large amount of data is necessary. When conducting a large survey, questionnaires can save time and money. Secondly, compared to postal or mail questionnaires, the response rate for a questionnaire completed on-site is higher, therefore a face to face questionnaire survey is more appropriate. Thirdly, an on-site self-administered questionnaire facilitates the subsequent interviews, as it requires the researcher to be present and become familiar with respondents.

Qualitative methods are associated with dealing with narrative information (Teddlie and Tashakkori, 2009), and a variety of methods such as semi- or unstructured interviews, focus group discussions, and participant observation can be used to collect data (Seale, 2012). In the present study, semi-structured interviews are employed because they enable the researcher to get the interview participants (a sub-group of the main sample) to thoroughly reflect on their own situations and provide in-depth personal understanding. Moreover, semi-structured interviews can help to recognise the diversity and individuality of the interviewees, while an in-depth discussion can explore information that is disclosed during the questionnaire survey. Data gained from the interviews were subsequently applied to strengthen or modify the former patterns drawn from the quantitative research. Therefore, for the second and third phase of qualitative data collection, semi-structured interviews were employed.

5.3.2 Designing the questionnaire

It is suggested that the content of the data collection methods (i.e., the questions in the questionnaire) is framed by the research questions, as well as being informed by the literature review (White, 2017; Buckingham and Saunders, 2004; De Vaus, 2002; Oppenheim, 1992). Key concepts and variables that come from the research questions should be identified at the

early stages of designing a questionnaire (Buckingham and Saunders, 2004). In this study, the questionnaire attempts to determine the differences in attitudes towards participation in higher education, and gender differences in perceived barriers to participation in higher education, among final year secondary school students. Students' attitudes and their perceived barriers are the two main themes that need to be addressed by the questionnaire survey. Meanwhile, as has been mentioned, gender also plays an important role in this study; thus, the questionnaire also needs to investigate the gender differences in these attitudes and perceived barriers. According to the conceptual framework of this study (see Chapter 4.3), perceived barriers were categorised into five types: economic, socio-cultural, institutional, family and personal barriers. Therefore, the structure of the questionnaire can be divided into three parts, students' aspirations and attitudes towards participation in higher education, students' perceived barriers to the process of participation in higher education, and students' demographic information (see Appendix 1 and 2). Figure 5-2 presents the structure of the questionnaire, followed by the detailed content of each section.

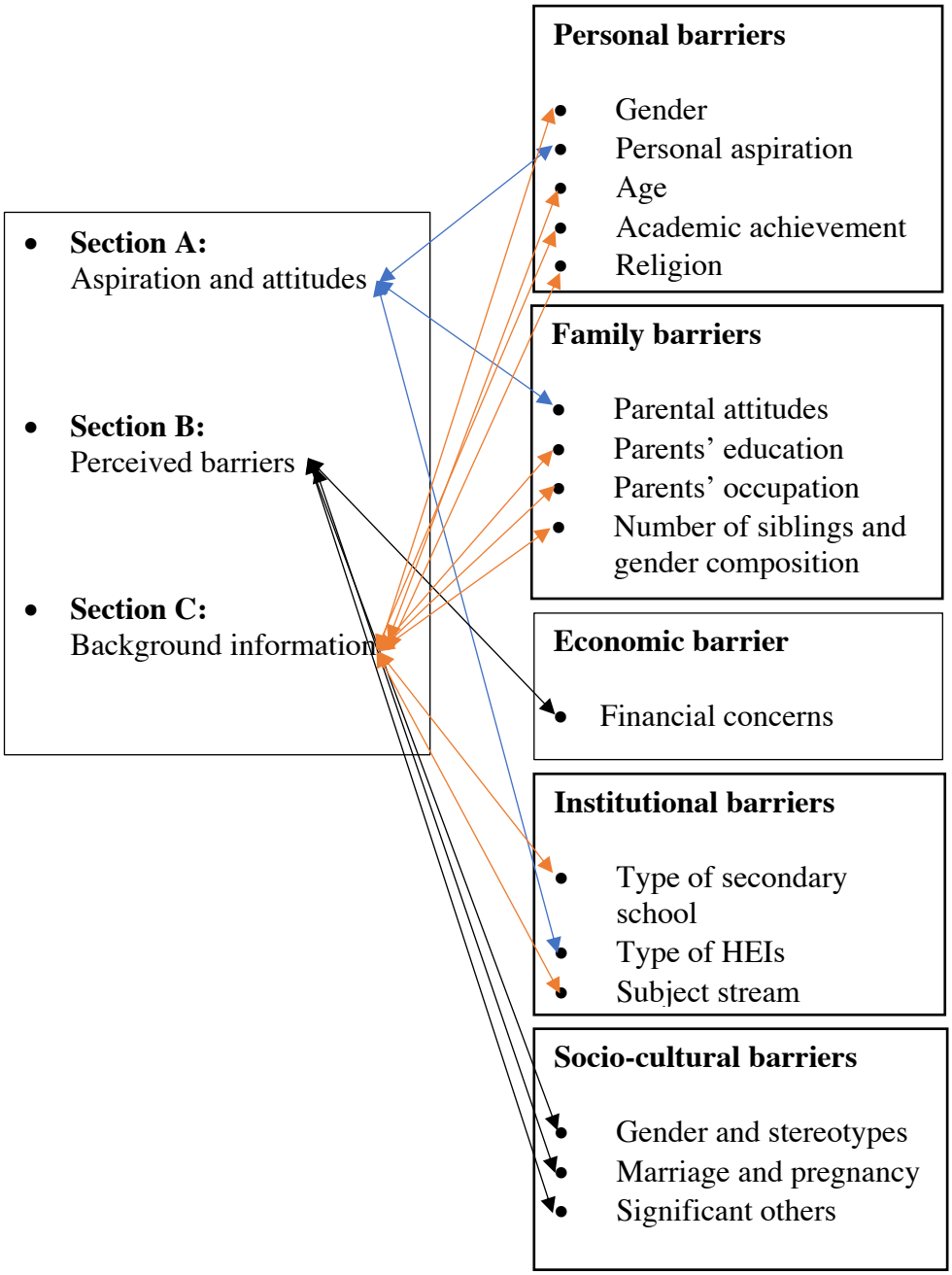

Figure 5-2 Structure of the questionnaire

Section A

The first section of the questionnaire focusses on students' future plans for after graduation and whether they would like to continue their studies or not. A dichotomous question was used to distinguish students. Those wanting to continue their studies were then asked which types of HEIs they wanted to attend and the subject stream they would like to study in higher education;

students who were not sure, or reluctant for further studies, were invited to identify their specific future plans.

Section B

The second and main body of this questionnaire is the attitudinal items, including their personal attitudes toward HE and their parents' attitudes towards their participation in HE, and their attitudes towards different types of perceived barriers. Given that the questions in this section were aiming to investigate students' attitudes towards higher education and attitudes towards perceived barriers, a Likert scale, as one of the most commonly used rating scales, was applied to address these attitudinal questions. Likert scales generally perform very well when measuring a series of attitudinal dimensions (Brace, 2008; Johns, 2010; Leung, 2011). Specifically, four-point Likert scales were applied for the aspiration and attitudinal items in this study. Although no agreement has been achieved regarding applying 4-, 5-, 7-, 9- or 11- point Likert scales, Leung (2011) argues that, with the longer scale points, less skewed results will be obtained. However, according to Borgers et al. (2004), 7- or more options tend to reduce the scale reliability and a four- point scale is optimal for child and adolescent respondents. The four-point scale, being without middle point, can provide more precise information about a respondent's dichotomous opinion – agree or disagree – and the reliability and sensitive of the scale are also assured. Moreover, it has been argued that providing the neutral middle point tempts respondents, especial young respondents, to choose this category (Borgers et al., 2004; Ayidiya and McClendon, 1990). The social desirability bias can also be minimised by eliminating the neutral point (Leung, 2011; Garland, 1991). Therefore, four-point degree-of-agreement Likert scales without neutral point were used in this study, whereby students could only respond by taking a side, with no option to remain neutral.

Items used in this section were partly literature-based and partly adapted from the *Factors Influencing Pursuit of Higher Education Questionnaire* developed by Harris (1998). Harris (1998) provides 115 statements for investigating the factors influencing a person's decision to pursue higher

education, and 23 items were adapted for this study. The reason for selecting only 23 items out of the original scale is because of the focus of this study and the barriers discussed in the study, in addition to reducing repetition of items to streamline the questionnaire. Examples of items adapted include 'my friends encourage me to go to university' and 'I worry about paying my tuition fees if I go to university'. Other statements and items were adapted from the previously reviewed literature (Kwesiga, 1993; Hill and King, 1993; Gorard et al., 2007; Greenbank, 2006). Furthermore, this is a student-focused questionnaire with all the answers taken from students; although their decisions to continue their studies or not might be influenced by others, such as parents or peers, all the potential influences from outside happen through the students' personal perceptions of these social agents (Cheng and Starks, 2002). Therefore, the process of participation in higher education is ultimately a personal experience and choice.

Section C

The third section gathered data on student demographics, including students' personal and family background information, such as gender, age, religion, parents' education and parents' occupation. The rationale for including these factors were discussed in the literature review chapter (see Chapter 4), and so is not covered here, however, some of the practical applications of the items are discussed. As has been stated previously, gender is asked for as it is a key factor that this study seeks to investigate. Student's age is also asked for because grade repetition is common in the schooling process, and the age range of students varies from teens to twenties (Hunt, 2008), so students' attitudes might be different among different age groups. Regarding the parents' occupation, the respondent is asked to identify their father and mothers' main jobs and to give details about what their parents do in their job. This is the information needed for accurate coding of occupation classifications (ILO, 2012), which will be discussed later in Section 5.7.1.

5.3.3 Formulating the interview schedule

Given the sequential and longitudinal design of this research, two rounds of interviews were conducted to obtain qualitative data. The purpose of the first round of interview was to seek in-depth personal explanations of the students' attitudes and perceived barriers to participation in higher education. The second round of interviews was based on the first-round interviews and aimed to further explore students' personal experience after secondary school and the actual barriers they might have encountered.

As a complementary instrument, the first-round interview schedule was developed based on the structure of the questionnaire survey and some preliminary analysis of questionnaire data. There were four themes in the interview. Starting with their personal information and family background, students' detailed future plans and motivations for their choices were asked. The third theme was further exploration of students' attitudes towards higher education and secondary schools. For example, the students were asked 'how do you like your secondary school?'. Students provided more detailed explanations which extended the questionnaire data, including their attitudes towards the teachers, the influence from classmates and evaluation of their academic achievement. The last theme was focussed on their opinion on gender issues (e.g., do you think girls are treated differently in Cameroon, in the family and society, and why?). This supplemented the questionnaire items regarding students' attitudes towards gender stereotyped roles (see Appendix 3).

The second-round interview followed up on the students' personal experience after graduation from secondary school. This was the same cohort of students that took part in the first round of interviews. Students were asked three question: What are you doing now? What happened to you after your GCE A/Ls? How did you decided to do what you are doing now and why? The open and straightforward interview schedule was developed based on the previous understanding of these interviewees and the geographic distance between the interviewees and the researcher.

5.3.4 Data collection process

In practice, the process of data collection took place in two phases – pilot study and main study. The pilot study contained a questionnaire pilot and an interview pilot. After the pilot study, data collection instruments – the survey questionnaire and interview schedule – were finalised for the main study. The main study consisted of questionnaire survey, first round of interviews and follow-up interviews. First, finalised questionnaires were distributed in the classrooms with the participants. Then the first-round interviews were carried out after the questionnaire survey. Face-to-face interviews were conducted individually for the first-round interviews in this phase. The research ended up with the follow-up interviews, which took place one year after the first-round interviews. The interviewees who were still in touch were interviewed online. The following two sections demonstrate the pilot study and main study process separately.

5.4 The Pilot Study

This section presents the procedure for piloting the questionnaire and interview schedule. Starting with the aim of conducting a pilot study, it moves onto the practical procedure of the piloting questionnaire. The summary of improvements to the questionnaire based on the outcome of the pilot study was then presented. This section ends with the interview schedule pilot.

5.4.1 Aim of the pilot study

Piloting is a process to test the research instruments and assess the practical arrangements for data collection, to see how well they work in practice before conducting the main study (Blaxter et al., 2010). According to Oppenheim (1992), the instrument should be tried out fully in advance to make sure that it can work as intended. I decided to conduct a pilot study for a number of reasons. Firstly, items in the questionnaire are partly adapted from a related

research instrument (see Chapter 5.3.2), and partly from reviewed literature, in addition to feedback from my supervisor and colleagues. According to Oppenheim (1992), this kind of partly self-developed research instrument should be piloted before it can be used in the field to ensure its validity and reliability. Moreover, piloting is desirable and necessary before administering the questionnaire survey to ensure that the individual survey questions operate well and the questionnaire as a whole functions well (Bryman, 2016), i.e., testing the structure and content of the questionnaire and making sure students understand the questions as intended. Furthermore, the interview schedule was piloted to test how well the interview schedule that I had prepared flowed and to gain some experience for me as an interviewer. According to Bryman (2016), the first interview can be daunting and unexpected contingencies may arise during the interview, so a pilot interview was necessary and important.

Given the reasons for conducting a pilot study before the main study for this research, three aims were identified for the pilot study. First, the pilot needed to ensure all the items in the questionnaire and interview schedule were appropriate for the respondents to answer. Secondly, the pilot was conducted to see how well the research instrument worked in practice before the main study. Thirdly, the actual administration of the questionnaire also needed to be piloted before the main study. Specifically, corresponding to the primary aims of piloting the questionnaire and the aforementioned practical considerations, both questionnaire and interview schedule were piloted and the process of the questionnaire pilot was divided into two phases: pre-pilot phase and pilot phase. The pre-pilot was carried out in the University of Yaoundé I and Confucius Institute (CI). The second phase was the main pilot conducted in two local secondary schools. In total, two university teachers and 36 students were involved in the questionnaire pilot. Among the 36 students who filled in the questionnaire, six of them were university students from CI and another 30 respondents were students from two secondary schools. Questionnaire piloting was conducted after ethical approval was obtained in November 2016 (see Chapter 5.6). Interviews pilot was conducted with two students from a public secondary school – LBD.

5.4.2 1st phase questionnaire pilot: Pre-pilot in the university and the CI

In practice, prior to undertaking the pilot study with students, two teachers from the University of Yaoundé I were invited separately to go through the questionnaire. They were senior lecturers in the Department of Education in the university, with expertise in education in their country. Having the questionnaire checked by these academics before I started the pilot with students was a way of increasing the reliability of the questionnaire (the specific issues they identified are covered in the improvement Section 5.4.4) and making sure the items in the questionnaire were appropriate for students from their own socio-cultural background.

The pre-pilot in the CI was conducted with six Anglophone university students. The pre-pilot was conducted in the CI because I had worked as a Chinese language teacher there. With the personal connections with the CI, the Director, other volunteer teachers and students, I was able to approach students in the CI. These students came from different schools, such as secondary schools and universities, and they were learning Chinese during their spare time. Six Anglophone students were selected from the CI to undertake the pre-pilot.

The two teachers and six students from the CI were not final year secondary school students, so their characteristics and background were different from my research population. However, their feedback was valuable for the purpose of the pre-pilot, given that they had passed through the time period of deciding to go to university. They had experience in what had happened during their process of participation in higher education. Furthermore, they all came from English speaking regions or were schooled in the Anglophone section; they could speak fluent English, so that we were able to talk through the questionnaire smoothly.

In practice, the two teachers and six university students were invited separately to fill in the questionnaire. First of all, I explained my purpose in conducting this survey before they filled in the questionnaire, and then gave them about 10 to 15 minutes to answer the questionnaire by themselves. After

they had completed the questionnaire, we talked through the whole questionnaire. I asked each respondent a number of questions to enable me to get an idea of how to optimise the questionnaire for the main study. For example, I asked how well they understood the items, if the questions were appropriate for them to answer, whether they felt comfortable answering the items or not, and what they thought about the time taken to complete the questionnaires. Improvements and revisions were made based on the feedback from the respondents. The specific modifications are discussed below (see Section 5.4.4).

5.4.3 2nd phase questionnaire pilot: Pilot in secondary schools

The second phase of the pilot study was started after the authorisation letter was obtained from the Centre Regional Delegation, Ministry of Secondary Education (see Chapter 5.6), which granted my entrance to all the secondary schools in the central region (central province). Along with the authorisation letter, I obtained a list of names of all the public and private secondary schools in the central region from the Centre Regional Delegation. The pilot study was conducted with final year students from secondary schools to ensure the similarity of pilot respondents with the main study respondents, as according to Oppenheim (1992, p.62) the respondents in pilot study should be 'as similar as possible to those in the main enquiry'. Students who took part in the pilot study were excluded from the main study.

According to the list of secondary schools in Yaoundé, a public and a private secondary school were randomly selected to distribute the questionnaires. Hence, 10 and 20 respondents were chosen respectively in a public school and a private school. Therefore, in total 30 students drawn from two schools that were similar in character to the schools for main study.

Table 5-1 Sample distribution for pilot study

Name of the school	Sample	Final year students in the school
LBS	10	46
AMB	20	68

The process of the second phase pilot lasted for two weeks. I visited the schools in the company of a Cameroonian friend. Having a Cameroonian friend in these visits helped me with finding the location of the schools and in making appointments with the school principals to distribute the questionnaire survey.

For the pilot study, all the respondents filled in the questionnaire in their classrooms. The participant information sheet and consent form were distributed at the same time as the questionnaire. Before they began, I explained the purpose of the study and gave instructions for filling in the questionnaire and emphasised that they were free to ask me any questions regarding this study whenever they had a query. After they completed the questionnaire, I asked each respondent a series of questions quickly. For example, if were there any problems when they filled in the questionnaire and how well they understood the items in the questionnaire. With their feedback, and the notes I took during the process, improvements and revisions were made afterwards.

5.4.4 Improvements based on the pilot study

After the pilot study was complete, improvements were made based on the feedback from the teachers and the students. Specifically, the questionnaire was modified with the following points.

To start with, the first question in the questionnaire was changed. For those students who chose to continue their studies, the original question asked the respondents to tick their preferred type of HEI from the options provided; this was changed into ask respondents to write down the name of university that they want to attend – if they didn't have a specific preferred university in mind they could then select from the options given. So that enough data could be obtained from this item, I wanted to avoid the risk that they would not understand the categories that I had listed in the questionnaire.

Secondly, rewording was needed when a narrow range of responses were collected for a specific question (Oppenheim, 1992). For instance, 'I think marriage is more important than going to university' was changed to 'I will stop my studies if I get married'. During the pilot, nearly all the students ticked agree a lot for the former item, indicating that it may be a leading question. Furthermore, a new item 'my family will pay my tuition fees if I go to university' was added to ask about how they are going to pay their tuition fee, whether it would be paid by their family or by themselves or partly by their family. This was derived from the conversation with the students – some of the students said their parents would pay for their tuition fees for higher education, while a couple of students said their parents would not, either because they could not afford to or because their parents would not invest in their further education.

For the last item in the questionnaire, the student's GCE O/L grades were asked (Francophone students were asked to indicate their *Probatoire* result) instead of asking their names and obtaining the transcripts from their schools. GCE O/L for Anglophone students (or *Probatoire* for Francophone students) was the last national examination they had before graduate from secondary school; this can provide evidence of their achievement level in school.

In accordance with the checklist for pilot testing (Litwin, 2003), typographical errors, item numbers, font size and layout were also checked carefully in the questionnaire. The vocabulary used was also double checked after the conversations with students to ensure they were understandable for the students. The finalised questionnaire was translated into French for Francophone students. Questionnaire translation was completed by a colleague who is a bilingual teacher of French and English. The French language questionnaire was back translated into English for data analysis. Given the differences between the two sub-educational systems, questions related to the different qualifications were changed accordingly. For example, Anglophone students were asked to write down their GCE O/L grades, while Francophone students were asked to provide their *Probatoire* results.

5.4.5 Piloting interview schedule

In practice, prior to starting the first round of interviews, interview schedule was pilot with a male student and a female student from a secondary school - LBD; this was one of the schools where the questionnaire survey was administered but none of the main interviews took place there. Using students from this school ensured that the pilot interviewees were similar to those who took part in the main interviews, and when selecting interviewees from the targeted interview schools, there would be no need to consider excluding the pilot interviewees. The pilot interview lasted half an hour with two interviewees and notes were taken for improving further interviews. Specifically, improvements made as a result of the pilot include working on my personal skills as an interviewer and dealing with questions that were unclear for the interviewees. For example, the interviewees' responses to certain questions were short, suggesting that they were did not fully understand what I had asked, so I asked the questions slowly and clearly in the following interviews to ensure that the interviewees could understand what I was asking. Secondly, regarding the questions I asked, less technical language was used to minimise students' unfamiliarity with the terms I used. For example, instead of asking them 'do you think you have barriers to attending higher education?', I asked them 'what do you think will stop you from continuing your studies?'. In general, after reflection on the pilot study, a new interview schedule with reorganised question structure and simpler language was developed (see Appendix 3).

5.5 The Main Study

The main study was conducted two months after the questionnaire pilot, and was in two stages, the questionnaire survey and semi-structured interviews. As described above, the purpose of the questionnaire survey was to determine students' attitudes and aspirations towards higher education and their perceived barriers to participation in higher education, whereas the purpose

of the semi-structured interviews was to explore in-depth explanations for students' attitudes (first-round interview) and their actual experiences after secondary school (follow-up interview). This section describes the procedure of the main study, beginning with site selection, then sampling strategies and access to schools. The specific procedure for carrying out the main study is explained in the last part of this section.

5.5.1 Site selection

This study was mainly undertaken in the capital city of Cameroon, Yaoundé, with a small percentage of the questionnaire data collected from a city in the far north of Cameroon. There were two principle reasons for collecting data in the capital city. One was my familiarity with the city and people of Yaoundé. I lived in Cameroon for one year as a volunteer Chinese language teacher in the Confucius Institute University of Yaoundé II. During that year I became familiar with the city and made friends with many locals, which helped to facilitate my study in this area. The other reason for collecting data from Yaoundé was that, as a capital city of the country with a large population, the diversity of people would be ensured. People from different economic, cultural and social backgrounds lived in the capital city, which would be beneficial for the diversity and representation of the sample in this study. In addition, with a large population, different types of schools can be found in Yaoundé, including private and public schools, Francophone schools and Anglophone schools. As a French-speaking region, Francophone schools are the mainstream schools in Yaoundé, but Anglophone schools and bilingual schools can also be found, which is rare in other cities. Thus, I was better placed to conduct the study in schools in Yaoundé.

About 100 questionnaires were collected from the Far North province of Cameroon – Maroua (French-speaking region). This was because I had a friend who was a Chinese teacher in Maroua. She helped me by distributing the questionnaires in a public secondary school. Maroua was also selected because the majority of the residents in this city are Muslim. Other provinces

were not visited because of the issues of transport and accessibility. Specifically, English-speaking regions were the target sites for data collection. However, the Anglophone provinces were not accessed because there was a strike taking place in the two Anglophone provinces during my main study and most schools had been shut down in the English-speaking areas of Cameroon since December 2016 (Maclean, 2018). In brief, the questionnaire data was mainly collected from Yaoundé, with a small percentage from Maroua. The semi-structured interviews were conducted in Yaoundé with Anglophone students who participated in the questionnaire survey.

5.5.2 Obtaining the sample

According to the research questions, the population of this research were final year secondary school students in Cameroon. As the students were selected based on schools rather than individuals, the cluster sampling methods implies that it was no longer pure random sampling (Muijs, 2010). The sample for the study should be, therefore, as far as practicable, representative of the population, so that the findings can be generalised from the sample to the population from which it was selected (Bryman, 2016).

Furthermore, the sample should share the same characteristics as the target population. Given that the study was mainly conducted in Yaoundé, samples for this study were primarily selected from the secondary schools in Yaoundé, along with a school from Maroua.

As discussed in Section 5.3, an explanatory sequential research design was employed in this study, which included three phases of data collection and two kinds of data – quantitative data and qualitative data. The first phase was the questionnaire survey, followed by the second and third phases of the semi-structured interviews (first-round interviews and follow-up interviews). In total, 1975 questionnaires were collected with students from 14 schools in Cameroon, 25 semi-structured interviews and 14 follow-up interviews were conducted. In all the phases, sampling was a crucial step during the research design, as 'in research, sampling is destiny' (Kemper et al., 2003, p.275).

Specifically, sampling strategies were created separately for the questionnaire survey and the semi-structured interviews, as detailed below.

Sampling for the questionnaire survey

In quantitative research, the primary criterion for sampling is to choose individuals that are representative of a population so that generalised conclusions can be reached (Fink, 2003a; Creswell and Plano Clark, 2007; Bryman, 2016; Sapsford and Jupp, 2006). The sample size should be large enough for the statistical procedures to draw inferences with confidence, and also to enable robust comparisons between important sub-groups (Creswell and Plano Clark, 2007). An appropriately sized sample can broadly and accurately reflect the views of the target population (Buckingham and Saunders, 2004). In order to obtain large-scale representative samples, the ideal is to adopt probability sampling strategies, so that each unit in the population has a known chance of being selected (Bryman, 2016). However, for pragmatic reasons, sampling is rarely random in social research. Therefore, schools, rather than students, acted as the sampling unit in this study, with the intention being to get a representative spread of schools. It is therefore essential that the schools reflect the population of the research area (Gorard, 1997). With this in mind, fourteen secondary schools were selected to provide the required and representative data for this study. Sampling took place at three levels: school location, school type and school instruction language.

First of all, schools were selected from different districts of the capital city. In accordance with the previously described site selection strategy, the questionnaire survey was primary undertaken in the capital city, Yaoundé. Students from different schools in different districts come from varied family backgrounds. For example, more people who are affluent tend to live in Bastos than in other districts. Therefore, efforts were made to include schools from different regions and more/less affluent areas.

Second, both public and private secondary schools were chosen. This is because the tuition fees in private schools are higher than those of public schools, and disadvantaged students are less likely to attend private schools

(Lewin, 2007a; Lewin, 2007b) (see Chapter 2.4.3). Gaining a similar proportion of public/private schools was considered in the sampling process. Third, the language of instruction was also considered in choosing schools. As a bilingual country, Francophone schools, Anglophone schools and bilingual schools can be found all over Cameroon, including the capital city. Therefore, instruction language was also taken into consideration when selecting schools. Figure 5-3 shows maps of the selected schools in Cameroon (mainly in Yaoundé).

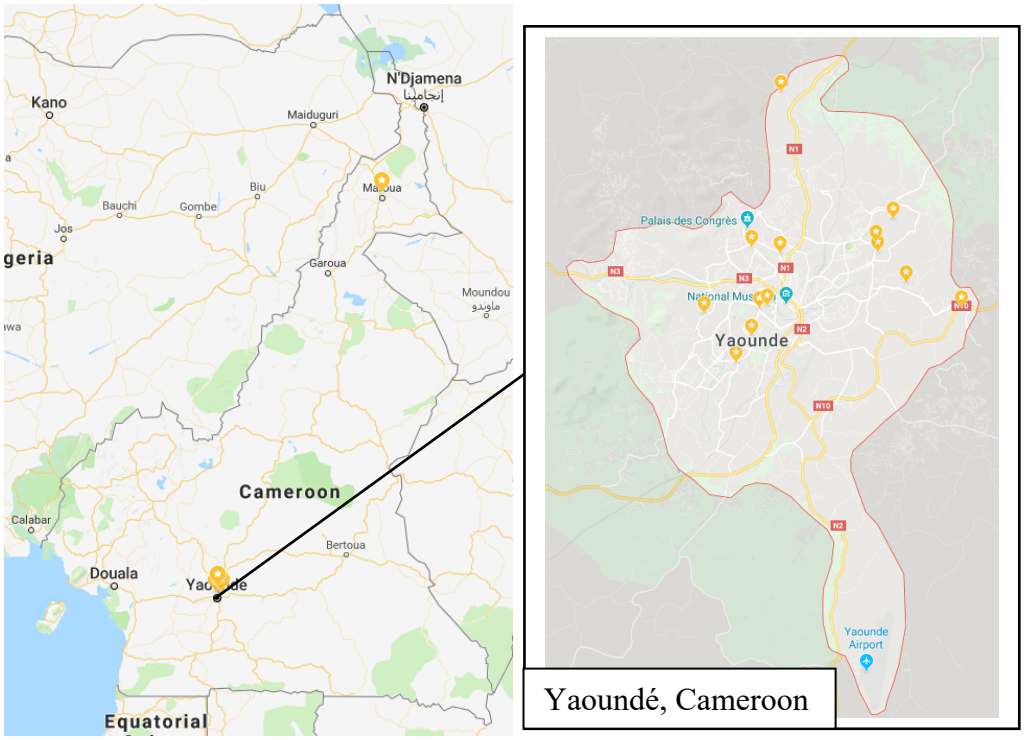

Figure 5-3 Sampling maps of this study

According to the list of secondary schools in the Central region, there were 40 public schools and 221 private secondary schools in Yaoundé. The public schools were generally larger in size, while some of the private schools were small. Based on the three considerations mentioned above, 14 schools were selected as fulfilling the criteria for inclusion in the study, representing the different types of schools in Cameroon - public bilingual schools, private bilingual schools, public Francophone schools, private Francophone schools and private Anglophone schools (see Table 5-2). Given that Yaoundé is a Francophone city, no public Anglophone school was found there. The schools

were distributed across different regions in Yaoundé, with one public bilingual school being selected from the Northern city of Maroua.

Table 5-2 List of school types and the samples

Type of school	Name of the school		Sample (N)			
			Boys (N)	Girls (N)	Missing (N)	Total (N)
Public bilingual	YD	Francophone	111	118	0	229
		Anglophone	79	84	0	163
	DE	Francophone	102	150	3	255
		Anglophone	70	88	3	161
	DC	Francophone	12	25	0	37
		Anglophone	62	81	1	144
	MB	Francophone	78	134	0	212
		Anglophone	2	7	0	9
	MR	Francophone	51	50	0	101
	HN	Francophone	6	5	0	11
Private bilingual	SE	Francophone	17	17	0	34
		Anglophone	6	10	0	16
	LG	Francophone	4	1	0	5
		Anglophone	11	21	1	33
Public Francophone	NE	Francophone	87	91	2	180
	TG	Francophone	28	27	0	55
Private Francophone	VH	Francophone	58	54	2	114
	BF	Francophone	10	12	0	22
Private Anglophone	HS	Anglophone	62	77	0	139
	QW	Anglophone	18	34	3	55
Public Anglophone	[none exist in Yaoundé]					
Total (N)	14		874	1086	15	1975

After the target schools had been confirmed and access was secured, all final year students were sampled to complete the questionnaire survey, but students were free to opt out if they wanted to. Along with the questionnaire, they also received a participation information sheet and signed a consent form for this study. This kind of sampling strategy granted students from the selected schools an equal chance of participating in the questionnaire survey. In total, 1975 students participated in the questionnaire survey.

Sampling for the interviews

Qualitative studies typically adopt purposive sampling techniques to select smaller samples in order to obtain in-depth information on the issue explored (Tashakkori and Teddlie, 2003; Fink, 2003b; Creswell and Plano Clark, 2007). In this study, qualitative data collection was a supplement to the questionnaire survey. At the end of the questionnaire, respondents were asked to opt in to the interview part, and those who volunteered to take part in the interviews were invited to leave their contact information, including name (optional), email address, telephone number, and Facebook account. The number of students who volunteered to be interviewed was limited through this opt-in approach, therefore, the interviews were only run in schools where sufficient participants agreed to be interviewed.

Furthermore, in order to ensure that the interview participants would share a similar school experience, participants were selected from only two schools out of the 14 schools where the questionnaire survey was conducted. The gender of interviewees was also taken into consideration to ensure sufficient representation of both male and female groups. The types of school that students came from was also considered, in that both private schools and public schools were included. However, due to the challenge of interviewing French-speaking participants, all the interviewees were selected from Anglophone sections, with no Francophones being interviewed for this study.

Given the low mobile phone and internet availability among students, it was not possible to contact all the participants by phone or email/Facebook. Hence, some of the interviewees were selected through my personal visits to the schools. The interviewees were selected from those who had volunteered from one private Anglophone school and the Anglophone section of one public bilingual school. The private Anglophone school was located in the central area of Yaoundé. The public bilingual school was a large-sized school located a little further away from central Yaoundé and was one of the public schools that had relatively better facilities. Table 5-3 indicates the schools and the interviewees for this study.

Table 5-3 List of the schools and the interviewees

School name	Boys (N)	Girls (N)	Total (N)
EH	5	6	11
YD	6	8	14
Total	11	14	25

5.5.3 Undertaking the Main study

The main study was divided into three phases, the questionnaire survey, the first round of interviews and the second round of (follow-up) interviews. The questionnaire survey and first-round interviews lasted for two months and were conducted from early March to the end of April 2017. The second-round interviews were carried out after March 2018.

Questionnaire survey

After the pilot study, the finalised questionnaire was ready for distribution in the field, and I had received the ethical authorisation letter that granted my access to the secondary schools in Yaoundé, I visited 13 schools in Yaoundé. Given that I have a friend who is a Chinese teacher in the Far North Province city of Maroua, I asked her to distribute the questionnaires at a secondary school in Maroua. This is the only school that I didn't visit myself because of the distance and traffic issues. Maroua is the capital city of the Far North Province and 101 questionnaires were collected from the secondary school there.

The process of administering the questionnaires was similar to that of the pilot study; I visited the principals in advance, with the authorisation letter, to get their permission to distribute the questionnaire survey. Then, questionnaires, participant information sheets and consent forms were distributed in the classroom. The process of administering the questionnaire lasted for one month. More efforts were paid to administer the questionnaire survey with Anglophone students, because at the time I visited the schools Anglophone students were sitting for a two-week rehearsal examination to prepare for national examinations. After negotiating with principals, I was given a certain

time slot to distribute questionnaires so that the survey would not distract students' attention from their examinations too much.

Interviews

As discussed in Section 5.2, there were two rounds of interviews. The purpose of the first-round interviews was to provide in-depth explanations for the questionnaire data. These interviews were carried out after the questionnaire survey, before students graduated from secondary school. The second round of interviews was conducted to answer the third research question – what the actual barriers are experienced by students. Therefore, I interviewed the original interviewees again to understand their experiences and attitudes after the main interview. This second round of interviews took place one year after the first round of interviews, after they had settled down with their studies in their universities, or with their jobs.

With the modified interview schedule, I started the first round of interviews at HS and YD. There were two ways of obtaining interviewees. The first group of interviewees were invited to participate in the interviews through mobile phone calls or messages because they had opted in through the questionnaire. The interview time and place were set up with each of the target interviewees one or two days in advance. Another set of interviewees were approached through my personal visit to the campus, students who had filled in the questionnaire and had volunteered to take part in the interview were invited to participate in this study. All the interviewees were interviewed individually. These face-to-face interviews took place in empty classrooms on campus and all the interviews were recorded using a digital voice recorder.

The second round of interviews were follow-up interviews with those interviewees. This was a continuous process that took place one year after the main interviews. The interviews took place mainly as text conversations through WhatsApp. I kept a personal connection with these interviewees, and I was updated about what was happening to them after graduation from secondary schools. By one year after the main interview, 14 out of the 25 interviewees remained in touch and informing me of their experiences. The

remainder dropped out from the study, either because they changed their phone number or because they were reluctant to answer the follow-up questions.

5.6 Ethical considerations

Ethical considerations are important during the research process, as they arise at a number of stages in social science research and they are related to the integrity of a study (Bryman, 2016; Teddlie and Tashakkori, 2009). Ethical principles in relation to harm, consent, privacy, and deception were considered carefully throughout this study (Diener and Crandall, 1978 cited in Bryman, 2016).

In order to minimise the potential harm to participants, the participants' psychological, physical and social well-being were taken into consideration (Teddlie and Tashakkori, 2009). During the data collection process, I showed respect to the participants, and everyone who took part in the study did so voluntarily. Moreover, the interviews were conducted during the students' free time in order to reduce the impact on their studies. Regarding the items in the questionnaire and the questions asked in the interviews, all of these were neutrally stated to avoid causing bias, such as gender bias.

Secondly, the participants gave their informed consent before they took part in this study. Participant information sheets and consent forms were distributed before I started the questionnaire survey and interviews. The participant information sheet included details of the research topic, the aim of the research, questionnaire information, and my contact information. Participants were also informed that their participation was voluntary, and that they could withdraw from the study at any time. Only those who signed the consent form were allocated a questionnaire. Furthermore, detailed explanations were provided by me when administering the questionnaire survey in each classroom and in advance of each interview survey.

With regard to privacy, this relates to 'the issue of the degree to which invasions of privacy can be condoned' (Bryman, 2016, p.131). It was stated in the questionnaire that the questionnaire is anonymised, all the information provided was confidential, and only the researcher could access it. They were asked to volunteer to leave their contact information for later interviews. Furthermore, participants were free to refuse to answer any questions that they did not want to answer. All the questionnaires collected were locked in a safe place, which could only be accessed by me. The data entered into my computer was encrypted.

Deception is another ethical consideration in social science research. It can occur when 'researchers represent their work as something other than what it is' (Bryman, 2016, p.133). In this study, the research instruments were designed cautiously, so that the data collected would be useful for answering the research question and the participants were informed about the research project so that they were clear about what kind of project they were participating in. Therefore, this study does not employ deception.

Ethics application in Cameroon

In addition to the rigorous ethical considerations for undertaking research in the UK and obtaining an ethical approval letter from the UK University, an ethical authorisation letter was also required in Cameroon (see Appendix 4). My access to all the secondary schools could only be granted with an authorisation letter from the local government. However, the actual ethical approval in Cameroon took a significant time to obtain. Two departments were involved in getting the authorisation letter for this study, the Ministry of Secondary Education Department of Delegation for Yaoundé Centre (MFOUNDI) and the Centre Region Delegation of Ministry of Secondary Education. The ethical authorisation letter was finally obtained from the Centre Region Delegation. MFOUNDI is the division that in charge of all the secondary schools in Yaoundé city, whereas the Centre Region Delegation in charge of all the secondary schools in the Central province. In order to acquire the authorisation letter, the following documents were needed for the application:

- Ethical application letter
- Invitation letter from Confucius Institute
- Research proposal
- Questionnaire
- Passport

Having provided all the required documents, more efforts were needed to get the authorisation letter. I was informed by the MFOUNDI staff that, as a foreigner conducting research in Cameroon, I should follow some additional rules. For example, they said that they should select the schools for me instead of me selecting the schools by myself, and that I needed to finish my questionnaire survey within a certain amount of time. Although I agreed to those rules, I was still rejected for no reason. The second application was submitted to the Centre Region Delegation of Ministry of Secondary Education. In order to get the authorisation letter, I went there six times and I had the impression that I needed to give money or gifts to the staff. The authorisation letter was finally acquired with the help of my friend from the University of Yaoundé I, and there were no additional rules to follow. Therefore, I was granted access to all the secondary schools in the Central Province. Along with the authorisation letter, I also obtained a list of all the secondary schools in the Central Province, including all the public schools and private schools, to facilitate sampling for the study.

5.7 Coding and data analysis

This section focuses on data coding and data analysis. The coding process was required to facilitate the data analysis. This, and the specific data analysis techniques used, are described here in addition to the rationale for employing these techniques.

5.7.1 Coding

As demonstrated above (see Chapter 5.3.2), the questionnaire used was composed of three sections. The first section identified whether the respondent wanted to attend higher education or not. If they did want to then subsequent questions were asked to identify the HEIs they would like to attend and the subjects they wanted to pursue at university. If the answer was No, the respondent was asked to specify their future plans.

Four variables were coded from the first section of the questionnaire. The first variable was the respondents' attitudes toward going to university, which could be answered Yes or No. The second variable was the respondents' preferred HEIs. As has been stated in the Chapter 2 (see Chapter 2.4.3), three types of higher education institution can be found in Cameroon – public universities, private institutes of higher education, and professional schools. Furthermore, in the globalised world, studying abroad is also an option for some students, and Cameroon is one of the countries in SSA with the largest number of students abroad, just after Zimbabwe and Nigeria (UNESCO-UIS, 2006) (see Chapter 4.4.4). Therefore, the answer from their preferred HEIs was coded as: public university = 1, private institute of higher education = 2, study abroad = 3, professional school = 4 and other = 5. If a respondent had written down the name of a university then what they selected here was ignored. The third variable was the subjects they want to study at the university. Respondents were asked to write down the name of their preferred subjects. All their answers were kept and collapsed into themes for further analysis.

If the respondents ticked No to the first question about wanting to go to university or not, they were asked about their specific plans after graduation. This is the fourth variable from this section. As a multiple-choice question, respondents could tick more than one choice or write down their answer in the blank space. After all the answers had been collected, this question was coded into six variables, describing their future plans for job/ marriage/ back to family/ sport/ army/ don't know.

The second section of the questionnaire contained the 23 attitudinal questions. Respondents were asked to choose a scale item from a four-point Likert scale: disagree a lot - disagree a little - agree a little - agree a lot. Each response was assigned a numerical code: if a student ticked *disagree a lot*, it was coded as 1; if *disagree a little*, it was coded as 2; if *agree a little*, 3 and if *agree a lot*, 4. Regarding the negatively worded questions, the responses were coded in reverse. For example, to code the response to the item *I will stop my studies if I get married*, if student ticked *disagree a lot*, it was coded as 4; and if *agree a lot*, 1.

The third section of the questionnaire was for obtaining students' demographic information. For the gender, religion, age, family type and subject stream items, the coding was straightforward, as described in the following findings chapters. The rational and coding process of the number of siblings and GCE O/L / *Probatoire* grades are explained after the preliminary data analysis chapter (see Chapter 6). The coding of parental (guardians') occupations and education level are explained in the next section. Moreover, recoding was done where further analysis was required, and this will be discussed in the following finding chapters.

Coding of parents' (guardians') occupations

The respondents were asked to indicate their parents' or guardians' main occupations and specify what they do for their occupations. Coding of the parents' main occupations was according with the International Standard Classification of Occupations 2008 (ISCO-08) (ILO, 2012). This classification standard was employed because it is a worldwide recognised standard and it was also used for the census data collection in Cameroon. There are ten major occupation groups in this standard classification (see Table 5-4). Responses about the parents' or guardians' main occupations were coded into the appropriate groups according to the occupation list (see Appendix 5). Where respondents classified their parents as jobless or retired, a coding of 10 was used. The eleven major groups are used in the descriptive analysis chapter (Chapter 6).

However, for further statistical analysis, a recoding was carried out to facilitate exploration of the data. According to the ISCO-08, the 10 major groups can be collapsed into four skill levels. Specifically, Skill Level 1 is typically the basic skill level, which involves simple and routine physical or manual work and requires the use of hand-held tools. Occupations in this category include housekeeper, office cleaner, kitchen assistant etc. Occupations at Skill Level 2 require the ability to read information, which is generally acquired from the first cycle of secondary education. Occupations classified at this level include mechanic, driver, secretary, dressmaker, hairdresser, building electrician. Skill Level 3 comprises tasks that require complex technical and practical knowledge in a specialised field, including manager, sales representative, computer support technician, etc. Occupations at Skill Level 4 contain tasks that involve complex problem-solving and decision-making knowledge in a specialised field. These occupations include civil servant, civil engineer, doctor and secondary school teacher. The relationship between the ten ISCO-08 major groups and the four skill levels is summarised in Table 5-4.

Table 5-4 Mapping of ISCO-08 major groups to skill levels

ISCO-08 major groups	Skill level	My coding	Recoding
1 Managers	3+4	4	Professional
2 Professionals	4	4	
3 Technicians and Associate Professionals	3	3	
4 Clerical Support Workers	2	3	
5 Services and Sales Workers	2	2	Labourer
6 Skilled Agricultural Forestry and Fishery Workers	2	2	
7 Craft and Related Trades Workers	2	2	
8 Plant and Machine Operators and Assemblers	2	2	
9 Elementary Occupations/House help	1	1	
0 Armed Forces Occupations	1+2+4	1+2+4	Professional/ Labourer
10 Jobless/Retired	Missing		

Source: Adopted from the ISCO-08, p.14.

In the recoding stage, the skill levels were recoded, taking into account their corresponding parents' education levels. Coding for this study was mainly consistent with the ISCO-08 skill level coding, except for the major group 4

(Clerical support workers). This group was coded into Skill Level 3 in this study, given that the corresponding education level required was mainly higher education and secondary education. So for a banker, for example, if the corresponding education level was higher education, the category was coded as Skill Level 4; if the occupation was agriculturist, but the educational level was secondary education, this was coded into Skill Level 2. Within Major group 0, Armed Forces Occupations, each of the three sub-major groups is at a different skill level. Colonel, commander, military and solider were grouped into Skill Level 4. Police inspector was coded as Skill Level 3, as were general inspector roles. Policeman and police officer were coded as Skill Level 2, given the description of the role from the respondents. The detailed coding book is attached in Appendix 5. To meet further data analysis requirements (e.g., regression analysis), the four skill levels were collapsed again into two groups: professionals and labourers (see Recoding section below).

Coding of parents' (guardians') education levels

The coding of parents' education levels was straightforward. Parents who had received higher education were coded as 4, secondary education was 3, primary education was 2 and no formal schooling was coded as 1. The second stage data analysis was conducted with the recoding of the data into two groups: higher education and non-higher education. Higher education was used as a standard to group the categories, given the fact that many scholars hold the opinion that it is higher education that can make a considerable difference in relation to the parents' educational influence on their children (Harris and Halpin, 2002; Pamela, 2005)

After the codebook was ready and data inputting finished, all the variables were screened and cleaned throughout. Errors that existed were checked and corrected in the data file. The data set was then ready for analysis.

Recoding

In order to facilitate bivariate analysis, some of the data were recoded into two groups, such as age, religion, family type, parents' education levels and

occupation types, etc. The recoding of data presented in this section was built on the describing of the sample in Chapter six.

With regards to age, students were classified into two groups, namely those aged 18 and less and those over 18 years old. This was because 18 is the age at which students should be in their final year of secondary school. Furthermore, using 18 as a cut-off point allowed the students to be divided into two more or less equivalent groups in terms of number. Regarding the religious groups, given the large number of Christians among the participants, the religion demographic was grouped into Christian and Non-Christian groups.

For parents' (guardians') occupations, according to Chapter 6, the nine-category occupation coding showed that over a quarter (26%) of fathers were professionals, whilst the second-largest group constituted of Services and Sales workers (23%). Considering the statistical distribution and similarity of the occupations, the detailed occupation classification was collapsed into two subgroups: Professional and Labourer occupations (see Table 5-4). Managers were considered to belong to the professional occupations, whilst were considered to belong to the labourer occupations. Skill Levels 1 and 2 (such as Managers, Professionals) were grouped into Labourers whereas Skill Levels 3 and 4 (such as Services and Sales Workers) were coded as Professionals. Jobless/retired were coded as missing data. The coding process was applied to the occupation classification of both fathers (male guardians) and mothers (female guardians). Parents' (guardians') education levels were recoded into two groups: higher education and non-higher education.

A number of four acted as the cut-off point when regrouping the number of siblings in the families. This was because the majority of respondents had around four to five siblings, and as above four was found to divide the number of students into two approximately equal groups. Having a sibling in university or otherwise was, another grouping variable relating to siblings. With regards to achievement at secondary school, in order to merge the Anglophone section and Francophone sections, each was collapsed into two

groups with the average grades as the cut-off points. The subject streams, school language and school nature were grouped straightforwardly.

5.7.2 Data analysis

Data analysis is a procedure that researchers use to interpret and evaluate relevant data. It involves understanding of 'knowing which techniques apply to which sort of data' (Rose and Sullivan, 1993, p.4) and is about 'making sense of a dataset as a whole and taking a well-rounded view of what all the evidence is saying' (Kent, 2015, p.67). Mixed methods data analysis is defined as 'the use of quantitative and qualitative analytical techniques, either concurrently or sequentially, at some stage, beginning with the data collection process, from which interpretations are made in either a parallel, an integrated, or an iterative manner' (Tashakkori and Teddlie, 2003, p.352-353).

Given the explanatory sequential mixed methods research design, the data analysis procedure is also sequential and explanatory. First the questionnaire data were analysed to provide a general understanding of the students' perceived barriers and the gender differences; the first-round interview data were analysed later to find explanations for these barriers and higher education aspirations, in addition to the actual barriers from the second-round interviews.

Specifically, the quantitative data were analysed using three methods and the qualitative data were analysed using thematic analysis. The quantitative data analysis began with description analysis. The percentage distribution by school, of background factors and attitudes for different barriers, was presented at first. The second stage of data analysis was bivariate analysis, including effect size (or correlation r) and factor analysis. For continuous variables, correlation analysis was employed instead of effect size to demonstrate the strength of the relationships. Factor analysis was employed to combine the attitudinal variables to facilitate further analysis. The third stage was multivariate analysis with multiple regression models. Regression models were adopted to present a summary of the relationship between all the

predictor variables (e.g., age, gender, religion, father's occupation, mother's occupation etc.) and the outcome variables (e.g., do they want to continue their studies; what type of HEI do they want to attend). A multiple regression model, binary logistic regression and multinomial logistic regression model were built separately in answering the corresponding questions. These analysis methods were employed because of the nature of the data collected and also the research questions to be answered in the present study. Specifically, the rationale for employing different types of analysis methods is explained below.

The effect size, in essence, is the 'difference between two means divided by the standard deviation of two conditions' (Thalheimer and Cook, 2002), and it measures the relative magnitude of an effect (Thalheimer and Cook, 2002; Nakagawa and Cuthill, 2007). As discussed by Gorard (2013), the effect size can be employed when the difference between two groups has been found; this helps with telling the strength of the difference. Among different types of effect size measurements, Cohen's d was employed given its popularity and its suggested use as the standard benchmark (the detailed benchmark will be discussed in Chapter 7). Therefore, effect size was employed to quantify the effect of different background factors on different attitudinal variables separately.

'Factor analysis is an analytic statistic tool which may enable us to find out what (if any) are the chief underlying dimensions of a set of variables, attributes, responses or observations' (Oppenheim, 1992, p.166). Factor analysis enables an understanding of the structure of a set of variables and it can be applied to the multiple-item Likert scale measures to form clusters of items (Field, 2013; Bryman, 2016). Factor analysis, or more specifically principal components analysis, explores the interrelationships among a set of variables and is employed as a means of grouping variables into factor(s) in this study. This was because in section B there were multiple items measuring the same variable. For example, there were four items in the questionnaire exploring students' attitudes towards significant others. So factor analysis could combine the four items into one variable – significant others.

Identifying factors facilitates further analysis by reducing the number of analysed variables and eliminating the potential multicollinearity problems for the regression models (see Chapter 8).

Multivariate analysis enables the exploration of patterns of relationships among different types of variables, including two-way, cross-tabulated and multiple variables (Oppenheim, 1992). The abovementioned factor analysis is also a multivariate analysis technique. Regression analysis, as another effective statistical technique, is discussed in this section. Regression analysis aims to explore the relationship between several variables, and different types of outcome variable require different types of regression models. Multiple line regression is applicable when a continuous dependent variable (e.g., students attitudes towards HE) is predicted based on one or more predictor variables (Denis, 2018). Logistic regression allows the prediction of a discrete outcome with a set of predictor variables (Ho, 2013). When the outcome variable is a dichotomous ordinal (e.g., want to attend HE or not), binary logistic regression is needed, whereas multinomial logistic regression is used when the outcome variable is a multiple nominal (e.g., students' preferred HEIs). Therefore, in this study, a multiple line regression model was applied in exploring variables that predict students' attitudes to higher education. A logistic regression model was employed to detect predictors contributing to their preferred subject choice (arts or science). For exploring predictors in students' preferred HEIs choice, a multinomial logistic regression model was appropriate. A detailed explanation and application of the quantitative statistical techniques is discussed in the subsequent section 5.8.

With respect to qualitative data, the interview data comprised data from the first-round interviews regarding the explanation of perceived barriers, together with the second-round follow-up interviews regarding the actual barriers experienced by students. A thematic analysis approach was employed to analyse the interview data. Thematic analysis is defined as 'a method for systematically identifying, organizing, and offering insight into patterns of meaning (themes) across a data set' (Braun and Clarke, 2012, p.57). Thematic analysis can generate detailed and rich data, and it also has the flexibility to

draw themes from the data set. Therefore, thematic analysis was employed in the present study.

In presenting the interview findings, three sections were proposed to answer the research questions, including students' aspiration for higher education, factors contributing to students' attitudes about higher education, and the actual barriers experienced by students in gaining entrance to higher education. Students perception of different types of HEIs were presented as a separate section, as highlighted from the interview. Specifically referring to the factors contributing to students' attitudes towards higher education, the themes so found were in line with the literature review and quantitative data. In addition, teaching language and aspiration for alternative post-secondary school plans were included during discovery, as both were highlighted by students in the interviews. Parental education and occupational background were excluded from the thematic analysis as they were more likely to represent mere background information.

The interviews were transcribed verbatim before starting the thematic analysis. Initial codes and potential themes were generated while reading the transcriptions. Themes were then reviewed and allocated with corresponding codes and quotations. Therefore, the interview data were displayed and grouped together according to themes. The discussion and conclusions were formed according to the themes by integrating the quantitative and qualitative data.

5.7.3 Analysis of the Likert scale data

The rationale for using the Likert scale and, in particular, the adoption of a four-point Likert scale, have been discussed in Chapter 5.3.2. Regarding the analysis of the Likert-scale data, there is a long-standing debate about whether this can actually be used as continuous variable or otherwise (Leung, 2011; Jamieson, 2004; Carifio and Perla, 2008). Various scholars have argued that a Likert scale is basically an ordinal scale measure, and the intervals between scales cannot be presumed to be equal and, therefore, it is not

suitable for parametric analysis (Kuzon et al., 1996; Jamieson, 2004). However, there is another camp of scholars who justify the appropriateness of the use of the Likert scale data as numbers (Norman, 2010; Leung, 2011; Murray, 2013); the latter was the approach adopted in the present study. The following are the four reasons for considering Likert-scale data as continuous variables in the statistical analysis in the present study.

First, Likert-scale data has been widely used in the social sciences to measure attitudes and to perform advance parametric analysis (Croasmun and Ostrom, 2011). As discussed by Harpe (2015), in social sciences and education, there is frequently a considerable challenge to obtaining 'real', or quantitative values, for the phenomena one is measuring, as these are generally cognitive in nature rather than physical. Therefore, a large number of studies employ Likert-scale data and as assume these to be continuous for the purpose of advanced analysis. For example, according to Clason and Dormody (1994)'s review of 95 articles in journal papers used Likert-scale data, 2.5 times more than studies that assumed Likert-scale data to be continuous rather than ordinal.

Secondly, scholars have examined the usage of Likert-scale data in parametric tests as interval variables, revealing that the results so obtained are generally sufficiently robust to yield largely unbiased answers (Norman, 2010; Sullivan and Artino Jr, 2013). Murray (2013) has tested the analysis of Likert-scale data using both parametric and non-parametric tests, the results of which did not ultimately affect the conclusions drawn from either analytical method. Lubke and Muthén (2004) believe that it is possible to find true parametric values with Likert-scale data in factor analysis if assumptions about skewness, number of categories, etc., were met. Likewise, Glass et al. (1972) utilised the F-test to analyse ordinal data, which revealed the associated result are generally unbiased and indeed can be extremely robust. Besides, Carifio and Perla (2008) also suggest that a variety of studies have shown that the Likert-scale response format produces empirical interval data at the scale level, and think that those who believe Likert scales are orders have ignored the abundant empirical findings about Likert scales. Wu and Leung (2017)

examine Likert-scale data with simulation studies, and suggest that the more scales, the more likely the data can be taken as interval data. However, in a sense, regardless of the number of scales, the intrinsic quality of the data is still Likert scale in nature, and therefore is a way of supporting the usage of Likert-scale data as continuous variable.

Furthermore, using Likert-scale data as continuous variable helps to answer research questions, and can provide more meaningful and fruitful results for subsequent analysis than binary yes-or-no answers. The results from the analysis of the Likert scale data can provide more detailed and stronger evidence when answering research questions, and are more powerful and easier to interpret (Allen and Seaman, 2007; Leung, 2011). For example, in the present study, instead of answering yes/no, the Likert-scale data provided more extend description of students' attitudes towards participation in higher education and how this might affect their HEI choices. Furthermore, using Likert-scale data as continuous variable also enables the effect size analysis in Chapter 7.4.2, which provided more straightforward comparisons of the effect to understand the extent of the relationship between background factors and attitudinal variables.

Lastly, in order to apply the parametric analysis of the Likert-scale data, factor analysis was run with the Likert-scale data as both categorical data and ordinal data, the results of each being largely similar. Besides, the Likert-scale data has been analysed as both categorical and continuous data in the advanced regression modelling section, and the results of which were also quite similar. Therefore, with the awareness of the debate and a careful consideration of the analysis method, Likert-scale data was analysed as number in the following chapters in the present study.

5.7.4 Missing data

Regarding the questionnaire collection, I gained an almost 100 per cent response rate as I was introduced in almost every classroom (except the one from Maroua) for the data collection, and I talked to students before they

filled in the questionnaire. There were only a few questionnaires that were hastily and/or carelessly completed, and these were excluded from the data entering in the beginning. Furthermore, there was very little data missing from the questionnaire. For example, even on the sensitive question about age, there was only 3% of missing data, whilst for the father's occupation type where a description was required, only 8% of data was missing. With the acknowledgement that the missing data is not random, the missing data were removed in an either pairwise (e.g., correlation) or listwise (e.g., logistic regression) manner from the analysis process at a later stage.

5.8 Model building

This section provides detailed explanation and procedures of the model building in the present study, including multiple regression model and binary logistic regression model. The principles behind the multinomial logistic regression are the same as those for binary logistic regression. Logistic regression applies to the dichotomous outcome variable, and when the outcome variable is nominal with two or more categories, multinomial logistic regression is applicable. Therefore, no further explanation of the multinomial regression will be provided here.

5.8.1 Multiple regression of students' attitudes towards higher education

Multiple regression generally enables the examination of the straight-line relationship between a dependent variable and a set of independent variables, and allows the building of a model with several predictors (independent variables) predicting the dependent variable (Field, 2013). The multiple regression model can be represented by the equation below:

$$\hat{Y} = b_0 + \sum_{i=1}^{n} b_n X_n$$

The outcome variable (Y) in this equation was students' attitudes towards higher education (for a detailed explanation, see Chapter 8.2.1), as measured by highlighted factors that take the form of the predictor variables X_1, X_2, … X_n, such as gender, parents' level of education, secondary school type, etc. The *coefficients* (b-values) provide a measure of the direction (positive or negative) and strength (0 to +1 or -1) of a given predictor variable's effect on the outcome variable (Tolmie et al., 2011). The predictors included in the model, and the way in which they were entered into the model, were rigorously considered as they are both important to the modelling process (Field, 2013).

Regarding the methods of regression, both entry and stepwise methods were employed. The entry method includes all the predictors in the model simultaneously, and its use relies on the rationale that good theoretical reasons can be provided for such. For example, gender was included in the model because it was highlighted in the literature (e.g., Lewin and Sabates, 2011; Johannes and Noula, 2011), whilst parents' levels of education were included because of the greater effect size they have in predicting students' attitudes (see Chapter 6 and 7). Whilst the predictors included in the entry methods are linked to a theoretical understanding of the data, stepwise methods, on the other hand, rely on mathematical relationships within the data. Stepwise methods allow one to search for the best predictors in order to predict the outcome based on purely mathematical criterion. With the stepwise method, the predictor variable with the largest contribution, i.e., the predictor that explains the greatest variance, was included in the regression equation first, followed by the next-largest predictor, and so on (Tolmie et al., 2011). Therefore, both methods were employed in the regression model building. The predictor variables were selected using either sound theoretical rationales or statistical techniques, the results of which were taken to be reliable if the same could be obtained if different methods were applied.

When interpreting the results from the model, an important figure in the model summary is the multiple correlation coefficient, R. R demonstrates the overall correlation between all the predictor variables and the outcome variable, while R^2 is a measure of how well the model fits the actual data,

namely, it is a measure of the goodness of the fit of the model (Field, 2013). For example, when interpreting the results of R^2, an R^2 of 0.408 indicates that the predictors explain 40.8% of the variance in the outcome variable. In the analysis, SPSS also computes an adjusted R^2:

> Whereas R^2 tells us how much of the variance in Y is accounted for by the regression model from our sample, the adjusted value tells us how much variance in Y would be accounted for if the model had been derived from the population from which the sample was taken.
>
> (Field, 2013, p.221)

5.8.2 Binary logistic regression of subject choice for students

In order to explore predictors influencing students' subject choice in higher education, for example if there were a gender stereotyped subject choice, a binary logistic regression model was run. Given that the subject streams in secondary school were classified generally as Arts and Science subjects, the subject streams students may study in HE were also collapsed into these same two subgroups. Therefore, the outcome variable was students' choice of arts or sciences stream at university (1 = sciences, 0 = arts). Binary logistic regression was employed when an outcome variable has only two categories (Field, 2013).

As distinct from a multiple regression predicting the value of a variable Y from a set of predictor variables, Xs, logistic regression predicts the probability of Y occurring given several known values of Xs. The equation for a logistic regression with several predictors is given by Field (2013):

$$P(Y) = \frac{1}{1 + e^{-(b_0 + b_1 X_{1i} + b_2 X_{2i} + \cdots + b_n X_{ni})}}$$

In this model, the outcome variable was students' preferred subject streams, namely Arts or Sciences. The predictor variables were the same as in the model above, consisted of two clusters of variables, background and attitudinal variables. Regarding the selection of the attitudinal variables, the

same procedure was carried out as used in the multiple regression above. The correlation analysis table can be found in Appendix 8-1.

When interpreting the results from a logistic regression, two important values need to be given particular attention. First of all, as mentioned for the multiple regression model, the R^2 value is useful in terms of measuring how well the model fits the data. However, instead of an adjusted R^2, the Nagelkerke R^2 was used to provide a gauge of the substantive significance of the model. Another crucial value in the interpretation of a logistic regression model is the odds ratio, which is the exponential of B (i.e., eB or exp (B)). The odds ratio is an indicator of the change in odds resulting from a unit change in the predictor, as defined in the equation below:

$$\Delta\text{odds} = \frac{\text{odds after a unit change in the predictor}}{\text{original odds}}$$

According to Field (2013, p.767):

> The proportionate change in odds is the odds ratio, and we can interpret it in terms of the change in odds: if the value is greater than 1 then it indicates that as the predictor increases, the odds of the outcome occurring increase. Conversely, a value less than 1 indicates that as the predictor increases, the odds of the outcome occurring decrease.

For example, when the odds ratio is 1.5, when the predictor increases by one unit, the odds of the outcome occurring is 1.5 times greater. When the predictor variable is categorical, for example, in this study, female was coded as 0, male coded as 1, an odds ratio of 1.5 means that the odds of a given outcome occurring for males is 1.5 times greater than for females. Conversely, if the odds ratio is 0.5, the odds of an outcome occurring for males is 0.5 times that for females, namely, females have a 1/0.5= 2 times greater probability than males for the outcome occurring.

5.9 Conclusion

This chapter has given an account of the research design and methodology of this study. It has explained why a mixed methods explanatory sequential research design was chosen for this study, which was largely determined by the research questions and the conceptual framework. A self-administered questionnaire survey and semi-structured interview were used as the research instruments for data collection. The detailed procedure for the pilot study and main study data collection were presented with an explanation of the decision-making process. Ethical considerations were demonstrated with a focus on the ethical approval application in Cameroon. Regarding the coding and data analysis, parents' occupations and educational levels coding were discussed in detail, along with explanation of the analysis methods. Quantitative data was analysed through descriptive, bivariate and multivariate analysis, and thematic analysis was employed for the qualitative data analysis. Detailed rationales and procedures of model buildings were demonstrated at the end of this chapter. After introducing the research design and methodology of this study, the following chapters focus on presenting the findings drawn from the empirical data.

Chapter Six : Describing the sample - schools and students

6.1 Introduction

This chapter presents the findings of the univariate analysis. It describes the background characteristics and attitudes of the students who took part in the questionnaire survey based on school. The school, as a unit of presenting the findings, can provide a more detailed and vivid picture of the distribution of the factors, and indeed can also identify the potential differences among schools, from the initial stage of data analysis. This can help with understanding the students' various backgrounds and their attitudes towards higher education before further statistical analysis is discussed in the subsequent chapters. Therefore, this chapter starts with a short overview of the schools that the data were collected from. The second section describes the distribution of students' gender, age, religion, family type, parental occupation and education level, number of siblings and siblings at university, academic achievement and subject stream studied at secondary school. The third section presents a summary of students' attitudes towards higher education, secondary school, university factors, significant others, gender stereotypes and tuition fees. This chapter ends with a summary and gives the structure of the subsequent findings chapter.

6.2 Description of the schools

The brief description of the schools that were involved in this study is presented to contextualise the study. The names of the schools were anonymised and identified using numbers and short pseudonyms for ethical reasons. I was authorised to gain access to these schools with an appropriate ethical authorisation letter from the government before I conducted the questionnaire survey. In addition to the authorisation letter, I visited the principal of each school to gain their explicit permission before distributing

the questionnaires in their schools' classrooms. A detailed description of the schools is attached in the appendices (see Appendix 6), the description of which was based on my field notes, observations and informal conversations with students and teachers. Some of the data used in these descriptions were derived from the questionnaire responses. These descriptions help provide the reader with a vivid picture of the schools that elected to take part in the study. Table 6-1 provides a brief description of these schools with school types and sample numbers.

Table 6-1 Schools that took part in the questionnaire survey

No.	School types	Boys (N)	Girls (N)	Total (N)
1	Private Francophone	57	55	113
2	Public Francophone	87	91	178
3	Private Anglophone	62	77	139
4	Public Bilingual	172	238	410
5	Public Bilingual	81	140	221
6	Public Bilingual	74	106	180
7	Private Bilingual	10	12	22
8	Public Francophone	6	5	11
9	Public Francophone	28	27	55
10	Public Bilingual	190	202	392
11	Private Bilingual	23	27	50
12	Public Bilingual	51	50	101
13	Private Bilingual	15	22	37
14	Private Anglophone	18	34	52
Total		874	1086	1960

In summary, 14 schools took part in the questionnaire survey, except one school selected from Maroua, whilst the other 13 schools were all distributed around Yaoundé city (see Chapter 5.5.1). There were public, private, Francophone, Anglophone and bilingual schools. The public schools were generally larger in size than private schools, with a larger number of classes and students. Public bilingual schools, particularly school 4 and 10 were the largest schools among the 14 selected schools. For example, in School 4, it had a large campus and contained classes ranging from kindergarten to secondary school. The playground was purely mud, and it can be very muddy on a rainy day. The classrooms were large enough for over 60 students, and classrooms were a bit gloomy with natural light passing through the cement

window holes. This kind of school setup (e.g., mud playground, cement window) was found to be quite common among public schools. However, with the relatively poorer facilities, a large number of students were found in public schools, this may be due to the less expensive tuition fees attracting more students to public schools. On the other hand, with regards to school facilities, private schools were relatively better equipped than public schools. For example, in private schools, the school buildings were newer, student uniforms were elegant and modern, and classrooms were better equipped with smaller numbers of students. School 14 can represent the best private school sampled in this study, where the school buildings were brand new, with concrete outdoor playground and ceramic tiles within the buildings. They also equipped with large ritual hall, canteen, swimming pool and basketball court, while these facilitates were not seen in public schools.

With the brief introduction of the schools from which the students were sampled from, the following sections move on to present the background factors and attitudinal variables distributions for each school. It should be noted that in the following discussion, bilingual schools were categorised as Anglophone and Francophone when the school language was considered.

6.3 Student backgrounds

In this section, student background factors are summarised specifically as gender, age, religion, family type, father's occupation type and education level, mother's occupation type and education level, number of siblings, etc.

6.3.1 Student gender

Briefly speaking, regarding the student gender composition in the final year, although there was a huge difference in student sizes among the schools sampled, it was surprising to find that the proportions of boys and girls in each were almost identical, where girls were outnumbered by boys in ten out

of the fourteen schools. According to Table 6-2, from a total of 1975 respondents, 1086 were female (55%). A closer examination of the figures, however, revealed that among the 14 schools male students were outnumbered by females in only four schools (Schools 1, 8, 9, 12), while in the other ten schools male students were fewer, or indeed considerably fewer, than female students. The figures indicate that more female than male students participated in the study. Given the fact that all the respondents were selected using the school as a unit, one might nominally expect that in the majority of the schools in Yaoundé, there were more female than male students who took the final year of secondary school. However, considering the unbalanced gender distribution of students participating in higher education (UNESCO-UIS, 2016), it was somewhat surprising and interesting to find so many female students remaining at school for the final year of secondary school in Cameroon.

Table 6-2 Distribution of student gender by school

School ID	Boys (%)	Girls (%)	Missing (N)	Total (N)
1	50	50	2	114
2	49	51	2	180
3	46	54	0	139
4	42	58	6	416
5	36	64	0	221
6	41	59	1	181
7	46	54	0	22
8	55	45	0	11
9	51	49	0	55
10	49	51	0	392
11	46	54	0	50
12	51	49	0	101
13	40	60	1	38
14	35	65	3	55
Total	45	55	15	1975

Considering the type of school (see Table 6-3), among the 1975 students the number of students from the Francophone section was nearly twice that of Anglophone students; the number of students from public schools was four times that from private schools. However, regardless of school type, there was no apparent gender distribution difference between Anglophone and Francophone schools, and nor indeed between public and private schools. The

percentages of female students in the four categories of schools were all higher than the percentages of male students.

Table 6-3 Distribution of student gender by school type

School types	Gender	Frequency (N)	Valid Percent (%)
Anglophone	Male	310	44
	Female	402	56
	Total	712	100
Francophone	Male	564	45
	Female	685	55
	Total	1249	100
Public school	Male	689	45
	Female	859	55
	Total	1548	100
Private school	Male	185	45
	Female	228	55
	Total	413	100

6.3.2 Student age

Given the structural difference based on the two education systems in Cameroon, the age groups for upper general secondary students are 17-19 in the Anglophone section and 16-19 in the Francophone system (Amador, 2012; World Bank, 2014). According to Table 6-4, the mean ages of the students in these schools ranged from 17.5 to 21 years old, with the majority of schools having a mean age of 18 to 19. The oldest mean age (21) was found in School 8, while in School 13 and 14, students were the youngest, with an average age of 17.5. According to the standard deviation figures, a small standard deviation indicates the age points are closely distributed about the mean age (Field, 2013). The smallest Std. D score in school 14 revealed the overall age of students in this school was younger than in other schools. As has been discussed in Chapter 4, the age range for many SSA countries is quite wide; for example, in Ghana the senior secondary school age ranges from 14 to 20 years old (Lewin, 2009), which was either because of late entrants or the repetition of a particular grade.

Table 6-4 Student age distribution by school

School No.	Mean	Std. Deviation	Minimum	Maximum
1	18.5	1.8	15	23
2	20	2.2	15	26
3	18	1.5	16	25
4	18	1.6	15	29
5	19	1.5	13	24
6	19	1.8	14	25
7	20	2.5	14	24
8	21	2.3	17	24
9	19.5	1.5	17	23
10	18	1.6	15	25
11	19	2.9	15	28
12	19	1.7	12	25
13	17.5	1.2	15	20
14	17.5	0.9	15	19

Taking the school type into consideration (see Table 6-5), the mean age of students from the Anglophone sections and the private schools were both 18 years old, while the same figure for Francophone sections and public schools were 19 years old. The age range in Francophone sections and public schools were wider than those of the Anglophone sections and private schools. Therefore, one assumption can be made that students from Anglophone sections and private schools were, in general, slightly younger than their counterparts.

Table 6-5 Age distribution by school type

School type	N	Minimum	Maximum	Mean	Std. Deviation
Anglophone	690	14	25	18	1.4
Francophone	1207	12	29	19	1.9
Public school	1494	12	29	19	1.8
Private school	403	14	28	18	1.9

6.3.3 The religion of students

In Cameroon, Christianity is the predominate faith, and Islam is a significant minority faith (Bureau of Democracy, 2011). The sample's figures were in line with the national background. The prevalence of Christianity was up to

90%, while the second most prevalent religion was Islam, at 7%. Minority religion groups such as Indigenous religious, Jehovah's Witnesses, Buddhism, Deism, Baptists, and Bahá'í Faith were all less than 0.5%. Therefore, in the following data analysis, the minority religions were grouped together. Around 1% of the sample identified as 'No religion'.

Although the data reveals that the sample's religion was dominated by Christianity, when we consider the figures in detail the distribution of religions was slightly different among schools (see Table 6-6). In school 12, the dominant religion was Islam, with more than half of the students (59%) being Muslim. School 12 was selected from Maroua, the Far North province, where the Muslims are predominant. Regarding the schools in Yaoundé, schools 9 and 13 were slightly different to the rest; in school 9, Muslims accounted for up to 15% of the students, while the remainder were all Christian. This was also because this school was from an Islam-dominated area in Yaoundé. 10% of School 13's students were Muslim, which ranked third-highest after schools 12 and school 9 for Muslim students. Another remarkable figure from school 13 was the 'No religion' group, where 8% of the students claimed to have no religion, which constituted the largest no religion group among the schools considered.

Table 6-6 Distribution of religious groups by school

School ID.	Christianity (%)	Islam (%)	Indigenous religious (%)	No religion (%)	Total (N)
1	86	6	4	4	108
2	90	6	1	2	175
3	97	1	1	1	139
4	97	2	1	0	403
5	97	1	1	1	214
6	90	7	1	2	177
7	90	5	0	5	22
8	100	0	0	0	10
9	85	15	0	0	54
10	91	6	1	2	390
11	96	2	2	0	48
12	37	59	4	0	101
13	82	10	0	8	38
14	92	6	0	2	53
Total (%)	90	7	2	1	1932

6.3.4 Family type

With regards to family type, overall, monogamous families (81%) were the majority parental relationship among the respondents, while the remainder, 19%, came from polygamous families. This indicates that the predominant form of family relationship of these students from Yaoundé was monogamy. However, two particular figures of note can be seen in School 8 and School 12 (see Table 6-7). The school that was on the edge of the city Yaoundé - School 8 - had 36% polygamous family relationships, whilst School 12 constituted the highest (40%) of polygamous family groups. This reveals that schools located further away from the central Yaoundé, tend to have more polygamous family forms.

Table 6-7 Distribution of family type by school

School No.	Monogamous Family (%)	Polygamous Family (%)	Total (N)
1	87	13	108
2	76	24	172
3	86	14	139
4	82	18	405
5	86	14	214
6	82	18	177
7	91	9	22
8	64	36	11
9	83	17	52
10	80	20	383
11	90	10	49
12	60	40	100
13	86	14	36
14	87	13	54
Total (%)	81	19	1922

6.3.5 Father's occupation

In the questionnaire, students were asked to specify their father's (or male guardian's) main occupation. They were also asked to describe their father's occupation. The coding for the father's (and mother's) occupation was based on the International Standard Classification of occupations ISCO-08 (refer to

Chapter 5.7.1). The data presented in Table 6-8 gives a detailed occupation classification before being collapsed into subgroups in the following chapters.

Overall, slightly over a quarter (26%) of fathers were professionals. The second-largest group constituted of Services and Sales workers (23%). Both fathers who worked in the armed forces and in managerial positions accounted for approximately 5% of the sample. House help was the occupation category with the smallest percentage (only 2%). From this, one might speculate that housekeeping was not the main responsibility of males. Another 6% of the students noted that their fathers were jobless or retired. Therefore, to conclude that professionals were the primary occupation type for students' fathers, as the male parent in Cameroon often acts as the family breadwinner. It is not surprising to learn that the second-largest group of fathers were in Services and Sales, as the researcher had seen a lot of people were pursuing small business activities on the streets, either through retail or through owing a small shop of their own.

Table 6-8 Distribution of fathers' (or male guardians') main occupations

School No.	0(%)	1(%)	2(%)	3(%)	4(%)	5(%)	6(%)	7(%)	8(%)	9(%)	10(%)	Total (N)
1	3	12	36	13	4	20	0	3	2	0	7	94
2	6	4	27	5	4	19	7	8	6	3	1	154
3	8	6	30	12	3	13	8	5	6	7	2	123
4	4	4	28	9	1	25	4	10	9	2	4	330
5	2	3	25	12	3	22	1	11	12	1	8	183
6	9	6	21	12	2	21	4	8	9	1	7	155
7	0	0	0	5	0	37	5	5	27	5	16	19
8	0	0	0	20	10	0	60	0	10	0	0	10
9	0	0	31	9	11	26	0	20	0	0	3	35
10	5	5	26	10	6	24	3	8	8	1	4	328
11	0	0	17	8	5	30	0	17	8	0	15	40
12	13	8	19	7	0	36	5	5	0	0	7	75
13	7	10	38	7	4	24	0	0	3	0	7	29
14	9	5	40	11	9	20	2	2	0	0	2	45
Total (%)	5	5	26	10	4	23	4	8	7	2	6	1620

1= Managers
2= Professionals
3= Technicians and Associate Professionals
4= Clerical Support Workers
5= Services and Sales Workers
6= Skilled Agricultural Forestry and Fishery Workers
7= Craft and Related Trades Workers
8= Plant and Machine Operators and Assemblers
9= House help
0= Armed Forces Occupations
10= Jobless/Retired

In terms of common patterns in fathers' occupation distributions (grey cells in Table 6-8), in the majority of schools (10 out of 14 schools), Professionals were the most common occupation type followed by Services and Sales workers. The exceptions were found in Schools 7, 8, 11 and 12. In Schools 7, 11 and 12, Services and Sales work was the main occupation type for fathers (at 37%, 30% and 36%, respectively), and no students indicated their fathers were Professionals in School 7. In school 8, 60% of fathers were undertaking Skilled Agricultural Forestry and Fishery work. All the four schools (Schools 7, 8, 11, 12) that were different in terms of the overall occupation ranking shared the common character that they were far away from central Yaoundé, especially schools 8 and 12. This implies that the further the distance of the school from the capital, the fewer fathers had a professional occupation. This can in turn illustrate that the family incomes of students attending more distant schools might well be low, regardless of whether their children attended public or private school, which may further impact students' attitudes regarding their participation in HE.

Regarding the fathers' occupation distribution between different types of school (see Table 6-9), in Anglophone and private schools, the percentage of Professionals was much higher than Services and Sales workers, while in Francophone and public schools, the percentages of Professionals and Services and Sales workers were similar. Furthermore, there were more Professionals and fewer Services and Sales workers in Anglophone and private schools than in Francophone and public schools. Therefore, Anglophone and private schools' students tend to have fathers with 'better' occupations compared with the Francophone and public school students.

Table 6-9 Distribution of fathers' (or male guardians') main occupation by school type

School No.	0(%)	1(%)	2(%)	3(%)	4(%)	5(%)	6(%)	7(%)	8(%)	9(%)	10(%)	Total (N)
Anglophone	7	5	28	10	4	20	5	7	7	3	4	595
Francophone	4	5	25	10	4	24	3	9	8	1	7	1025
Public	5	4	25	10	4	24	4	9	8	1	6	1270
Private	5	7	31	11	4	20	3	5	5	3	6	350

6.3.6 Mother's occupation

Similar to fathers' occupations, respondents were invited to indicate their mother's (or female guardian's) main occupation and provide details of their occupations if possible. However, the distribution of mothers' occupations was considerably different to those of fathers (see Table 6-10). The largest group of mothers' occupations was housekeeping, where about one-third of the students indicated their mothers were housekeepers. Services and Sales workers constituted the second highest (29%) occupation type. Being a Professional was ranked third, with 19% of mothers pursuing such occupations. The above is understandable as it has been discussed in numerous studies that mothers employed to do housework tends to be the dominant female occupation in SSA countries (Cornwall, 2005; Ndulo and Grieco, 2009; Hill and King, 1993). The implication is that, as a housewife, they are less responsible for earning money, but more likely to take care for children and do housework. The second-largest form of occupation amongst mothers was Services and Sales work. Among Services and Sales work, most mothers were self-employed street retailers, which allowed a flexible approach to working hours, so leaving these mothers ample flexibility and time to take care of the family.

Table 6-10 Percentage distribution of mothers' (or female guardians') main occupations

Schools No.	0(%)	1(%)	2(%)	3(%)	4(%)	5(%)	6(%)	7(%)	8(%)	9(%)	10(%)	Total(N)
1	0	0	30	11	11	25	0	3	0	16	4	98
2	0	0	15	10	4	23	3	6	1	36	2	160
3	1	2	26	12	2	29	6	0	0	20	2	126
4	0	1	21	7	5	33	2	1	0	29	1	347
5	1	1	18	6	5	30	2	4	0	31	2	189
6	1	1	16	9	6	35	3	1	1	26	1	160
7	0	0	0	0	0	25	0	0	0	70	5	20
8	0	0	0	0	0	30	10	0	0	60	0	10
9	0	0	10	3	5	33	0	3	0	46	0	39
10	0	1	19	6	5	28	2	2	1	35	1	334
11	0	0	12	3	2	33	0	5	0	45	0	40
12	0	0	16	1	2	8	0	1	0	72	0	74
13	0	3	28	14	7	31	0	0	0	17	0	29
14	0	6	23	14	15	25	2	2	0	13	0	52
Total (%)	1	1	19	7	5	29	2	2	1	32	1	1678

1= Managers
2= Professionals
3= Technicians and Associate Professionals
4= Clerical Support Workers
5= Services and Sales Workers
6= Skilled Agricultural Forestry and Fishery Workers
7= Craft and Related Trades Workers
8= Plant and Machine Operators and Assemblers
9= House help
0= Armed Forces Occupations
10= Jobless/Retired

Specifically, the mothers' occupation distribution in the public schools (Schools 2, 4, 5, 6, 8, 9, 10 and 12) were approximately consistent with the overall ranking mentioned above. For School 12, in particular, the proportion of mothers doing housekeeping was higher, at up to 72%, with only a small portion of mothers (8%) doing Professional work in this school. In Schools 4 and 6, the percentage of Services and Sales workers was slightly higher than those doing housekeeping. On the other hand, for private schools (Schools 1, 3, 7, 11, 13, 14), in private school 1, the percentage of mothers undertaking Professional work was higher than those performing Service and Sales works, whilst housekeeping followed Service and Sales work. In private schools 3, 13 and 14, mothers undertaking Services and Sales work ranked highest, followed by Professional work and Housekeeping. The mothers' occupation distribution in School 7 and 11 was consistent with that in public schools, where mothers had fewer professional occupations; this was also similar to the fathers' occupations in these two schools. Given that Schools 7 and 11 were located a little further away from central Yaoundé, this implies that private schools that are further away from the city centre showed greater similarities with public schools rather than the 'superior' private schools in the central areas. The other four private schools were the better equipped schools among all those considered, where the mothers' occupation distribution ranking also implies that the private school students came from relatively financially better-off family backgrounds.

Table 6-11 Distribution of mothers' (or female guardians') main occupations by school type

School No.	0(%)	1(%)	2(%)	3(%)	4(%)	5(%)	6(%)	7(%)	8(%)	9(%)	10(%)	Total (N)
Anglophone	0	2	24	9	6	31	3	1	0	24	0	620
Francophone	0	0	16	7	5	28	2	3	0	37	2	1058
Public	0	1	18	7	5	29	2	2	0	35	1	1313
Private	0	2	24	10	7	27	3	2	0	23	2	365

To support the assumptions above, Table 6-11 demonstrates the mothers' occupations by school type. The percentage of mothers with Professional occupations was much higher in Anglophone and private schools, and the percentage working as house helps in those schools was lower than in Francophone and public schools. The percentage of mothers doing Services and Sales work was similar for all four types of schools. Therefore, mothers of Anglophone and private school students had a higher proportion of 'better' occupations, rather than being housewives.

6.3.7 Father's level of education

According to the responses from the students in the questionnaire, 44% indicated their fathers as having attended higher education. This figure was surprisingly high when compared with overall higher education participation rate in the country (see Chapter 2). Among the remaining fathers, around a quarter had obtained secondary education qualifications; 17% of students specified they did not know their father's education level, and 11% indicated their fathers had received a primary education; 2% indicated their fathers had no formal schooling. The percentage of fathers having received higher education were particularly high in Schools 1 (60%), 3 (56%), 13 (61%), and 14 (68%); all four schools were private schools based around the central Yaoundé, which implies that the students' fathers' education levels from the private schools in Yaoundé were well in excess of the standard level of education in the country as a whole.

Fathers' education level distributions in the majority of schools were consistent with this overall ranking, however a closer examination of the fathers' education levels in different schools revealed some exceptions (see Table 6-12). Firstly, in school 2, the proportion of fathers having obtained higher education and secondary education were the same - both at 33%. In School 7, nearly half the students (47%) indicated they had no idea about their fathers' levels of education, followed by 42% indicating that their fathers had

received a secondary education; no fathers had gained a higher education in this school. Schools 8, 11 and 12 were all dominated by students' fathers having a secondary education (73%, 38% and 29%, respectively). As stated in the previous section, Schools 7 and 11 were private schools located in the far east of Yaoundé, given that Service and Sales work dominated fathers' occupations, it is not entirely unexpected that their associated education levels were mainly at the secondary level. In a similar manner, Schools 8 and 12, which are even further from Yaoundé, secondary education was the main education level of fathers, especially in School 8, where the figure was almost three-quarters having received this level of education.

Table 6-12 Distribution of fathers' educational levels by school

Schools No.	No formal schooling (%)	Primary Education (%)	Secondary Education (%)	Higher Education (%)	I don't know (%)	Total (N)
1	2	1	14	60	23	106
2	3	15	33	33	16	174
3	0	12	19	56	13	135
4	2	13	24	46	15	392
5	3	10	30	36	21	209
6	1	15	27	47	10	172
7	0	11	42	0	47	19
8	9	9	73	9	0	11
9	9	9	37	39	6	46
10	2	9	26	47	16	380
11	2	17	38	17	26	47
12	10	16	29	24	21	97
13	5	0	13	61	21	38
14	0	0	11	68	21	53
Total (%)	2	11	26	44	17	1879

When examining the fathers' education distribution by school type (see Table 6-13), similar to the fathers' occupation pattern, students with fathers that had received higher education in Anglophone and private schools (53% and 52%, respectively) were much greater than those in Francophone and public schools. Higher education was the fathers' dominant education level in Anglophone and private schools.

Table 6-13 Distribution of fathers' education levels by school type

Schools No.	No formal schooling (%)	Primary Education (%)	Secondary Education (%)	Higher Education (%)	I don't know (%)	Total (N)
Anglophone	0	12	21	53	14	696
Francophone	4	10	30	38	18	1183
Public	3	12	28	41	16	1481
Private	1	7	20	52	20	398

6.3.8 Mother's level of education

Unlike the fathers' levels of education levels, the majority of mothers had received secondary education (41%), followed by higher education (27%) (see Table 6-14). 13% of mothers had received primary education and 4% had no formal schooling. 15% of students stated they don't know their mothers' levels of education level. The distribution of mothers' levels of education across all public schools, with the exception of School 12, were consistent with the overall distribution. In School 12 (the public school in Maroua), most students indicated that their mothers had no formal schooling (25%), followed by primary education (23%) and secondary education (22%). Only 8% of the mothers had obtained higher education in School 12. This result can be interpreted as being linked with the mothers' occupation types, where housekeeping was the dominant means of employment. The implication here is that females from outside Yaoundé tended to be less well-educated and primarily undertook elementary work at home. With regards to private schools, Schools 7 and 11 were in line with the public schools. At the other private schools, including Schools 1, 3, 13 and 14, approximately half the students indicated their mothers' levels of education to be higher education. Furthermore, in Schools 3 and 14, there were no mothers who had not received at least some level of formal schooling.

Table 6-14 Distribution of mothers' educational levels by school

Schools No.	No formal schooling (%)	Primary Education (%)	Secondary Education (%)	Higher Education (%)	I don't know (%)	Total (N)
1	2	3	32	44	19	108
2	3	21	44	16	16	175
3	0	14	30	47	9	139
4	4	12	43	30	11	387
5	4	12	45	22	17	210
6	2	14	39	32	13	176
7	5	25	35	0	35	20
8	9	18	73	0	0	11
9	4	17	53	16	10	49
10	3	11	49	23	14	379
11	4	19	46	14	17	48
12	25	23	22	8	21	94
13	8	3	24	52	13	38
14	0	2	26	52	20	54
Total (%)	4	13	41	27	15	1888

In line with the above description, Anglophone and private school students' mothers' levels of education were dominated by higher education, while the highest proportion of mothers' levels of education in Francophone and public schools was secondary education (see Table 6-15). The mothers' education level distribution, together with fathers' education level, and parents' occupations, all implied that students from Anglophone and private schools came from relatively financially better-off families with well-educated parents who held higher status occupations.

Table 6-15 Distribution of mothers' education levels by school type

Schools No.	No formal schooling (%)	Primary Education (%)	Secondary Education (%)	Higher Education (%)	I don't know (%)	Total (N)
Anglophone	1	11	38	39	11	702
Francophone	6	14	43	21	16	1186
Public	5	14	44	23	14	1481
Private	2	10	31	41	16	407

6.3.9 Number of siblings and siblings at university

The presentation of the data in this section was based on the questionnaire responses. First, the respondents were asked to indicate if they were the only child in the family. If the answer was no, they were asked to specify the number of sisters and brothers they had. Therefore, their position among sibling can be inferred from their answers.

According to the questionnaire data, the average number of siblings in families in the study was five. The maximum number of siblings was 38, which might contain half-siblings given the existence of polygamous families. The majority of schools had families with around 4 to 5 siblings, with higher figures (7 and 8 respectively) found in Schools 8 and 12 (school in Maroua). The large number of siblings were in line with the previous studies conducted in Africa (Boyle et al., 2002; Hunt, 2008). The second variable was the position among siblings. According to the Table 6-16, it was rare to find a single-child family in the present study, where only 50 out of 1932 students were the only children. Overall, the majority of the students' positions amongst their siblings was in the middle, whilst around one-fifth of the students were the youngest and another fifth were the oldest in their families.

Table 6-16 Position among siblings in family

	Frequency (N)	Percent (%)
Only child	50	3
Youngest	351	18
Middle	1160	60
Eldest	371	19
Total	1932	100

In terms of the number of siblings at university, the associated distribution was presented in Table 6-17. First of all, the students who had zero (0) sibling at university represented the highest percentage of students among the three groups (overall, brothers and sisters). However, the percentage having no sister at university was higher than that of no brother. Secondly, regarding different numbers of siblings at university, brothers outnumbered sisters in all the various number groups. For example, the percentage of students having

three brothers at university was 6%, whilst three sisters was 5%. This might be because the number of sisters was less than the number of brothers in the family. This might somewhat support the argument that families in SSA countries favour their sons' educations over those of their daughters (Johannes, 2010; Obasi, 1997).

Table 6-17 Frequency of number of siblings at university

Number of siblings at university	Overall (%)	Brothers (%)	Sisters (%)
0	36	47	56
1	20	27	23
2	17	14	11
3	10	6	5
4	7	2	1
5	4	1	1
6	2	0.3	0.2
7	1	0.3	0.2
8	1	0.1	
9	0		
10	0		
11	0		
12	0	0.1	
16	0		
Total	98	98	98
Missing	2	2	2
Total (N)	1972	1972	1972

6.3.10 Academic achievement and subject stream

Before analysing the data for academic achievement (AA), the coding process needs to be explained. Given the difference between the Anglophone and Francophone subsystems, AA consists of a grade for GCE O/L (Anglophone) and *Probatoire* (Francophone), where the presenting of the data was initially kept separate in this section.

Initially, the data was collected from the Anglophone sections, including the subject name and corresponding grades received for GCE O/L. In the Anglophone system, the GCE O/L grading scale includes A, B, C, D, E and U. A, B, C are all pass grades; grades lower than C are not stated on the certificate. Therefore, the grades were coded correspondingly: 3 = A; 2 = B;

1 = C; 0 = D/E/U. All the pass grades were summed according to this coding number.

Table 6-18 Description of the grades received for GCE O/L

School No.	Minimum	Maximum	Mean	Std. Deviation	N
3	4.0	27.0	11.7	5.1	138
4	4.0	29.0	12.9	5.7	152
5	7.0	13.0	9.6	1.7	9
6	4.0	33.0	13.5	6.6	138
10	4.0	29.0	14.3	6.1	159
11	4.0	18.0	8.7	3.6	15
13	5.0	30.0	11.9	5.4	33
14	6.0	26.0	12.1	4.2	54

The average grade for Anglophone students was 12.9, and indeed there were three schools (Schools 4, 6 and 10) that had an average grade which was above the overall mean grade (see Table 6-18). Additionally, all these three schools were large-sized public bilingual schools in Yaoundé, which suggests the Anglophone section teaching quality in these schools might be better than elsewhere. Given the small number of respondents from the Anglophone section in School 5 and 11, the mean grades were found to be considerably lower than those of the larger schools.

In the Francophone sections (see Table 6-19), the mean grade for *Probatoire* was 10.6 and the grade difference among Francophone sections was smaller than found for the Anglophone sections. There were five schools (Schools 1, 4, 7, 9, and 10) that had a higher average grade than the overall average score. Considering the relatively higher grades in the Anglophone sections, bilingual Schools 4 and 10 showed good performance in terms of students' academic achievement in both the Anglophone and Francophone sections.

Table 6-19 Description of the grade for *Probatoire*

School No.	Minimum	Maximum	Mean	Std. Deviation	N
1	9.0	16.6	10.9	1.1	102
2	10.0	14.0	10.3	0.6	172
4	10.0	18.9	10.7	1.1	226
5	10.0	14.7	10.5	0.8	203
6	10.0	12.5	10.4	0.6	33
7	10.0	13.0	10.6	0.9	21
8	10.0	12.6	10.3	0.8	11
9	10.0	13.1	10.7	0.7	43
10	10.0	15.1	10.6	0.9	222
11	10.0	12.5	10.3	0.5	34
12	10.0	13.8	10.5	0.9	97
13	10.0	10.8	10.2	0.4	5

For further analysis, the Anglophone and Francophone section results were combined. The two sections both employed visual binning to identify suitable cut-off points to break the total grade (continuous variables) into two groups: higher AA and lower AA. The size of this effect was then calculated with the grouped variables in the subsequent chapter.

Table 6-20 gives the distribution of students' subject stream in secondary school. In total 44 % of the students were in the Art stream, whilst 55% pursued science, with only 1% studying ICT. The ICT series was only found in Schools 5 and 10, and given the small amount of ICT series compared with the arts and sciences, this subject stream was coded as missing data in order to make the analysis simple and straightforward.

Table 6-20 Distribution of subject streams at secondary school

	Frequency (N)	Valid Percent (%)
Arts	852	44
Sciences	1071	55
ICT	21	1
Total	1944	100

Consistent with the subject stream distribution of the secondary school students, their preferred subject choices at university were also dominated by

two categories: Arts and Social Sciences (34%), and Sciences (43%) (see Table 6-21). Another 11% of the students indicated they wanted to study business and management at university, while 9% stated they would like to pursue medicine. The remaining 3% stated that they had no idea which subjects they would like to pursue. The percentage distribution of student subject streams in secondary school were consistent with their subject choices in university, this implies the possibility that the students would generally pursue the same subject stream they had in secondary school. This will be further verified in the bivariate analysis which follows in Chapter 7.

Table 6-21 Distribution of preferred subjects at university

	Frequency (N)	**Valid Percent (%)**
Arts and Social Science	457	34
Business and Management	144	11
Medicine	114	9
Science	582	43
Don't know	45	3
Total	1342	100

6.3.11 Conclusions about the distribution of background factors

The descriptions given above provide contextual information about the students in this study from their personal and family backgrounds. According to the descriptions, the broad distribution patterns of gender, age and religions among the 14 schools were essentially quite similar. There were more female students than male students participated in the present study. The average age of the final year secondary school students was between 18 and 19, which was consistent with the age range of students in the education system, yet the average age of Anglophone and private school students was one year younger than Francophone and public school students. Christianity was the dominant religion, whilst Islam was the largest minority religion among the students.

In terms of parents' background, the fathers' occupations and education, and mothers' occupations and education distributions broadly speaking shared a

number of common features among the 14 schools. Specifically, the two most common occupations amongst fathers were Professional occupations and Services and Sales work, while the largest group amongst mothers' occupations was housekeeping, followed by Services and Sales work and Professional occupations. Fathers tended to have higher status occupations than mothers, which also indicated the tendency of fathers to be the family breadwinner. Similarly, the fathers' levels of education were dominated by higher education, while mothers' most common level of education was secondary education. However, the parents' education levels and occupation types were found to be distinctive among the Anglophone and Francophone schools, and private and public schools. Therefore, greater attention should be paid to the distinction between different types of secondary schools and also the roles of parents' levels of education and occupation types.

6.4 Presentation of the attitudinal variables

This section presents summary data for the student attitude variables investigated in the questionnaire survey. The 23 items in this part of the survey can be collapsed into six themes: students' personal and perceived parental attitudes towards going to university, their attitudes to secondary school and university, the influence of significant others, and gender-stereotyped views and attitudes regarding tuition fees. This provides a brief background picture of their attitudes towards going to university and what might influence them in terms of attending higher education or otherwise. As stated in Chapter 5, the students' attitudes were analysed as based on a four-point Likert scale, i.e., disagree a lot, disagree a little, agree a little, and agree a lot. The data presented here is the percentage of respondents who gave a given response. Given the missing data in each question, the total number of cases were also indicated at the end of the table.

Theme 1: Personal and parental attitudes towards higher education

Students' attitudes towards higher education is one of the vital elements in forming their future decisions. This theme was formed of seven items in the questionnaire which investigated students' personal attitudes and their perceived parental attitudes on their access to higher education.

Table 6-22 Distribution of students' personal and parental attitudes towards higher education

Items	Disagree a lot (%)	Disagree a little (%)	Agree a little (%)	Agree a lot (%)	Total (N)
I think getting a degree will help me to have a successful career	5	11	33	51	1954
I think getting a degree will help me to earn more money	8	16	42	34	1905
I think going to university will help develop my confidence as a learner	5	10	28	57	1926
I admire people who go to university	15	18	35	32	1905
My parents think that going to university is important	7	11	24	58	1946
My parents encourage me to go to university	9	13	25	53	1930
My parents are good role models for influencing me to go to university	14	17	28	41	1916

Table 6-22 revealed a broadly positive picture of students' personal and parental attitudes toward university. If we collapse the positive categories and negative categories separately, four out of five students agreed that gaining a degree would help them to have a successful career. Around three-quarters of students indicated that obtaining a degree would be helpful to them in terms of earning more money. In terms of the meaning of higher education to their lives, 85% of the students reported that going to university would help them to develop confidence as a learner. However, the proportion of the last item, admiring people going to university, was relatively low among the four items, at about 67%. This figure might illustrate the possibility that students were self-confident about going to university, and therefore, did not consider it necessary to admire others who attended university. Overall, the majority of the students agreed with the positive function of higher education and

obtaining a bachelor's degree. The highly positive picture of students' attitudes towards higher education is encouraging; however, considering the overall low higher education gross enrolment ratio in SSA countries (9% in 2017) and Cameroon (19% in 2016), one might argue that while students from Yaoundé might want to participate in higher education, not all of them would actually be able to attend university.

Similarly, consistent with their personal attitudes, their perceived parental attitudes were also optimistic. The proportion of students who agreed that their parents think going to university is important was approximately the same as the students' own attitudes about the first item 'I think getting a degree will help me to have a successful career'. 78% of the students thought that their parents are encouraging them to go to university. 69% of students indicated that their parent are good role models in terms of influencing them to go to university.

The consistency of the students' attitudes and their parental attitudes implies that there might be a mutual influence between their personal opinions and their parents' opinions. One can also argue that this might be because that students' parental attitudes were students perceived parental attitudes, which was a reflection of their own attitudes. In any case, the highly positive attitudes offer a positive picture of students' aspirations in terms of gaining access to higher education. However, on the other hand, the highly positive attitudes might be because most of the students were from Yaoundé, in the sense that they might come from affluent families with well-educated parents. Therefore, the relationship between these attitudes and students' background factors, such as gender, parents' level of education and secondary school type were examined in Chapter 7.

Theme 2: Attitudes towards secondary school

The second theme was about students' attitudes towards secondary schools, including their evaluations of the courses they attended and knowledge they had gained in secondary school (see Table 6-23).

Table 6-23 Distribution of students' attitudes towards secondary school

Items	Disagree a lot (%)	Disagree a little (%)	Agree a little (%)	Agree a lot (%)	Total (N)
I like the courses I studied in secondary school	7	11	32	50	1922
The knowledge I gained at secondary school is useful	2	2	18	78	1941

82% of the students agreed that they liked the courses they studied at secondary school, whilst a higher percentage, 96%, indicated that the knowledge they had gained at secondary school was useful. Students were even more positive about secondary school compared with the first theme of aspiration, that of gaining access to higher education. One could also argue that the positive attitudes towards higher education can potentially be linked to a positive schooling experience at secondary school.

Theme 3: Attitudes towards university factors

The third theme investigated the subjects the students wanted to pursue at university and their potential concerns about safety on university campuses (see Table 6-24).

Table 6-24 Distribution of students' attitudes towards university factors

Items	Disagree a lot (%)	Disagree a little (%)	Agree a little (%)	Agree a lot (%)	Total (N)
I think I have limited choices for a major (subject) at university	16	19	33	32	1925
I worry about being safe while at university	14	19	27	40	1927

As distinct from the positive picture found with regards to secondary school, in terms of the subject students wanted to pursue at university and potential concerns about being safe on the university campuses, over half of the students expressed a negative view about both dimensions. Specifically, 65% of students believed they would have limited choices of subject at university, whilst 67% of students were concerned about being safe at university.

Compared with students' overall positive attitudes toward secondary school and university in themes one and two, the lower figures for specific items relating to higher education indicated certain realities such as the subject choice and safety issues possibly preventing them from attending higher education. This was not surprising when one takes the lower higher education enrolment ratio in Cameroon into consideration.

Theme 4: Attitudes towards significant others

In the fourth theme, the influence of significant others was explored. Significant others in this section includes peers, relatives and secondary school teachers.

Table 6-25 Distribution of students' attitudes towards significant others

Items	Disagree a lot (%)	Disagree a little (%)	Agree a little (%)	Agree a lot (%)	Total (N)
I have many friends/close family members who have studied at university	5	7	22	66	1949
My friends encourage me to go to university	15	18	33	34	1938
My secondary school teachers encourage me to go to university	11	19	35	35	1937
My secondary school teachers have told me that going to university is important	8	14	34	44	1946

According to the Table 6-25, 88% of students stated they have a large number of friends/close family members who have studied at university. This figure was surprisingly high, but it might imply that people from Yaoundé have a higher possibility of attending university than other regions of the country. Compared to the higher rate of friends in university, a relatively low percentage, 67%, of students stated their friends encouraged them to go to university. In terms of the influence from secondary school teachers, seven out of ten students agreed that their secondary school teachers encouraged them to go to university and, similarly, 78% have had teachers tell them that going to university is important. This was supported by previous studies, where for instance Lee and Burkam (2003) demonstrated that when students had a positive relationship with their teachers, they were more likely to

remain in the schooling system for longer. The encouragement from teachers was in itself also strongly associated with students' motivation towards school (Wentzel, 1998). Broadly speaking, significant others for these groups of students also conferred a positive effect to their aspirations of attending higher education.

Theme 5: Gender stereotypes

The fifth theme examines gender-stereotyped views amongst students, including their attitudes towards marriage and study, jobs and family, and responsibilities in the family.

Table 6-26 Distribution of students' gender stereotyped views

Items	Disagree a lot (%)	Disagree a little (%)	Agree a little (%)	Agree a lot (%)	Total (N)
I will stop my studies if I get married	59	19	9	13	1910
I think women should have jobs outside the home	3	2	14	81	1953
I think women should take more responsibility (e.g., housework) in the family	12	19	35	34	1939
I think girls are less suitable to go to university than boys	58	20	13	9	1938

According to Table 6-26, more neutral views were found among the sample students. Roughly one out of five students agreed that they would stop their studies if they got married. For the item 'I think women should have jobs outside the home', 81% of the students agreed a lot, another 14% agreed a little, and only 5% of the students disagreed. An interesting point is that 69% of the students agreed that women should take more responsibility within the family. Despite the majority of students indicating that women should have jobs outside the home, there was also a prevalent belief that women should take more responsibility within the family. 78% of the students did not believe that girls are less suitable to go to university than boys, which means a majority of the students did not question females' educational rights.

Theme 6: Tuition fee issues

This theme explores students' attitudes towards the potential tuition fee required to participate in higher education.

Table 6-27 Distribution of students' attitudes toward tuition fee issues

Items	Disagree a lot (%)	Disagree a little (%)	Agree a little (%)	Agree a lot (%)	Total (N)
My family will pay my tuition fees if I go to university	6	9	30	55	1946
I will need to have a part-time job to cover my costs if I go to university	9	12	32	47	1924
I worry about paying my tuition fees if I go to university	30	25	23	22	1914
I will only be able to go to university if I can get financial support from outside my family	39	24	18	19	1907

According to Table 6-27, 85% of the students believed that their families would pay their tuition fees if they attended university. However, the proportion of students who agreed that they would have to do a part-time job to cover their costs if they went to university was also high, at up to 79%. This implies that for the majority of students, they might have some financial support from their family but at the same time they would need to have a part-time job to cover their personal costs. Half of the students were concerned about paying their tuition fees, which means that although the majority of the students were expecting their parents to pay their tuition fees, half of them were still worried about the tuition fees and whether the cost might prevent them from attending university. However, nearly two-thirds of students (63%) stated they would not need to rely on external financial support, the potential explanation for which might be that these students were more likely to be from a wealthy cohort, or that compared with relying on the family, students were less positive about obtaining external financial support such as government subsidies or loans. As discussed by Oketch (2003), the substantial increase in student enrolment figures in higher education results in strong competition in terms of obtaining government subsidies or loans in SSA countries.

From this theme, one can come to the idea that students were generally not distressed about the tuition fees and that such tuition fees might not be a barrier to them attending university. However, the fact that students came mainly from Yaoundé also needs to be considered, which implies either students from Yaoundé were a relatively wealthy cohort, or the students who remained for the final year of secondary school were more likely to come from a more affluent family background. Being a private or public school was not the only standard through which to evaluate students' financial concerns. Therefore, it would be interesting to examine the correlation or relationship, if any, between students' attitudes and their background factors.

6.5 Conclusion

This chapter provides a description of the 14 schools and the students who participated in the study. All the schools were located within 10km of the central Yaoundé, except for one school from Maroua. Generally speaking, the public schools were larger than the private schools in terms of class size, while private schools were better equipped compared to the public schools. The second section presented the students' background characteristics distribution, containing students' gender, age, religion, family type, parents' occupation, parents' level of education, number of siblings and academic achievement at secondary school.

The last section presents students' attitudes towards going to university, the overall picture for which was quite positive. Students themselves, their parents' attitudes, influence from teachers, peers and siblings all tended to be positive. Stereotyped gender views, such as 'I think women should take more responsibility (e.g., housework) in the family', were still prevalent but did not appear to influence students' attitudes towards schooling. Furthermore, students were actually optimistic about paying tuition fees if this gained them the opportunity to participate in higher education, as either paid for by their parents or through their own attempts to cover costs. Students' demographic backgrounds may be associated with their attitudes towards higher education.

Therefore, in the subsequent analysis chapter, it will be worthwhile delving into the differences in attitudes among the various subgroups, and that would investigate the potential predictors that would contribute to students' aspirations towards higher education.

Chapter Seven : Bivariate analysis of students' higher education attitudes and choices

7.1 Introduction

Based on the description of schools and students' background and attitudinal variable distributions in Chapter 6, this chapter further explores the factors that might associated with students' attitudes towards higher education. Besides, considering the higher proportion of students expressed their willingness to attend higher education, their preferred type of higher education institutions and preferred subject choices were also explored, along with their corresponding related factors. This can help to gain a better idea about the differences between different subgroups and the potential predictors that might have related with student's decision to continue higher education studies.

This chapter starts by presenting the factor analysis, the purpose of which was to collapse the attitudinal variables into six themes to facilitate the subsequent analysis. The second section of the chapter explores the relationship between background factors and students' higher education attitudes and choices, including their aspirations for higher education, their preferred HEIs and subject choices. The third section investigates the relationship between background variables and attitudinal variables.

7.2 Factor analysis of attitudinal variables

Factor analysis is an analytic technique used to detect the structure of a set of variables and collapse them into clusters (Field, 2013; Bryman, 2016) (see Chapter 5.7.2). This section presents the results and implications of the factor analysis. The 23 attitudinal items in the questionnaire were subjected to a Principal Component Analysis (PCA) with oblique rotation. Prior to performing the PCA, the suitability of the data for factor analysis was

assessed. Inspection of the correlation matrix revealed the presence of a large number of coefficients with a value of 0.3 and above (see Table 7-1).

Table 7-1 Pattern Matrices for factor analysis

	Component					
	1	**2**	**3**	**4**	**5**	**6**
Your opinion (YO)1	.706					
Parental opinion (PO)1	.674					
Your opinion (YO)2	.671					
Parental opinion (PO)2	.656					.320
Parental opinion (PO)3	.603					
Your opinion (YO)4	.371					
Your opinion (YO)3	.336					
Tuition fee (TF) 3		.806				
Tuition fee (TF) 4		.731				
Tuition fee (TF) 1		.617				
Tuition fee (TF) 2		.544				
University factor (UNI)4			.731			
University factor (UNI)3			.716			
Secondary school (SC)2				.749		
Secondary school (SC)1				.748		
Gender stereotypes (GS)4					.692	
Gender stereotypes (GS)1					.577	
Gender stereotypes (GS)3					.460	
Gender stereotypes (GS)2			-.435		.437	
Significant others (SO)3						.707
Significant others (SO)4						.686
Significant others (SO)2						.647
Significant others (SO)1						.554

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 23 iterations.

According to the factor analysis, six components could be extracted. This means the 23 attitudinal items can be collapsed into six themes. For example, for component one, the correlations between the first seven items were above 0.3, which indicates that these seven items can be collapsed into one theme; in this instance one of investigating students and their parental attitudes toward participation in higher education, which was labelled as 'Personal and parental attitudes toward higher education'. With regards to the second theme,

the correlations between the four tuition fee items were greater than 0.5, and therefore these four items were collapsed into a second theme related to students' attitudes about tuition fees, which was labelled 'Attitudes towards tuition fees'. The third and fourth themes were both composed of two items, which were labelled 'Attitudes towards secondary school' and 'Attitudes towards university factors'. Another four items were collapsed into theme five, related to students' personal values about gender issues. This was labelled 'Attitudes towards gender stereotypes'. The last theme was comprised of four items and was labelled 'Attitudes towards significant others'. Therefore, the six themes listed below were adopted to for the further analysis.

- Theme 1: Personal and parental attitudes toward higher education
- Theme 2: Attitudes towards tuition fees
- Theme 3: Attitudes towards secondary school
- Theme 4: Attitudes towards university factors
- Theme 5: Attitudes towards gender stereotypes
- Theme 6: Attitudes towards significant others

The six themes extracted from the factor analysis were used instead of the original 23 items in the following sections to explore predictors influencing students' attitudes towards higher education and the relationships between background factors and attitudinal variables. The factor analysis results reaffirmed the previous attitudinal variable categories presented in Chapter 6.4.

The six themes were mediating attitudinal variables which were both influenced by students' background factors and also influence students' higher education aspirations and choices. Therefore, these attitudinal variables were used both as predictor variables and also outcome variables, as reported in the following sections.

7.3 Predictors associated with students' higher education attitudes and choices

This section explores potential predictors influencing students' higher education attitudes and choices. The potential predictors included students' background variables and the attitudinal variables extracted above. In the questionnaire, students were asked to identify whether they wanted to attend HE or otherwise. For those students who chose to continue their studies, they were invited to clarify the HEI they would like to attend and the subjects they wanted to pursue. Otherwise, students were asked to specify their future plans for after graduation. Therefore, four subsections are described below to identify their personal choices.

7.3.1 Aspirations for higher education

The first question in the questionnaire presented a dichotomy to investigate students' aspirations for HE, namely whether they wanted to attend HE or otherwise. The following is the distribution of students' aspirations for higher education among different subgroups (see Table 7-2).

Table 7-2 Distribution of students' aspiration to continue studies

		Aspiration to attend HE		N (Valid)
		Yes (%)	No (%)	
Total		90	10	1936
Gender	Male	90	10	855
	Female	90	10	1073
Age	18 and less	92	8	1032
	Over 18	88	12	834
Religion	Christian	90	10	1719
	Non-Christian	91	9	217
Family type	Monogamous	90	10	1548
	Polygamous	89	11	342
Father's education	Non-higher education	87	13	730
	Higher education	94	6	813
Mother's education	Non-higher education	89	11	1083
	Higher education	95	5	507
Father's occupation	Labourer	89	11	794
	Professional	92	8	805
Mother's occupation	Labourer	90	10	1103
	Professional	92	8	553
Number of siblings	Sibling <=4	89	11	951
	Sibling 5+	90	10	951
Siblings at university	Yes	91	9	1195
	No	89	11	706
Academic achievement	Lower	89	11	1236
	Higher	92	8	673
Subject stream	Art	91	9	839
	Science	89	11	1053
School type	Public school	89	11	1520
	Private school	94	6	416
School language	Anglophone	95	5	711
	Francophone	87	13	1225

Overall, approximately 90% of the respondents indicated their aspiration to continue their studies, only 10% of the students had a negative attitude about going to university. No difference was found between the gender groups; both male and female students shared the same proportion of willingness to attend university in the overall picture of continuing their studies.

A small gap was found between age groups, where the younger group (18 and less) were more positive about going to university. The older the student, the more reluctant they were to continue their studies. This could be explained

by the fact that the older the student, the more potential pressures they faced in life, such that they might choose to find a job and support their families instead of continuing their studies.

Differences were found from the students' parental levels of education and occupation types. The percentage of students who wanted to go to university with parents who were better-educated and held professional occupations was higher than for their counterparts. As indicated above, 94% of the students with more highly educated fathers expressed their willingness to attend HE, while the figure for students whose fathers who did not receive a higher education was 87%. Similarly, for the mothers' levels of education, 5 percentage points more students whose mothers had received higher education stated a preference to attend HE than those whose mothers had never received higher education. The fathers and mothers' occupation types were also found to be related with students' willingness to attend higher education, though the numerical gaps were smaller compared with the parents' levels of education.

With regards to school languages (French/English) and school types (public/private), students from private schools (94%) and Anglophone schools (95%) were more positive about attending HE compared with their counterparts from public schools (89%) and Francophone schools (87%).

Variables that had minor impacts on aspiration for HE were students' religion, family type, numbers of siblings, and students' academic achievement (GCE O/L/ *Probatoire* grades) and subject stream. It is interesting to note that lower achieving students were as interested in going to university as their higher achieving counterparts, and there was no particular gap in this regard between the higher achievement group and lower achievement group. It has been widely discussed that AA has a link with students' aspirations to attend further studies, that higher AA are associated with higher aspirations about further studies (e.g., Gil-Flores et al., 2011; Muijs, 1997; Rojewski and Hill, 1998; Hunter and May, 2003). However, the findings from the data surprisingly revealed that good achievement in secondary school did not appear to influence the students' opinions about university. A possible

explanation for this is that the country encourages participation in higher education and the requirements to enter public universities is low. The majority of students could get access to the university with relatively low pass standards, that is, as long as students passed two papers in GCE A/L or got 10 in their *Baccalauréat* they would be able to apply to a university. Therefore, students' AA did not highly associate with their aspirations to attend higher education.

A correlation analysis was conducted to explore the relationship between aspiration to attend HE and the attitudinal variables. The reason for applying a correlation analysis was because Pearson r can be used with one continuous variable and one dichotomous variable (Pallant, 2013). In this case, relatively strong correlations were found between the aspiration to attend HE and personal and parental attitudes, and influence from significant others. Weaker correlations were found for secondary school and gender stereotypes (see Table 7-3). This reveals that students' personal and parental attitudes and significant others had the most substantial influence on students' aspirations to attend higher education, while their attitudes toward secondary school and their gender stereotype values showed only a small correlation with their future aspirations.

Table 7-3 Correlation of students' aspirations to attend HE and attitudinal variables

	Aspiration to attend HE
Personal and parental attitudes	.356**
Tuition fee	.001
Secondary school	.069**
University factors	-.030
Gender stereotypes	.048*
Significant others	.244**

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Therefore, according to the bivariate analysis above, the variables associated with students' aspirations to attend higher education included age, parents' level of education and occupation type, secondary school type, students' personal and parental attitude, influence from significant others, students'

attitudes towards secondary school and gender stereotypes. However, the extent of the influence from each variable could not be identified through the bivariate analysis. Furthermore, any potential interactions or relationships between background factors and attitudinal variables could not be revealed from this analysis, hence further exploration is needed (see Chapter 7.4 and Chapter 8).

7.3.2 Preferred higher education institutions (HEIs)

Students' preferred HEIs were further explored for those who would like to continue to higher education. As discussed in the background chapter (see Chapter 2), there are essentially three types of higher education institution in Cameroon: public universities, private universities and professional schools. In addition to these, students also have the opportunity to study abroad. Therefore, four options were given to the students. Table 7-4 shows the distribution of students with preferred HEIs among the various subgroups.

Overall, students' choices among these four options were relatively evenly distributed. Just over a quarter of students wanted to attend public university or professional schools, or study abroad, while about 18% of students stated a preference to attend a private university. It is worthwhile to note that the highest proportion of students (28%) expressed an aspiration to study abroad. How this choice varied among student subgroups is explored next.

Table 7-4 Distribution of students' preferred HEIs

		Public (%)	Private (%)	Study abroad (%)	Professional school (%)	N
Total		27	18	28	27	1717
Gender	Male	30	15	32	23	747
	Female	26	20	25	29	962
Age	18 and less	23	19	32	26	927
	Over 18	33	17	23	27	734
Religion	Christian	28	18	29	25	1523
	Non-Christian	23	18	23	36	194
Family type	Monogamous	28	18	28	26	1374
	Polygamous	29	18	26	27	303
Father's education	Non-higher education	30	17	24	29	635
	Higher education	27	20	32	21	743
Mother's education	Non-higher education	28	16	27	29	958
	Higher education	24	22	34	20	466
Father's occupation	Labourer	29	16	27	28	703
	Professional	27	21	29	23	732
Mother's occupation	Labourer	28	17	26	29	987
	Professional	26	21	32	21	498
Number of siblings	Sibling <=4	24	19	31	26	843
	Sibling 5+	31	18	25	26	845
Siblings at university	Yes	29	19	29	23	1055
	No	26	17	26	31	633
Academic achievement	Lower	30	18	26	26	1102
	Higher	23	20	32	25	592
Subject streams	Art	39	20	23	18	743
	Science	19	17	32	32	934
School type	Public school	29	15	25	31	1339
	Private school	24	30	36	10	378
School language	Anglophone	27	23	43	7	640
	Francophone	28	15	19	38	1077

First of all, with reference to gender differences, close to one-third of the male students wanted to study abroad, which comprised the largest group, followed by the aspiration to attend public university. For female students, however,

the largest group chose professional schools (29%) and the second-most popular choice was to attend public university. Regarding study abroad, according to the last released data from UNESCO, in 2016, the outbound ratio of international student mobility in tertiary education in Cameroon was 6%; there was a small proportion of students able to gain the opportunity to study abroad, but the students who participated in this study had high aspirations to study abroad, especially boys. Therefore, considering the low mobility outbound ratio in the country, it can be argued that boys are more likely to hold unrealistic aspirations, whereas for girls, attending professional schools likely represented a more realistic choice; as did the aspiration to attend professional schools providing specific vocational training, such as training to be teachers, doctors, translators, etc.

Younger students were more likely to choose to study abroad (32%), while the older group's favoured choice was to attend public universities (33%). A higher proportion of non-Christian students wanted to study in professional schools (36%), whereas the distribution of preferred higher education institutions among Christian students was consistent with the overall distribution. For both fathers' and mothers' levels of education, students with parents who had gained higher education themselves showed a greater desire to study abroad, roughly one-third each. For those whose parents who had not received higher education, the majority chose to study in public universities and professional schools. The influence due to parents' occupation types was also similar to the parents' levels of education, whereas students with parents with professional occupations were more likely to choose study abroad, whilst students with parents with labourer occupations tended to choose public universities or professional schools.

Regarding the number of siblings in the family, the smaller the number of siblings, the greater aspiration of such students was to study abroad. Over one-third of the students with less than four siblings in their family wanted to study abroad, whilst the same proportion of students from large families indicated a willingness to attend public universities. Furthermore, considering academic achievement in secondary school, students with lower grades

preferred to attend public university (30%), while students who got higher scores tended to prefer to study abroad (32%). Another interesting finding was that students doing art stream at secondary school wanted to attend public universities (39%), while science students preferred to attend professional schools (32%). Concerning school types, students from public secondary schools indicated a preference to attend professional schools (31%), whereas private school students were more likely to aspire to studying abroad (36%). A similar comparison was made for the Francophone and Anglophone schools. Around 43% of the students from Anglophone sections wanted to study abroad, whilst 38% of Francophone students favoured attending professional schools.

In summary, among the different subgroups, male, younger, well-educated and parents with professional occupations, fewer siblings, and higher AA students, more tended to choose to study abroad compared to their counterparts. These students seemed to belong to a relatively privileged group, amongst whom studying abroad was seen as a more prestigious choice. On the other hand, attending local public universities as well as professional schools were the preferred choice for the less privileged group, i.e., female, older students. However, given the relatively low national outbound international student mobility rate in Cameroon, studying abroad might be a popular aspiration for most of the students but in practice does not seem to represent an easy option for most students. Moreover, one could argue that the high proportion of students choosing to study abroad might be due purely to the fact that this option was provided in the questionnaire and this alone might have encouraged them to select it. The follow-up interview may shed more light on this.

7.3.3 Preferred subject choice

The subjects the students wanted to pursue in higher education were grouped into four categories (see Chapter 6.3). According to the distribution of the four types of subjects, in addition to the subject stream in secondary school,

arts and social science, as well as business and management, were collapsed into an Arts stream. Medicine and science were collapsed into a Sciences stream. Therefore, there were two categories of subject choice that students wanted to pursue in HE - see Table 7-5 below:

Table 7-5 Distribution of students preferred subject choice

		Preferred subject choice		**N**
		Arts (%)	**Sciences (%)**	
Total		46	54	1297
Gender	Male	34	66	562
	Female	55	45	732
Age	18 and less	43	57	732
	Over 18	53	47	534
Religion	Christian	45	55	1166
	Non-Christian	60	40	131
Family type	Monogamous	47	53	1062
	Polygamous	46	54	207
Father's education	Non-higher education	48	52	469
	Higher education	41	59	590
Mother's education	Non-higher education	46	54	728
	Higher education	42	58	377
Father's occupation	Labourer	48	52	541
	Professional	45	55	582
Mother's occupation	Labourer	49	51	742
	Professional	42	58	407
Number of siblings	Sibling <=4	44	56	652
	Sibling 5+	48	52	624
Sibling in university	Yes	46	54	815
	No	47	53	460
Academic achievement	Lower	56	44	789
	Higher	31	69	499
Subject stream	Arts	87	13	562
	Sciences	15	85	706
School type	Public school	45	55	1003
	Private school	51	49	294
School language	Anglophone	41	59	542
	Francophone	50	50	755

The overall distribution across these two categories was essentially equal, with only 7% more students wanting to do science. However, a closer look at the table indicates some interesting differences between some student

subgroups. First of all, within the gender group, male participation was skewed towards sciences, with about 66% of male students wanting to study science in higher education. For female students, over half wanted to study arts. This is consistent with the gender stereotyped subject choice revealed in previous studies (Francis, 2000; Buchmann, 2009), females were under-represented in science subjects and sciences was apparently viewed as 'male subject'. This can be attributed to various reasons, including students' personal perceptions and interests, parents' expectations and social values and so on (Ásrún, 2018; Clark Blickenstaff, 2005; Osborne et al., 2003).

Unsurprisingly, a strong connection was found between subject choice in higher education and the subjects studied at secondary school. Up to 87% of arts students chose arts subjects in higher education, and a similar proportion (85%) of science students continued with their science subject from secondary school. Only around a quarter of students changed their subjects from arts to sciences or from sciences to arts. This was in line with previous studies that suggested high school subjects were linked with subject choice in higher education. For example, according to Wang (2013) and Russell and Atwater (2005), preparation in science subjects in high school plays a critical role in developing students' aspirations to participate in science-related fields of study in higher education.

Academic achievement also played a role in the subject choice expressed by students. It was interesting to find that students with relatively higher AA tended to prefer to study science at university, with an associated percentage of 69%, while the lower AA group was more evenly distributed among the arts and sciences streams. According to Wang (2013), students' high school maths achievement at secondary school directly influenced their choice of STEM major in higher education. This was in line with the higher achieving group, who were more likely to choose science subjects in this study.

Furthermore, students' parental education and occupation were also found to be related with students' subject choices, though the degree of influence were not as large as the above-mentioned factors. This is supported by previous studies (e.g., Ware and Lee, 1988; Grauca et al., 1988; Chen, 2009) in the

sense that social background, parental education and family income have a certain influence on students' subject choices, whereas students from advantaged families tend to favour science subjects. For example, in Indian families, fathers were predominantly responsible for deciding their children's subject choices and in upper class families with professional parents, the father would frequently instruct their children to choose the sciences (Gautam, 2015). Moreover, in this study, the younger age group indicated a greater preference for studying science (57%), while over half (53%) of the students aged over 18 chose arts and social sciences. Chen (2009) also reveals that younger students were more likely to enter science fields, a finding that was further supported by this study.

Overall, according the data, being male, younger, higher achieving, and from higher parental education and occupation groups indicated a preference for choosing the sciences. These groups were all relatively privileged compared with their counterparts, and therefore one might assume that science was a priority choice for students in this study. One potential explanation for this could be, as argued by Russell and Atwater (2005), that science-related subjects provide students with greater occupational earnings potential and increased opportunities for social and economic mobility. Gautam (2015) also supports this statement from a study conducted in India that science-based subjects were regarded as important and prestigious by both students and their families. Students might find increased opportunities in the job market by doing science at school, which would lead to their own personal gain in the future. Mama (2003, p.114) also demonstrated that African governments tend to promote the sciences over the arts and social sciences, because they presumed that there is a link between science and modernisation, and that science would help Africa to 'catch up' with Western industrial countries.

7.3.4 Future plans

Students who chose not to continue their studies also indicated their alternative future plans. Six options were coded representing their responses

to the questionnaire: finding a job, getting married, going back to the family, doing sport, joining the army, and don't know. However, the total proportion of people choosing one of these six options was 10%, which was fairly small. Among these options, finding a job and getting married were the most likely choice at 6% and 2%, respectively. The other four options were all below 1%; specifically, going back to family (0.9%), doing sport (0.5%), joining the army (0.1%) and don't know (0.5%). Considering the overall small proportion, students' future plans were not analysed in detail.

7.4 The relationship between background variables and attitudinal variables

The section above explored potential predictor variables that linked with students' higher education aspirations and choices. The predictors included student background variables and attitudinal variables. However, it should be borne in mind that interactions might occur within the background variables and between attitudinal variables. Therefore, before further analysis of the extent of the predictors' influence in Chapter 8, the interactions and relationships between background variables and attitudinal variables were investigated, as reported in this section. The overall percentages for different categories were used as a benchmark by which to evaluate the distribution of the proportion in each subgroup.

7.4.1 The interactions within background variables

Specifically, among the background variables, students' secondary school type, secondary school language, subject stream in secondary school, academic achievement and age appeared to be substantial in influencing students' HE aspirations and choices. Therefore, the following cross-tabulation tables were used to demonstrate the potential interactions between these variables and other background factors (e.g., gender, father's education

level). Religion, family type, number of siblings and siblings at university were not explored in this section due to the relatively minor influence they had on such interactions.

Table 7-6 Distribution of students' secondary school type based on background variables

		School type		School language		Total (N)
		Public (%)	Private (%)	Francophone (%)	Anglophone (%)	
Total		79	21	64	36	1972
Gender	Male	79	21	64	36	874
	Female	79	21	63	37	1087
Father's education	Non-higher education	85	15	69	31	746
	Higher education	75	25	55	45	821
Mother's education	Non-higher education	84	16	68	32	1101
	Higher education	67	33	48	52	514
Father's occupation	Labourer	82	18	67	33	806
	Professional	75	25	60	40	814
Mother's occupation	Labourer	81	19	67	33	1119
	Professional	72	28	55	45	559

According to Table 7-6, first of all, no gender difference was found among the types of secondary school that students attended in this study. However, the proportion of students attending private school who had well-educated parents with higher status occupations was much higher than that of students whose parents were less educated and held labourer occupations. Furthermore, the influence of the mother's level of education and occupation type was greater than that of the father's - the percentage difference between students attending private school and public school was larger than the percentage difference as a result of variations in the fathers' education level and occupation type. Regarding school language, students with more highly educated parents and parents in higher status occupations were more likely to attend Anglophone schools. Again, the mother's level of education and occupation type influenced the students' school choice, with regard to language, slightly more than that of the fathers.

Table 7-7 Distribution of students' secondary school subject streams based on background variables

		Subject stream		Total (N)
		Arts (%)	Sciences (%)	
Total		44	56	1923
Gender	Male	34	66	844
	Female	53	47	1071
Father's education	Non-higher education	47	53	732
	Higher education	39	61	808
Mother's education	Non-higher education	43	57	1082
	Higher education	43	57	506
Father's occupation	Labourer	47	53	793
	Professional	43	57	800
Mother's occupation	Labourer	46	54	1094
	Professional	42	58	554

With regard to the subject stream in secondary school (see Table 7-7), a higher proportion of male students chose to take science-based subjects than the arts, whilst females were more likely to take arts-based subjects. This was in line with the above-mentioned subject choice at university and the widely discussed gender stereotyped subject choices. Therefore, one can argue that the gender stereotyped subject choice was a feature of secondary school. In terms of the influence of parental level of education, there was little difference amongst the different subgroups, except for the father's level of education, in that students with highly educated fathers were more likely to study science subjects.

Table 7-8 Distribution of students' AA based on background variables

		Academic achievement		Total (N)
		Lower (%)	Higher (%)	
Total		65	35	1943
Gender	Male	61	39	866
	Female	68	32	1068
Father's education	Non-higher education	69	31	739
	Higher education	58	42	813
Mother's education	Non-higher education	67	33	1091
	Higher education	55	45	510
Father's occupation	Labourer	67	33	798
	Professional	62	38	810
Mother's occupation	Labourer	68	32	1110
	Professional	58	42	555

With regard to students' academic achievement in secondary school (see Table 7-8), the overall GCE O/L (Anglophone) and *Probatoire* (Francophone) grade distributions were adopted as benchmarks. The proportion of male students achieving higher grades was slightly higher than their female counterparts. Considering parental level of education, the more highly the parents were educated, the more likely the student was to obtain higher grades. A father with a professional occupation had a fairly small influence on students' chances of getting a higher score compared with a mother with a professional occupation.

7.4.2 The relationships between background variables and attitudinal variables

The following section considers the relationships between background variables and attitudinal variables. The attitudinal variables were collapsed into six themes according to the factor analysis above. Cohen's (1988) effect size (ES) was employed to interpret the extent of the relationship between background factors and attitudinal variables. Mean values and standard deviations were also used to identify the relationships as the standard deviation tells us something about how well the mean represents the sample data. According to Cohen's d, 0.2 indicates a small effect and 0.5 reveals a medium effect, whilst over 0.8 indicates a large effect size (Pallant, 2013).

The influence of gender

As a key factor in this study, the role of gender was examined in relation to the attitudinal variables. However, considering the high proportion (90%) of both male and female students expressing their willingness to continue studies after secondary school, it is understandable that the overall effect size of gender was small in this analysis.

Table 7-9 The relationship between gender and attitudinal variables

Themes	Gender	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	Male Female	801 994	21.9 22.1	4.4 4.4	0.02
Attitudes towards tuition fees	Male Female	839 1027	10.2 11	2.8 2.8	0.29
Attitudes towards secondary school	Male Female	845 1057	6.9 7.1	1.3 1.1	0.16
Attitudes towards university factors	Male Female	847 1042	4.4 4.2	1.7 1.7	0.13
Attitudes towards gender stereotypes	Male Female	833 1043	11.8 12.7	2.1 1.9	0.45
Attitudes towards significant others	Male Female	846 1053	12.5 12.3	2.8 2.8	0.07

According to Table 7-9, two small effect size values were found for male and female students' attitudes towards tuition fees (0.29) and gender stereotypes (0.45). Regarding the tuition fees, the tuition fee mean value for male students was lower than that of the females, which indicated that male students were more concerned about fees than female students. Although some previous studies from Africa have revealed that families favour sons' education rather than their daughters' (Brock and Cammish, 1997; Aderinto et al., 2006), this was not contradictory to the possibility that boys were more concerned about money than girls. One can argue this was due to the likelihood that males believed that they are going to be the breadwinner in their future homes, which will result in them considering economic issues more than their female counterparts, and the possibility that they will want to earn money for their future families.

Furthermore, male students had more gender stereotyped views than female students. For example, female students were more in agreement with the item 'I think women should have jobs outside the home', while male students agreed more with items such as 'I think women should take more responsibility (e.g., housework) in the family' and 'I think girls are less suitable to go to university than boys'. Female students also tended to believe

they should have an equal opportunity to gain an education and occupation, not only work for their family and do housekeeping tasks.

The influence of age

Similar to the influence of gender, age was also found to be related with students' attitudes. However, given that age is a continuous variable, a correlation analysis was run instead of an effect size analysis.

Table 7-10 The relationship between age and attitudinal variables

	Age	
	Pearson correlation	**N**
Personal and parental attitudes towards HE	-.102**	1742
Attitudes towards tuition fees	-.150**	1803
Attitudes towards secondary school	-.094**	1840
Attitudes towards university factors	-.099**	1828
Attitudes towards gender stereotypes	-.100**	1819
Attitudes towards significant others	.046*	1837

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

According to Table 7-10, the correlation coefficients revealed that age had association with all six attitudinal variables. Furthermore, the correlation coefficients also provided the direction of the correlations. Three relatively higher coefficients were found for attitudes toward higher education, tuition fees and gender stereotypes. The negative coefficients in attitudes toward higher education and tuition fees implied that the older students got, the less positive they were about higher education; older students were also more concerned with paying tuition fees. This could possibly be explained from the fact that as students get older, they tend to be more considerate of financial issues and the responsibility they have to support their families, and thus their preference might be to find a job rather than continue with their studies. An alternative explanation could be that the older group of students might come from disadvantaged families. The correlations illustrated here indicate that students' ages had a negative relationship with their parental education level and occupation type, implying that older students' parents tended to have lower levels of education and labourer occupation types. Finally, younger

students held a more gender-neutral position with regard to gender stereotypes than the older group. This may be explained by an easier acceptance of new ideas and influence from outsiders and social media by the younger group, although age gap was too small to draw firm conclusions here.

The influence of religion

The choice of categorization into Christian and non-Christian was due to the large proportion of students in the sample identified as Christian (90%). Within the non-Christian group, Islam (7%) was the majority religion, which can effectively be considered to represent the non-Christian group when interpreting the related findings. Religion had only a small effect on students' attitudes toward secondary school and students' gender stereotypes (effect sizes 0.21 and 0.41, respectively) (see Appendix 7-1).

To start with, Christian students had a more positive impression of secondary school than their non-Christian counterparts. Moreover, Christian students were more neutral with regards to gendered stereotypes than the non-Christian students. Given that most of the minority group of students came from Muslim backgrounds, this outcome may be interpreted as being due to the influence of Muslim culture. According to Altbach et al. (2009), in some Muslim families females have less opportunity to gain an education, and have more responsibility towards family-based tasks such as housekeeping.

The influence of family type

The type of family - monogamous or polygamous families – students came from showed no specific impact on their attitudes towards the six themes (see Appendix 7-2). This might be because only a small proportion of students came from polygamous families. However, the polygamous students were found to be slightly more concerned about paying tuition fees and tended to be more biased about gender issues.

The influence of father's occupation

Father's occupation level had a small degree of influence on students' attitudes towards paying tuition fees (0.27) (see Appendix 7-3), which means

students having fathers with professional occupations were less concerned about university tuition fees compared to their less affluent counterparts. This is reasonable given the fact that the students filled in the questionnaire at the end of secondary school, where they were still at a stage where they were reliant on parental support, and therefore, the higher status occupation their fathers had, the less concerned they were about paying higher education tuition fees.

The influence of mother's occupation

The influence of mother's occupation was shown to be similar, but somewhat more influential, than father's occupation type. In addition to a small effect on attitude towards tuition fees (0.23), the mother's occupation also had an impact on students' personal and parental attitudes (0.22) and attitudes towards university factors (0.29) (see Table 7-11).

Table 7-11 The relationship between mother's occupation and attitudinal variables

Themes	Mother's Occupation	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	Professional Labourer	517 1036	22.8 21.8	4.3 4.4	0.22
Attitudes towards tuition fees	Professional Labourer	539 1071	11.1 10.5	2.8 2.8	0.23
Attitudes towards secondary school	Professional Labourer	542 1089	7.1 6.9	1.1 1.2	0.09
Attitudes towards university factors	Professional Labourer	536 1083	4.6 4.1	1.7 1.6	0.29
Attitudes towards gender stereotypes	Professional Labourer	535 1081	12.7 12.3	2.0 2.1	0.19
Attitudes towards significant others	Professional Labourer	538 1091	12.7 12.4	2.7 2.8	0.10

Students with mothers in professional occupations were more optimistic about gaining access to higher education, and less concerned about paying tuition fees. Furthermore, students with mothers in professional occupations tended to believe that they faced fewer limitations with regards to subject choice, and tended to be far less concerned about being safe at university.

Additionally, mother's occupation also had certain influence on students' gender stereotyped views. Students that came from families where their mothers had higher status occupations were more likely to hold neutral or opposite positions on gendered issues compared to their counterparts.

The influence of father's level of education

Father's level of education was found to play a role in influencing students' attitudes in terms of continuing their studies. Students and their parental attitudes towards higher education and students' attitudes towards tuition fees were affected by the father's level of education. According to Table 7-12, we can speculate that fathers who had received higher education tended to cultivate children with optimistic attitudes about receiving higher education and less concern about paying tuition fees.

Table 7-12 The relationship between father's education and attitudinal variables

Themes	Father's education	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	Non-higher education	687	21.5	4.4	0.32
	Higher education	754	22.9	4.1	
Attitudes towards tuition fees	Non-higher education	709	10.3	2.8	0.24
	Higher education	782	10.9	2.8	
Attitudes towards secondary school	Non-higher education	726	6.9	1.3	0.09
	Higher education	796	7.1	1.1	
Attitudes towards university factors	Non-higher education	718	4.1	1.6	0.18
	Higher education	789	4.4	1.7	
Attitudes towards gender stereotypes	Non-higher education	719	12.3	2.1	0.11
	Higher education	781	12.5	2.1	
Attitudes towards significant others	Non-higher education	729	12.4	2.8	0.12
	Higher education	791	12.7	2.7	

The influence of mother's level of education

Larger effect size values were found from the effects of the mother's level of education. Specifically, the effect size of the mother's level of education on

students' personal and parental attitudes was 0.35, on students' attitudes towards tuition fees was 0.26 and on students' attitudes towards university factors was 0.23 (see Table 7-13). This means that the higher the level of education the mother received, the more optimistic were the students' attitudes towards higher education, and the less concerned they were with paying tuition fees. One can argue that, the higher the mother's level of education, the more positive the effect of the interaction in the parent-child relationship. In a developing country, where the mother tends to take more responsibility towards taking care of the family members, either physically or mentally, the visible and invisible influence from the mother is crucial (Hill and King, 1993; Shabaya and Konadu-Agyemang, 2004; Schultz, 2004). Therefore, if the mother had received higher education, the possibility of their children continuing into higher education was also increased.

Table 7-13 The relationship between mother's education and attitudinal variables

Themes	Mother's education	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	Non-higher education	1005	21.7	4.4	0.35
	Higher education	476	23.2	4.1	
Attitudes towards tuition fees	Non-higher education	1047	10.4	2.9	0.26
	Higher education	489	11.1	2.7	
Attitudes towards secondary school	Non-higher education	1066	6.9	1.3	0.17
	Higher education	502	7.1	1.1	
Attitudes towards university factors	Non-higher education	1057	4.2	1.7	0.23
	Higher education	492	4.6	1.7	
Attitudes towards gender stereotypes	Non-higher education	1048	12.3	2.0	0.19
	Higher education	494	12.7	2.1	
Attitudes towards significant others	Non-higher education	1070	12.4	2.7	0.15
	Higher education	495	12.8	2.7	

The influence of siblings

Regarding the influence of siblings, two variables were inspected which included whether the number of siblings was larger than five (or otherwise)

and whether the student had siblings attending, or who had attended, university. It should be borne in mind that siblings also comprised part of the significant others.

First of all, the number of siblings had no influence on students' attitudinal variables (see Appendix 7-4), and will not be discussed further here. The second variable showed a degree of impact. According to Table 7-14, students with siblings at university were more positive than those who did not have siblings at university. The influence of significant others was more obvious for the group that had siblings at university. Siblings can be the most significant others in a person's life, and therefore a positive effect due to siblings who had attained university seemed somewhat logical.

Table 7-14 The relationship between siblings at university and attitudinal variables

Themes	Siblings at University	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	No	651	21.5	4.7	0.21
	Yes	1124	22.4	4.2	
Attitudes towards tuition fees	No	679	10.4	2.9	0.12
	Yes	1162	10.8	2.8	
Attitudes towards secondary school	No	692	6.9	1.2	0.03
	Yes	1184	7.0	1.2	
Attitudes towards university factors	No	693	4.3	1.7	0.04
	Yes	1169	4.2	1.7	
Attitudes towards gender stereotypes	No	679	12.4	2.1	0.03
	Yes	1174	12.3	2.1	
Attitudes towards significant others	No	693	12.0	2.9	0.26
	Yes	1180	12.7	2.6	

The influence of academic achievement

As discussed above, AA did not contribute to students' aspirations with regard to higher education. Similarly, AA also did not influence students' attitudinal variables. According to Table 7-15, Pearson correlations were separately explored between AA and attitudinal variables among two subsystems. No significant correlation was found between Anglophone students' AA and their attitudes. Among the Francophone students, their *Probatoire* grades were found to have a positive relationship with concerns

about tuitions fees and a small, negative correlation with gender stereotypes. Regarding better AA students having greater concerns about paying tuition fees, one can spectate that better AA students had greater aspirations to study abroad and attend professional schools (see Chapter 7.3.2), both of which would require higher tuition fees.

Moreover, broadly speaking, no significant correlation was found between the AA and attitudinal variables. This might have been due to the low academic entrance requirements set by public universities, which the majority of students can meet.

Table 7-15 The relationship between AA and attitudinal variables

	GCE O/L (Anglophone) Pearson correlation	**N**	***Probatoire* (Francophone) Pearson correlation**	**N**
Personal and parental attitudes toward HE	-.048	636	.003	1069
Attitudes towards tuition fees	-.026	663	.105**	1109
Attitudes towards secondary school	-.061	675	-.035	1135
Attitudes towards university factors	-.033	673	-.001	1121
Attitudes towards gender stereotypes	.029	667	-.075*	1120
Attitudes towards significant others	-.051	676	.012	1129

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The influence of subject stream in secondary school

Subject steam at secondary school was found to have a small influence on students' personal and parental attitudes towards higher education and influence from significant others (see Table 7-16). Students who were doing art subjects were slightly more positive about going to university, and arts students' attitudes towards significant others were also more positive than those of science students.

Table 7-16 The relationship between subject stream and attitudinal variables

Themes	Subjects	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	Art	789	22.7	4.2	0.25
	Science	973	21.6	4.6	
Attitudes towards tuition fees	Art	818	10.8	2.9	0.06
	Science	1013	10.6	2.8	
Attitudes towards secondary school	Art	826	7.0	1.2	0.04
	Science	1042	6.9	1.2	
Attitudes towards university factors	Art	821	4.1	1.6	0.15
	Science	1033	4.4	1.7	
Attitudes towards gender stereotypes	Art	828	12.4	2.1	0.05
	Science	1017	12.3	2.0	
Attitudes towards significant others	Art	830	12.9	2.5	0.30
	Science	1034	12.1	2.9	

The influence from the type of secondary school

With regards to the type of secondary school students attended, two categories were identified in this study: school instruction language (Anglophone school and Francophone school); school type (public school and private school).

Table 7-17 The relationship between school language and attitudinal variables

Themes	Language	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	Anglophone	699	23.8	3.7	0.69
	Francophone	1104	20.9	4.5	
Attitudes towards tuition fees	Anglophone	700	10.3	2.9	0.22
	Francophone	1173	10.9	2.7	
Attitudes towards secondary school	Anglophone	715	7.5	0.8	0.79
	Francophone	1195	6.6	1.3	
Attitudes towards university factors	Anglophone	694	4.7	1.7	0.38
	Francophone	1202	4.0	1.6	
Attitudes towards gender stereotypes	Anglophone	706	12.9	2.0	0.42
	Francophone	1178	12.0	2.1	
Attitudes towards significant others	Anglophone	706	13.0	2.6	0.34
	Francophone	1201	12.1	2.8	

According to the effect size figures in Table 7-17, school language had the largest influence on students' attitudes among all the background factors. Two medium effect size values were found for the influence of school language on students' attitudes towards secondary school (0.79) and students' personal and parental attitudes towards HE (0.69). Anglophone students were far more positive about attending HE than their Francophone counterparts, and they also held fairly optimistic attitudes toward the courses learnt and knowledge gained at secondary school. Small effect sizes were revealed relating to the effect of school language on students' attitudes towards tuition fees, university factors, gender stereotypes and significant others. The Anglophone students expressed slightly higher concerns about paying tuition fees if they were able to gain access to higher education. This might be because Anglophone students showed a greater preference (43%) to study abroad (see Chapter 7.3.2). Anglophone students also had more gender-neutral positions than the more gender-biased opinions of their Francophone counterparts. Also, the influence of significant others was strong for Anglophone students.

All the positive attitudes from Anglophone students could be explained by the relative social advantages experienced by these students. As discussed in Chapter 7.4.1, students attending Anglophone schools were more likely to come from privileged groups. Anglophone students were younger, and their parents were well-educated and had higher status occupations than their Francophone counterparts.

The second school type considered was whether the school is a public school or a private school (see Table 7-18). Small effect size figures were found with regards to the influence on students' personal and parental attitudes, and the influence of significant others. Students from private schools were more optimistic about attending HE, and the influence on them from significant others was stronger than on students from public schools.

Table 7-18 The relationship between school type and attitudinal variables

Themes	Type	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	Public	1420	21.7	4.5	0.32
	Private	383	23.2	4.2	
Attitudes towards tuition fees	Public	1467	10.6	2.8	0.07
	Private	406	10.8	2.9	
Attitudes towards secondary school	Public	1504	6.9	1.2	0.17
	Private	406	7.1	1.1	
Attitudes towards university factors	Public	1489	4.2	1.7	0.18
	Private	407	4.5	1.7	
Attitudes towards gender stereotypes	Public	1482	12.3	2.1	0.17
	Private	402	12.6	2.1	
Attitudes towards significant others	Public	1503	12.3	2.8	0.20
	Private	404	12.9	2.7	

It was surprising to find that there was no big difference between public school and private school students' attitudes regarding tuition fees for HE. It has been argued that students who were able to attend private school may have come from affluent families given the tuition fee gaps between the public and private schools (see Chapter 2.4.3). In Chapter 7.4.1, it was noted that the proportion of private school students with well-educated and higher status occupations parents was much higher than for public school students. The possible explanation for this may be due to students' preferred types of higher education institutions, whereas private school students preferred to study abroad and attend private universities, whilst public-school students were more likely to choose professional schools and public universities. Therefore, students' concerns about tuition fees were similar.

Overall, considering the higher aspiration to attend higher education among the students, the background influence on attitudinal variables were reasonably small. However, the type of secondary school students attended played an important role in shaping students' attitudes. Interestingly no large effect size was found among the background factors. This might be because students had already made a proactive decision to remain in education for longer and so social influences on those that remained might be reduced.

Furthermore, those students who were negative about education might have dropped out already.

7.5 Conclusions

In summary, this chapter presents the findings of bivariate analysis of students' higher education aspirations and choices. The relationships between different variables, including the factor analysis of attitudinal variables, the relationships within background variables, and relationship between background variables and attitudinal variables were all demonstrated in this chapter. A number of points were drawn from the bivariate analysis.

First of all, approximately 90% of students expressed their desire to attend HE. Considering the highly proactive attitudes towards HE, the notion 'perceived barriers' might not be appropriate to this study. Students did not perceive those variables as 'barriers' to preventing them from participating in higher education; rather it was more likely that those variables contributed to their attitudinal differences and the distinction in their choice of HEIs. Therefore, rather than 'barriers', the term 'factor' may be more pertinent here for investigating students' HE attitudes. Furthermore, these highly proactive attitudes also indicated smaller distinctions between students' attitudes towards higher education; therefore, in addition to the inspection of students' attitudinal differences with regards to higher education, their preferred HEIs and subject choices were also considered in this chapter, as well as in subsequent chapters.

Secondly, one of the key points is that the variable gender was not a crucial factor in influencing aspiration for HE and was just one of a number of related predictors. In some regards, it was less important than the socioeconomic variables that have been considered in this study. Furthermore, no difference due to gender was found in students' aspirations regarding higher education; however, crucially the preferred types of HEIs and subject choices varied based on gender – a point explored further in the subsequent Chapter 8.

Students' personal attitudes were found to be strongly linked with their HE aspirations and choices. Other personal variables including age, religion and AA, on the other hand, all had only minor influence on students' HE attitudes and HEI choices.

Family predictors, including students' perceived parental attitudes, parents' levels of education and parents' occupation types stood out amongst the acknowledged factors. Parents played a key role in predicting students' attitudes toward higher education and HEI choices. Parents' levels of education and occupation types were also considered to be potential underlying predictors that influenced their secondary school variables. Siblings and family type influences on HE attitudes and choices were found to be limited in this study.

Institutional factors were revealed to have a strong connection with students' HE aspirations and choices. The secondary school type (public/private) and school language (Anglophone/ Francophone) were key factors associated with students' HE attitudes and HEI choices. However, the secondary schools that students attended were also linked with their parental backgrounds, namely, the secondary school influence can be partly traced back to the influence of the parents' backgrounds.

In summary, an overall positive picture was drawn from this study, and a number of distinctions were found amongst different subgroups under bivariate analysis. In order to identify the extent of the influence due to each predictor, regression modelling will be employed in the following chapter. This will help us better understand the relative importance of these key variables related with students' HE attitudes and choices. Moreover, considering the broadly positive attitudes towards higher education, another two models were run to explore the factors influencing students' preferred higher education intuitions and their subject choices. Religion, family type, number of siblings and having siblings at university, as less crucial factors, were excluded from consideration in subsequent analysis.

Chapter Eight : Modelling students' higher education attitudes and choices

8.1 Introduction

Chapter 7 examined the factors influencing students' attitudes and choices towards HE and explored the relationships between background variables and attitudinal variables. Some factors (i.e., parents' education levels and occupation types) were found to be substantially related to students' proactive attitudes towards HE. This chapter builds regression models to examine the extent of the impact of the previously discussed influencing factors on students' aspirations regarding higher education. However, considering students' overall highly positive attitudes towards participation in HE, their preferred types of higher education institutions (HEI) and subject streams were also investigated. Furthermore, gender might play a crucial role in predicting students' preferred types of HEIs and subject choices. Therefore, three models were built in this chapter: the first was to indicate which factors, and to what extent these factors, were contributing to students' attitudes towards higher education; the second is intended to examine the determinate factors in their subject choices; and the last seeks to examine the relationship between predictor variables and their choice of HEI. The rationale for employing a regression analysis in this study was demonstrated in Chapter 5. This chapter focusses on presenting and interpreting the modelling results. Starting with the multiple regression of students' attitudes towards higher education, this chapter then explores the predictors regarding students' choice of subject stream with a logistic regression model. The last section describes a multilevel regression exploring students' preferred type of HEI.

8.2 Multiple regression of students' attitudes toward higher education

In this section, a multiple linear regression model was built to investigate the potential predictors that might influence students' attitudes towards higher

education. Before presenting the findings of the models, dependent variable and independent variables were introduced for the model. Two models, a full model and a parsimonious final model were then built for investigating factors predicting students' attitudes towards participation in higher education.

8.2.1 Dependent variable and independent variables

There were two sets of data drawn from the questionnaire to indicate students' attitudes towards higher education: the first was the dichotomous question, do they want to go to university or not. The second set of data was about their personal and parental attitudes towards higher education. Given the highly skewed distribution of the dichotomous data, namely that around 90% of the students wanted to continue their studies (see Chapter 7.3.1), it would not be a good choice to use this as the outcome variable. Therefore, the second set of data, about their attitudes towards higher education, was employed to ascertain predictors that contributed to students' attitudes towards higher education in the multiple regression model.

Concerning the students' attitudes towards higher education, as has been presented in Chapter 7.2, seven items in the questionnaire were collapsed into one new latent variable through factor analysis. The latent variable was formed to represent students' attitudes towards HE. However, given that the seven questions included both students' personal and their perceived parental attitudes, the collapsed factor score was not suitable for use in the regression model. Therefore, the sum of the first four questions about their personal attitudes was used as the outcome variable, excluding their perceived parents' attitudes.

A great deal of care was taken in selecting the predictor variables for the model because 'the estimates of the regression coefficients depend upon the variables in the model' (Field, 2013, p.321). In this section, the predictor variables were divided into two sub-sections: background predictors and attitudinal predictors.

With regards to background predictors, according to Chapter 7, gender had only a fairly small influence on students' attitudes towards higher education, but it was still kept in the model because gender was a core factor in this research. The other background factors, including age, academic achievement, father's education, mother's education, father's occupation, mother's occupation, secondary school language, and secondary school type were selected due to their impact on influencing students' attitudes towards HE.

Among the background predictors, with the exception of age and academic achievement, all other variables were nominal variables. In the regression, the two-category nominal variables were converted into dummy variables. A dummy variable denotes the presence or absence of a particular characteristic, and is coded as either 1 (characteristic present) or 0 (characteristic absent) (Tolmie et al., 2011). For example, male was coded as 1 while female coded as 0, a father with higher education was coded 1 and non-higher education was coded 0.

Regarding the attitudinal predictors, 23 questions in the questionnaire were used to assess students' personal and parental attitudes toward HE, students' attitudes about secondary school, university factors, gender stereotypes, tuition fees and significant others. Six latent variables were extracted from the Principal Component Analysis (PCA) representing the above-mentioned themes (see Chapter 7.2). However, given that the first extracted factor was about students' personal and parental attitudes towards HE, this was further split into two variables: students' personal attitudes and their perceived parents' attitudes. Their personal attitude was used as the outcome variable for the multiple regression model, while their perceived parents' attitude was included in the model as a predictor variable.

In addition to the latent variables extracted from the PCA, another two forms of values representing certain predictors were also used to select the most suitable values to represent the corresponding predictors. These two forms of values were the 23 individual question values from the Likert-scale and the sums of the individual question values. Therefore, all three forms of values

were entered and assessed in the correlation analysis to determine the values that were most representative of the corresponding predictors. The most appropriate value was taken from the three forms, namely, the one that had a higher correlation coefficient, which was thus selected and entered into the following model as representative of the corresponding predictor. The following gives the factor loading obtained from the factor analysis and the correlation analysis of the different values, and the justification for including any given predictor in the regression model.

FACTOR 1: Parents' attitudes (PA)

Table 8-1 Comparison of correlations with outcome variable

Variable	Correlation with outcome (dependent) variable
PA 1	.440**
PA 2	.436**
PA 3	.401**
PA_SUM	**.522****

**. Correlation is significant at the 0.01 level (2-tailed).

Table 8-1 describes the correlation between the students' personal attitudes towards HE (the outcome variable) and each of their parents' attitudes question score, the sum of these individual attitude variables (predictor variables). Given that this factor was derived from the split of the first factor extracted from the factor analysis, no associated factor analysis score was provided. This table indicates that the sum of the parents' attitudes gave a higher correlation of 0.522, which was higher than the individual variables. Therefore, the sum of the parents' attitudes was the first variable to be entered into the regression model. The individual variables were excluded from the regression model due to concerns about multicollinearity. Moreover, adding one factor instead of several individual variables helped to simplify the model.

FACTOR 2: Tuition fees (TF)

Table 8-2 Factor loading on each variable – tuition fees

Variable	Loading
TF 3	.806
TF 4	.731
TF 1	.617
TF 2	.544

This was the second factor extracted from the factor analysis, which represented students' attitudes toward paying tuition fees. The high loading values for each variable indicated that they are largely measuring the same thing, namely their attitudes towards paying tuition fees at university. Similarly, before deciding the best fit variable to be entered into the model, the correlation between the outcome variable and the individual variables, the factor score and the sum of the four variables were calculated, as reported in Table 8-3.

Table 8-3 Comparison of correlations with outcome variable

Variable	Correlation with outcome (dependent) variable
TF 3	-.062**
TF 4	-.011
TF 1	.148**
TF 2	**-.187****
A-R factor TF	-.067**
TF _SUM	-.052*

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

According to Table 8-3, the correlation between tuition fee variables and the outcome variable were relatively low, the factor value and sum value were lower than the individual variables, TF1 and TF2. Therefore, the highest correlation coefficient found in the TF2 variable was entered into the regression model, while TF1 and other TF variables were excluded because of concerns over multi-collinearity.

FACTOR 3: Subject and safety in university (UNI)

Table 8-4 Factor loading on each variable – major and safety in University

Variable	Loading
UNI 4_Safety	.731
UNI 3_Subject	.716

With regards to the third factor extracted from the PCA (see Table 8-4), although the two individual variables had a high loading value and both measured factors related to the university, they measured different dimensions in this regard. UNI4 were questions about safety issues at university, while UNI3 examined their attitudes towards their choice of subject in the university. Therefore, though they were collapsed through the PCA, they needed be treated separately in the analysis process.

Table 8-5 Comparison of correlations with outcome variable

Variable	Correlation with outcome (dependent) variable
UNI 4	-.038
UNI 3	-.038
A-R factor UNI	-.040
UNI_SUM	-.047*

*. Correlation is significant at the 0.05 level (2-tailed).

Furthermore, the correlation Table 8-5 suggests that all of these variables, whether individual, factor scores or sum values, had low and non-significant correlations with the outcome variable. Therefore, none of the variables from this factor were ultimately used in the regression model.

FACTOR 4: Secondary school (SC)

Table 8-6 Factor loading on each variable – Secondary school

Variable	Loading
SC 2	.749
SC 1	.748

The fourth factor was related to students' attitudes towards secondary school, including the course they took and the knowledge gained at school. The high loading value for the two individual variables indicates they were both essentially measuring the same thing (see Table 8-6).

Table 8-7 Comparison of correlations with outcome variables

Variable	Correlation with outcome (dependent) variable
SC 2	.211**
SC 1	.229**
A-R factor SC	**.361****
SC_SUM	.272**

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation coefficient between the factor score and students' attitudes towards higher education was 0.361, which was higher than the individual and the sum values (see Table 8-7). Therefore, the factor score for secondary education was entered into the regression model.

FACTOR 5: Gender stereotypes (GS)

Table 8-8 Factor loading on each variable – gender stereotypes

Variable	Loading
GS 4	.692
GS 1	.577
GS 3	.460
GS 2	.437

This factor was extracted from the questionnaire and represented students' gender stereotyped views regarding gender issues, including attitudes about marriage, employment, housework and female education. The high loadings from the PCA suggested they were measuring the same thing, and a factor score was extracted (see Table 8-8).

Table 8-9 Comparison of correlations with outcome variables

Variable	Correlation with outcome (dependent) variable
GS 4	**.120****
GS 1	-.005
GS 3	-.023
GS 2	.023
A-R factor GS	.029
GS_SUM	.046*

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

However, in Table 8-9, it was surprising to find that GS 4 alone was more highly correlated with the outcome variable. The remaining correlation coefficients were both low and non-significant. Therefore, GS 4 was entered into the regression model as representative of the students' gender stereotyped views.

FACTOR 6: Significant others (SO)

Table 8-10 Factor loading on each variable – significant others

Variable	Loading
SO 3	.707
SO 4	.686
SO 2	.647
SO 1	.554

This factor was extracted from the questionnaire, the high loadings for which suggested that they were all measuring the influence due to significant others (see Table 8-10). The significant others included in the four variables consisted of secondary school teachers, peers and close family members. Their influence was significantly correlated with students' attitudes towards higher education.

Table 8-11 Comparison of correlations with outcome variables

Variable	Correlation with outcome (dependent) variable
SO 3	.370**
SO 4	.379**
SO 2	.377**
SO 1	.151**
A-R factor SO	.374**
SO_SUM	**.452****

**. Correlation is significant at the 0.01 level (2-tailed).

According to the correlation Table 8-11, all the coefficients were high and significant in terms of either individual variables, factor score or sum value. However, the correlation between the sum of the four individual variables and the outcome variable was 0.452, which was the highest of all the correlation coefficients. Therefore, the sum value was entered into the regression model whilst the other factors were excluded due to concerns about multicollinearity.

In summary, in building the multiple regression model describing students' attitudes toward HE, the outcome variable was the sum of the four questions about their personal attitudes towards HE, and the predictors employed in the full model included the background and attitudinal factors. Specifically, the background predictors included gender, age, academic achievement, parents' educational level, parents' occupation type, subject stream at secondary school, secondary school language and secondary school type. All these factors shown in previous chapters to have greater influence on students' HE attitudes and choice. The attitudinal predictors included PA_SUM (representing the sum of parents' attitudes); TF 2 (representing students' attitudes towards tuition fees); A-R factor SC (as the extracted score from PCA indicating their attitudes towards secondary school); GS 4 (representing their gender stereotypes) and SO_SUM (representing their attitudes towards significant others).

8.2.2 The full regression model

After the outcome variable and predictor variables were both confirmed, regression models were built to identify the predictors that related with students' attitudes towards higher education. Before obtaining the final model, several models were built to examine the influence of each variable. The first regression model displayed below was run with all the variables entered into the model using the 'Enter' method. The same total R^2 was achieved when the variables were entered in a stepwise method, which indicates that the result was reliable, or at least consistent. Table 8-12 reports the results of this analysis, including the adjusted R^2, the unstandardized coefficients B, and the standardised coefficients B.

Table 8-12 Results for the full regression model – enter entry (N = 1972)

	Adjusted R^2	**Unstandardized Coefficients B**	**Standardized Coefficients Beta**
Gender		-.126	-.026
Age		-.052	-.037
Academic achievement		.055	.011
Father education		.033	.007
Mother education		.080	.016
Father occupation		-.097	-.020
Mother occupation		-.101	-.020
School language		**.202**	**.041**
School type		-.129	-.022
Subject stream		**-.203**	**-.042**
Parents attitudes		**.374**	**.394****
Tuition fee		**-.104**	**-.041**
Secondary school		**.669**	**.262****
Gender stereotypes		**.170**	**.070****
Significant others		**.162**	**.182****
Total Adjusted R^2 value	.408		

Outcome variable Y = students' attitudes towards higher education

**. Correlation is significant at the 0.01 level (2-tailed).

According to the table, all the variables together explained 40.8% of the variance in the outcome variable of students' attitudes towards higher education, however, majority of the variables have small b coefficients (e.g.,

gender, age). For example, gender had a -0.026 indicates a negative relationship between students' gender and their attitudes towards participation in HE, male (1) were less likely positive about attending HE than female students (0), although the difference was very small. This suggests that the explanatory power of the individual variables were quite small. It seems to be mainly perceived parents' attitudes and attitudes towards secondary school that explain the largest proportion of the variance. The shortfall from 100% variance explanations could be explained by errors in the data or could come from unidentified factors. In order to ensure the results, this model was run again using the stepwise entry method.

Table 8-13 R^2 values for all variables – stepwise entry (N = 1972)

	Adjusted R^2	**Unstandardized Coefficients B**	**Standardized Coefficients Beta**
Parents' attitudes	.278	.386	.407**
Secondary school	.101	.744	.291**
Significant others	.023	.159	.179**
Gender stereotypes	.006	.200	.082**
Total R^2 value	.408		

Outcome variable Y = students' attitudes towards higher education

**. Correlation is significant at the 0.01 level (2-tailed).

In this regression model, the variables listed in Table 8-13 were found to explain 40.8% of the variance in the outcome variable of students' attitudes towards higher education. It is important to note that the R^2 for the parsimonious (simple) model was the same as for the full model.

The largest R^2 value was 0.278, which was found for the parents' attitudes variable, which means that parents' attitudes accounted up to 27.8% of the variance in students' attitudes towards higher education. This implies that if the parents were positive about higher education, the students tended to be positive as well. The second-largest contributing factor was students' attitudes towards secondary school and the courses and knowledge gained from secondary school, which made a 10.1% contribution towards their attitudes towards higher education. Influence from significant others had a 2.3% contribution to the total variance in the students' attitudes towards HE.

It is perhaps unsurprising that gender had no significant contribution to students' attitudes towards higher education, as it has been shown that around 90% of girls and boys were both positive about continuing their studies (see Chapter 7.3.1). This was similar to the influences of age and academic achievement, where neither effectively contributed to students' attitudes towards HE. It was, however, surprising to note that neither fathers' and mothers' education level nor occupation type contributed to students' attitudes towards HE in the model either. One can argue that parents' attitudes might be a proxy for parents' education and occupation backgrounds. Although the parents' levels of education and occupation did not directly contribute to students' attitudes in the regression model, they had substantial impact on the parents' attitudes about attending HE. This was confirmed through a further correlation analysis.

Table 8-14 Correlation between parents' backgrounds and parents' attitudes

	Parents attitudes	**N**
Father's education	.204**	1558
Mother's education	.200**	1608
Father's occupation	.136**	1614
Mother's occupation	.139**	1671

**. Correlation is significant at the 0.01 level (2-tailed).

Table 8-14 reveals that parents' attitudes had significant positive relationships with both parents' education and occupation type. The better the levels of education and occupation the parents had, the more positive attitudes they had regarding their children's education. Furthermore, the influence of parents' levels of education was more than that of occupation types.

8.2.3 The final regression model

After the full regression model with all the variables entered into the model, their contribution to the outcome variable was determined and is displayed above. The less influential contributing factors, including gender, age, AA,

father's education, mother's education, father's occupation, mother's occupation and secondary school type were excluded from the final regression model. Highly related independent variables were kept in the model, whilst different combinations of these predictors were tested in a series of models and the best predicted model found, as per the highest adjusted R^2 value. Both the entry and stepwise methods were employed in this modelling, and the same R^2 was achieved in each case. Moreover, the R^2 value increased from 0.408 to 0.427 with the parsimonious final model. Table 8-15 below reports the results of the analysis, including the adjusted R^2 for each of the explanatory variables, the coefficients B, and the observed level of significance.

Table 8-15 R^2 values for all variables – stepwise entry (N = 1972)

	Adjusted R^2	**Unstandardized Coefficients B**	**Standardized Coefficients Beta**
Parents' attitudes	.301	.378	.391**
Secondary school	.091	.654	.259**
Significant others	.027	.170	.192**
School language	.004	.291	.058**
Gender stereotypes	.002	.134	.053**
Subject stream	.002	-.225	-.045*
Total R^2 value	.427		

Outcome variable Y = students' attitudes towards higher education

**. Correlation is significant at the 0.01 level (2-tailed).

The short model with fewer predictors could explain up to 42.7% of the variance in the examination of students' attitudes towards HE. The proportion of each variable was similar to that of the full model, except the school language accounted for up to 4% of the variance, and subject stream in secondary school accounted for 2% of the variance.

The results reported in this section also verified the findings of the bivariate analysis in Chapter 7, though from a different perspective. Among all the variables, parents' attitudes made a substantial contribution to students' personal attitudes, followed by students' attitudes towards secondary school, and influence due to significant others. The secondary school language and

students' gender stereotypes, as well as subject stream in secondary school, also contributed to students' attitudes towards HE to a certain degree.

8.2.4 Assessing the regression model: Multicollinearity

Multicollinearity is the final step to consider when more than one predictor is included in a model, whose existence indicates a strong correlation between two or more of the predictors - namely, two or more of the predictors are apparently measuring the same thing. Multicollinearity will result in the inability to obtain unique estimates of the regression coefficients, given that there are an infinite number of combinations of coefficients that would work equally well (Field, 2013). According to Field (2013), the Variance Inflation Factor (VIF), along with the tolerance statistic, can be used to run the collinearity diagnostic to indicate whether a given predictor has a strong linear relationship with any of the other predictors. The recommended ranges for VIF are below 10, and for tolerance statistic, above 0.2 (Field, 2013). Table 8-16 presents the tolerance and VIF values for the full regression model, all the values were within the recommended range.

Table 8-16 Results of the collinearity diagnostic for the full regression model

	Collinearity Statistics	
	Tolerance	**VIF**
Parents' attitudes	.659	1.518
Significant others	.683	1.463
Tuition fees	.884	1.131
Gender stereotypes	.885	1.130
Secondary school	.822	1.217
Age	.842	1.188
School language	.696	1.438
School type	.887	1.127
Gender	.888	1.125
Father's education	.604	1.656
Mother's education	.544	1.840
Father's occupation	.673	1.486
Mother's occupation	.596	1.677
Subject stream in second school	.840	1.191
Academic achievement	.878	1.139

The results for the collinearity diagnostic for the final regression model in Table 8-17 also showed the tolerance and VIF values within the recommended range. Therefore, there appeared to be no multicollinearity problems in the regression models established in this section.

Table 8-17 Results for the collinearity diagnostic for the final regression model

	Collinearity Statistics	
	Tolerance	**VIF**
Parents' attitudes	.682	1.465
Secondary school	.872	1.147
Significant others	.692	1.445
School language	.802	1.246
Gender stereotypes	.937	1.067
Subject stream	.978	1.022

8.3 Binary logistic regression of subject choice for students

Similar with the multiple linear regression model, after the correlation analysis, predictor variables were selected and entered into the binary logistic model to predict students' subject choices in higher education. Different models were run to assess the contribution of each predictor from the associated results (see Table 8-18).

Table 8-18 Odds ratios for logistic regression model of subject choice

	Model 1	**Model 2**	**Model 3**	**Model 4**
All students – likelihood of choosing science subject				
Personal predictors				
Gender	**2.31**	**2.28**	**1.75**	**1.77**
Age	0.94	0.88	1.04	1.08
AA	**2.62**	**2.61**	**1.28**	**1.37**
Family predictors				
Father education		1.02	0.83	0.87
Mother education		**1.21**	**1.39**	**1.34**
Father occupation		1.07	0.86	0.82
Mother occupation		**1.08**	**1.39**	**1.43**
Institutional predictors				
Subject			**34.25**	**33.39**
School language			**2.77**	**3.23**
School type			**1.89**	**1.85**
Attitudinal predictors				
Students' personal attitudes				0.92
Significant others				0.86
University factors				1.07
Gender stereotypes				0.92
Tuition fees				1.08
N	1256	831	818	789
% predicted correctly (53.2 base)	63.7	65.7	84.6	84.4
Nagelkerke R^2	0.129	0.150	0.582	0.590

The first model includes only students' personal predictors: gender, age, AA. The second model adds students' family background characteristics, including students' parental levels of education and occupation types. The third model includes institutional predictors: students' secondary school language, secondary school type and secondary school subject stream.

Students' personal attitudinal variables were entered into the final model. The figures in the table describe the odds ratios associated with each variable, and represent the likelihood of a student choosing a science subject.

The first model has a moderate Nagelkerke R^2 of 0.13 and increased the percentage of cases predicted correctly (PCPC) by the model from 53.2% to 63.7%. According to the model, gender (male = 1, female = 0) and academic achievement (higher AA = 1, lower AA = 0) both had higher odds ratios, which suggests substantial differences between gender and academic achievement groups. Specifically, male students were 2.31 times more likely than the female students to choose a science major, and better AA students were 2.62 times more likely to choose a science, all other predictors being equal. The second model resulted in a relatively minor increase in Nagelkerke R^2 and PCPC, and mother's education level and occupation type had a certain influence on students' subject choices. The better the level of education and occupation held by the mother, the greater the chance of their children choosing a science subject.

Model 3 showed a major increase in the Nagelkerke R^2 and percentage of cases predicted correctly. The Nagelkerke R^2 was increased from 0.150 to 0.582, and the PCPC also increased to 18.9%. The largest odds ratio was found in students' secondary school subject stream, which indicates that science students in secondary schools were 34.25 times more likely than arts students to choose a science, all other predictors in the model being controlled. This also supported by the bivariate analysis in Chapter 7, and it was unsurprising that students would usually study the same subject in secondary school and in university. Secondary school language (Anglophone = 1, Francophone = 0) and school type (public = 1, private = 0) also showed a substantial influence on subject choice. According to model 3, Anglophone students were 2.77 times more likely to choose a science subject compared to their Francophone peers, and public school students were 1.89 times more likely to choose a science compared to the private school students, all other predictors in the model being controlled.

The last model, which included attitudinal variables, did not add to the Nagelkerke R^2 or PCPC, and this implies that students' attitudinal variables were not influential in predicting their preferred subject choices, among other predictors had been considered.

In the same manner as the multiple regression, multicollinearity was also checked to assess the model. The results are presented in Appendix 9-1, where the Variance Inflation Factor (VIF), along with the tolerance statistic for all predictors, was found to lie within the recommended value ranges (VIF below 10 and tolerance statistic above 0.2). Therefore, there was no evidence of the multicollinearity problem being present in this model.

In total, institutional predictors were the predominant predictors for students' preferred subject choice, with students' secondary school subject stream being the most substantial, which was again unsurprising considering the potential consistency of their subject between secondary school and university. The other two institutional predictors – secondary school language and type – were also highlighted in predicting their preferred subject stream. Gender, AA, mother's education level and occupation type were also found to be important in influencing their subject choice in HE.

8.4 Multinomial logistic regression of HEI choice for students

In the third model, students' preferred higher education institution was used as the outcome variable to determine the potential influential predictors. This model was run due to the previously disclosed HEI choice differences; while the majority of students have higher aspirations towards attending higher education, their preferred HEIs were different. Therefore, in addition to exploring the perceived barriers to participation in HE, the factors influencing their choice of HEI is also important. Overall, students' HEI choice distribution was public university (27%), private university (18%), professional schools (27%) and study abroad (28%) (See Chapter 7.3.2). Given that these are four categorical choices, multinomial logistic regression can be employed to predict the influencing factors. Logistic regression applies

to the dichotomous outcome variable, and when the outcome variable is nominal with two or more categories, multinomial logistic regression is applicable. The principles behind the multinomial logistic regression are the same as those for binary logistic regression, and therefore no further explanation of such will be provided here. The only difference lies in that the analysis of multinomial logistic regression breaks the outcome variable into a series of comparisons between two categories (Field, 2013). For example, the four types of school consist of three comparisons; I used public university as the reference category, and thus the results could be presented as public university vs. private university, public university vs. professional schools, and public university vs. study abroad.

Regarding the predictor variables, two clusters of variables – background and attitudinal – were commissioned as per the above-mentioned multiple and logistic regression models. The attitudinal variables entered into the model were also assessed through the correlation analysis, and higher correlated predictors were selected to represent the corresponding predictors. The detailed correlation analysis involving the selection of attitudinal variables is presented in Appendix 8-2. Before presenting the results of the model, a test for collinearity was also carried out to determine if multicollinearity was affecting the parameters of the model, whether the tolerance and VIF were within the recommended ranges (namely that the tolerance should not be less than 0.1 and the VIF should not be greater than 10). For detailed results, see Appendix 9-2. No evidence of multicollinearity was found in this model.

The results of the multinomial logistic regression model

The results of the multinomial logistic regression model were presented in the Table 8-19 below, the reference category was students who chose professional schools, and accordingly each predictor had three parameters, one for predicting private university vs. professional school, one for predicting public university vs. professional school, and one for predicting study abroad vs. professional school. Detailed parameter estimates were shown in Appendix 10.

Table 8-19 Multinomial regression odds ratios for students' preferred HEIs (N = 871)

	Public university Versus Professional schools	**Private university Versus Professional schools**	**Study abroad Versus Professional schools**
Personal predictors			
Gender	**0.53**	0.99	**0.52**
Age	1.14	1.14	0.96
AA	0.98	0.89	0.74
Family predictors			
Father's education	0.98	0.93	0.79
Mother's education	**1.43**	1.14	1.24
Father's occupation	0.97	1.07	1.05
Mother's occupation	**0.68**	0.87	0.97
Institutional predictors			
Subject stream	**3.03**	**1.49**	**1.43**
School language	**0.26**	**0.18**	**0.16**
School type	**0.54**	**0.19**	**0.32**
Attitudinal predictors			
Personal and parental attitudes	**1.49**	**1.78**	**2.03**
Tuition fees	0.92	1.12	0.91
Secondary school	1.00	0.92	0.89
Gender stereotypes	1.17	0.97	1.01
Significant others	1.00	0.94	0.97

Overall, the multinomial logistic model fit the data well, where χ^2_{model} (45, N = 871) = 292.00, Nagelkerke $R^2 = 0.31$, and $p < .001$, indicating that the model was able to distinguish between respondents choosing different types of HEIs.

Specifically, within students' personal predictors, gender has large odds ratios in predicting their preferred HEIs in two out of the three comparisons. Furthermore, both odds ratios were less than 1, revealing that as gender

changed from female (0) to male (1), the odds of attending public university (rather than professional school) were 0.53, that is, the chance of a male choosing public university compared to professional school is 1/0.53=1.89 times more likely than for a female. The same was true for studying abroad in comparison to professional schools; the odds ratio for choosing to study abroad was 0.52, which suggests that compared with choosing professional schools, male students were 1.92 times more likely to choose study abroad compared with their female counterparts.

Mother's education also revealed a certain influence on students' choice between public university and professional schools, where the odds ratio of 1.43 indicated that students with a mother who had received higher education were 1.43 times more likely to choose professional school over public university than non-higher educated mothers' students. Conversely, students with mothers who had higher status occupations were 1/0.68=1.47 times more likely to choose public university over professional school.

The institutional predictors, including students' secondary school subject, secondary school language and type, were all crucial in predicting students' preferred HEIs. Compared with choosing public university, science (1) students were 3.03 times more likely to choose professional schools than arts (0) students. Similarly, science students were 1.49 times and 1.43 times more likely to choose professional school over private university and study abroad respectively than arts students. This means, compared with choosing professional schools, arts students were more likely to choose to attend public university, private university or study abroad than sciences students. Regarding school language, students from Anglophone sections (1) were 1/0.26 = 3.85 times more likely to choose to attend public university (rather than professional schools) compared with Francophone students (0). Moreover, Anglophone students were 1/0.18 = 5.56 and 1/0.16 = 6.25 times more likely to choose to attend private university and study abroad than attend professional school than Francophone students.

Secondly, regarding the type of secondary school, given that public school was coded as 0 and private school as 1, odds ratios of less than 1 indicated a

negative relationship. Specifically, students from private schools were 1/0.54 = 1.85 times more likely to attend public universities over professional schools than public school students. Private school students were 1/0.19 = 5.26 and 1/0.32 = 3.13 times more likely to choose to attend private university or study abroad, respectively, over professional schools than the public school students.

Students' personal and parental attitudes towards HE also played a role in predicting their preferred HEIs. For a unit change in students' personal and parental attitudes towards HE, comparing with choosing professional schools, the student was 1.49, 1.78 and 2.03 times more likely to choose to attend public university, private university and study abroad, respectively.

In summary, regarding the type of HEIs they preferred, the stronger predictors were revealed to be institutional predictors, including students' secondary school types, secondary school language and subject stream at secondary school. Personal predictors including gender, age and personal attitudes, as well as students' mothers' levels of education and occupation types all had a moderate influence.

8.5 Conclusion

Based on the previous bivariate analysis, this chapter built three models to explore the predictors associated with students' attitudes towards higher education, their choice of HEI and subject choice. To start with, parents' attitudes was found to have a strong correlation with students' attitudes toward participation in higher education. Attitudes about secondary school and influence from significant others were also critical in predicting students' attitudes. Other factors, including type of secondary school, gender stereotypes and subject stream at secondary school, contributed to lesser degrees of students' attitudes towards HE.

With respect to students' subject stream choice, the binary logistic regression model revealed that the subject they studied at secondary school was the dominant predictor associated with their subject choice in higher education.

Here, the majority of the students tended to take the same subject in HE as they took at secondary school. Gender also important in subject choice whereas, the gender stereotyped subject choice was found among gender groups. The secondary school they came from also played a role in predicting students' subject choice, where Anglophone and public school students preferred science subjects compared to their counterparts.

The last model investigated predictors linked with students' preferred choice of higher education institution. Institutional predictors, including students' secondary school types and secondary school language and subject stream in secondary school all revealed substantial association with students' HEI choice. Students' personal and parental attitudes, as the personal predictor, along with gender and age, all contributed to their choice of HEI to a certain degree. Family predictors (parents' education levels and occupation types) and other attitudinal predictors (attitudes towards tuition fees, secondary school, gender stereotypes and significant others) were lesser important in predicating their HEI choices.

Overall, the institutional factors of secondary school language, secondary school type and subject stream in secondary school were more salient in predicting students' HE attitudes, HEI choices and also subject choice in HE in the present study. Parents' attitudes contributed to students' attitudes towards participation in HE and the choice of HEIs among the attitudinal predictors. Gender played a role in influencing students' subject choices and HEI choices, but was less important in the association with students' attitudes towards participation in HE.

Chapter Nine : Understanding of students' higher education attitudes and choices

9.1 Introduction

This chapter presents the findings of interviews which were conducted to understand students' perceived and actual barriers to participation in higher education. As has been discussed in Chapter 5, there were two rounds of interviews, each round having a separate aim. The first aim was to shed light on students' attitudes and their perceived barriers to participation in higher education, and provides in-depth explanations of students' understanding and attitudes towards specific factors in the process of participating in higher education. Secondly, the follow up interviews investigated the third research question: what actual barriers, if any, are experienced by the students in the process of participating in higher education.

This chapter begins with a brief profile of the students, which sets out the background to the interview data. The second section examines students' higher education aspirations, followed by a section on students' perceptions of different types of higher education institutions (HEIs). The fourth section summarises factors linked with students' higher education (HE) attitudes and choices, their responses to these factors, and the extent to which these factors were perceived to be an issue. The chapter ends with a demonstration of the actual barriers experienced by the students, and finally, concluding comments.

Pseudonyms are used to refer to the students to protect their anonymity and maintain confidentiality. Quotes from the interviews, which were transcribed verbatim, were used to support and elaborate on the corresponding arguments. I have tried to present the interview quotes the way they were spoken, thus the grammar used was sometimes poor. This is particularly the case for students who came from Francophone families.

9.2 Profiles of the students

As has been demonstrated in Chapter 5, 25 interviewees were selected from two schools, a private Anglophone school and the Anglophone section of a public bilingual school (see Chapter 5.5). The private school was the only sampled Anglophone school in this study, and it was located in the central area of Yaoundé. The public bilingual school was a large-sized school located a bit further away from the central area of Yaoundé, it was one of the public schools that had relatively better facilities. The gender of the participants and the subjects being studied was similarly balanced in both groups.

Table 9-1 Profile of interviewees (shaded with students who didn't want to continue studies)

Name	Gender	Age	Subject	Future plan
Christian	Male	18	A	University of Yaoundé I
Eason	Male	20	A	Public university
Truth	Male	18	A	Professional school/ study abroad/private university
Manga	Female	18	A	Father decides (not sure)
Harry	Male	19	A	Professional school, if not public university
Tim	Male	17	A	Football, if not professional school
Eve	Female	18	A	Study abroad/ professional school
Sara	Female	18	A	Anglophone university
Joy	Female	18	S	Professional school
Elena	Female	18	S	Professional school
Oriana	Female	18	S	Private university
Paola	Female	16	S	Find money, university later
Sandy	Female	16	S	Study abroad, if not professional school
Ella	Female	18	S	Public university
Ben	Male	19	S	Football, if not professional school
Maren	Female	18	S	Professional school
Mandy	Female	18	S	Find a job/ Private university
Lois	Female	17	S	Professional school
Ander	Male	19	A	Public university
Kaden	Male	22	S	Football/ find a job
Yokan	Male	17	S	Public university, mentioned study abroad
Simon	Male	18	S	Study abroad, if not professional school
Maia	Female	17	A	Professional school, mentioned study abroad
Layyah	Female	17	A	Professional school, mentioned study abroad
Johan	Male	18	S	Public university, professional school

Among the interviewees, there were 14 females and 11 males, all aged around 18 and 19, except the oldest boy (Kaden) who was 22 years old. Regarding the students' family background (see Appendix 11), the majority described

their mothers as housewives. Their fathers tended to have relatively higher status occupations, such as civil servant, journalist, engineer and doctor. It was surprising to find a high proportion of the students who indicated that their guardians were not their biological parents. Some of the reasons given for living with relatives or other family members included schooling far away from their hometown, the death of a parent, or divorce. For example, one student was living with his uncle in Yaoundé, while his family were in another city; another boy was living with his aunt and uncle because his mother had died and his father was not able to look after him.

9.3 Aspiration for higher education

Findings from the interviews demonstrate that students hold high aspirations for participation in HE, this was in line with the questionnaire findings. Overall, only five out of the 25 students said they didn't want to continue their studies. Four out of those five students were from the public school, including two girls and two boys.

Among those who wanted to continue their studies, their overall attitudes towards HE were similarly positive, however, their preferred HEIs varied. The majority of the students (15 out of 20) preferred professional schools and generally viewed public universities as their backup plan. As has been mentioned before, public university had the relatively lower academic entrance requirement and economic requirement compared with other HEIs. Professional schools were specialised in training for vocational skills (see Chapter 2). Five students said their first option was a public university and seven students mentioned studying abroad (although most stated that they were not seriously planning to do this).

Those who wanted to continue their studies, held a belief that HE was worth attending, thus demonstrating that they hold high aspirations for participation in HE. This was consistent with the questionnaire data which found that up to 84% of the students agreed with the statement 'I think getting a degree will help me to have a successful career' and 76% agreeing with the statement 'I

think getting a degree will help me to earn more money'. Two main reasons for these findings were generalised from the interview. First of all, attending HE and getting a degree (or certificate from a professional school) could help them to get more reward from education, for example find a job or other opportunities:

> '*Maybe going to the university, maybe you will be jobless. But after the degrees the job maybe you have will earn you more money. You have more privileges than those who don't go to university. You have more privilege. Because in Africa, the more you go to school, the more you have expected. That's it.*' (Christian, male, private school)

Similarly, another boy said, '*Of course I want to continue study, because in Cameroon, if you don't have certificate, you cannot go anywhere'* (Ben, male, private school). Education is still considered as a way of personal development for the students in Cameroon. The students' personal understanding was in line with the widely discussed role that education plays in increasing an individual's productivity and earnings (Omolewa et al., 2006; Hartnett and Heneveld, 1993).

Furthermore, the students felt that continuing studies could help them to fulfil their dreams for the future. For example, several science stream students appeared to have the aspiration of being a doctor or nurse:

> *'I got into the science because I want to be a nurse. And I've always had a passion, I have the desire to be a nurse I think since when I was in primary school. That's one of the reason why I want to continue studies.'* (Joy, female, private school)

Continuing to HE was considered to be a way of making their dreams come true. As has been widely accepted that female education is one of the fundamental factors that can empower women and facilitate people's personal development (Walker, 2005; Robeyns, 2005; Saito, 2003). However, in this study, education was seen as being crucial for both boys and girls.

9.4 Perceptions of differences between HEIs

According to the questionnaire data, students' preferred HEIs were broadly evenly distributed between the four types of HEI: public university (27%), private university (18%), professional school (27%) and study abroad (28%). Students provided detailed explanations regarding their specific choices and their perceptions regarding different types of HEI.

First of all, lower tuition fees and easy accessibility were stated as the advantages of public universities. Some students chose public universities because the tuition fees were affordable for their families. For example:

> *'I wish to go to public university, since my family situation, I'm just looking into the public university that I'm not too sure that my family can sponsor me, but public ones are cheap. So, we just go and focus on the public university and remain there, for some moment. Because they are cheap*.' (Eason, male, private school)

However, for many other students, a public university was generally presented as a backup plan or a compromise if they failed to enrol in other institutions:

> *'I want to go to a private university, but you know, it is expensive than public, so, if at that time, there's no one to support me, I have other choice, I can go to a public university.'* (Oriana, female, private school)

Secondly, from the students' point of view, professional schools provided better vocational training, high quality of teaching, and the most likely guarantee of a job after graduation. The difference between public professional schools and private professional schools was that entry to a public professional school required the passing of a competitive exam, while private professional schools required a higher tuition fee.

> *'I really want to go to a professional school, because after my A/L, I want to specialise myself and make something concrete. I don't want to waste time. I have to do something, that really productive. If I can't*

go to a professional school, I can still go to a university, but first I want to go to professional school.' (Lois, female, public school)

'Professional schools train you some skills to be someone and to transform into career you will do tomorrow.' (Christian, male, private school)

Thirdly, students had higher aspirations to study abroad, but they were also aware of the difficulties involved in being able to study abroad. They perceived that studying abroad required students to meet higher economic and academic standards, having family connections abroad was also important for them to study abroad.

'After graduation, I would like to continue study, maybe I will go abroad. Or I will write some Concours. If I study abroad, I want to study in Germany. But I need to have good grades. Also I don't know the financial problem of my family, maybe my family think I should stay with them. Maybe I don't have good results.' (Simon, male, public school)

'I want to study abroad. It's not everybody have the chance to go abroad. I for one, I think I have the chance, by the grace of the God, because, from my father's side. All my cousins are out, they are not here. I have a cousin in America, she is studying in America. I have one in Germany, one in England. My elder brother is in Dubai.' (Sandy, female, public school)

Students who had aspirations to study abroad also commonly talked about other plans, such as attending professional schools or public universities. Therefore, studying abroad was an attractive but, an often acknowledged, unrealistic choice for many of the students.

Lastly, students believed that private universities were well equipped and less crowded compared with public universities due to the higher tuition fees they charged (see Chapter 2.4). Hence, the teaching quality in private schools was

considered, from the students' point of view, to be more reliable than in public universities.

> *'Population in public university is large. Might be 1000 students. You don't understand the lecture, you cannot hear the lecturer. In private, the maximum will be 50, you can learn much more.'* (Simon, male, public school)

> *'I think I prefer the private ones because for the public ones, you rarely see the teachers coming to school. And even they come to school, they don't really like concentrate on teaching you what they know. In the private institution, you will really see someone like explain, tell you what to do and guide you on how to do about life. That's where I want to make a start.'* (Oriana, female, private school)

In short, as perceived by students, public universities were an easy and inexpensive option, whereas professional schools and private universities delivered a better quality of teaching. Studying abroad was admired by many students but it was not always seen to be a realistic choice.

9.5 Factors contributing to students' attitudes for higher education

Considering the students' positive aspirations for HE and their perceptions of different types of HEI, the potential factors that might influence their attitudes and choices were investigated in this section. These factors were also indicated in the literature and explored in the questionnaire. This section considers the students' responses to the factors and the extent to which they were perceived to be an issue. Ten factors were examined in this section: parents' attitudes, economic concerns, academic achievement, secondary school influence, significant others, teaching language, subject stream and future occupations, aspiration for other plans, safety problems and gender stereotypes. The impact of each factor was explained in detail with corresponding verbatim quotes from the student interviews.

9.5.1 Parents' attitudes towards their children's participation in higher education

Parents' attitudes were considered to be a major factor that associated with students' attitudes towards HE. According to the multiple regression model (see Chapter 8.2), parents' attitudes had the largest R^2 (0.278), which means that parents' attitudes accounted for up to 27.8% of the variance in students' attitudes towards HE. This was supported by the interview data which demonstrated that nearly all the students indicated that their parents were positive about them continuing with their studies. It was also their parents who would be financially supporting them to attend HE. Moreover, some of the parents made suggestions on the type of HEI they would prefer their child to attend. In the interviews, I asked them about their perceived parents' attitudes for their plan to attend HE. Their responses were:

> *'My parents are all d'accord (alright), they are ok, for me to continue my education. And yeah, they will pay for me.'* (Christian, male, private school)

> *'My parents are very much… they very much encourage me to continue studies after the A/L. So when family members are encouraging you to do so, then I don't think anything will stop me from considering (to continue studies).'* (Joy, female, private school)

> *'My plans… well, it depends on my dad actually. He is the one to decide on that. Send me to private school or public ones. But I think he will like me to go to a professional school... you just go for few year's vocational training and when you are done, you can get the job.'* (Manga, female, private school)

As has been discussed in Chapter 7, parents' attitudes were interrelated with their education levels and occupation types - those parents with higher education and higher status occupation were more positive about supporting their children to attend HE.

Another interesting point was that some of the students mentioned they came from a Francophone family, but their parents decided to put them in an Anglophone school so that the family could be bilingual. Yokan (male, public school) said his mother decided that he should attend an Anglophone school because she missed a good job opportunity as she could not speak English. Simon (male, public school) said his father believed it would be a good thing in the future for him to be bilingual. This is consistent with the statement that there was a growth in demand for English medium education in urban Cameroon and Francophone parents were scrambling for places for their children in English medium schools (Fonyuy, 2010; Enongene, 2013). This suggests that those parents paid more attention to their children's education and they valued English medium education more than those Francophone families who sent their children to Francophone schools. Therefore, one can argue that Anglophone schools recruit Anglophone students and also some of the Francophone students who came from a family valued English medium education. This can also be supported by the finding from Chapter 7 that Anglophone students were more positive about attending HE and also tended to have well-educated parents.

9.5.2 Economic concerns

According to the questionnaire findings, economic concerns were not identified in influencing students' attitudes towards HE (see Chapters 7 and 8). However, in the interviews, economic concerns were frequently mentioned by the students, yet it was less likely to be perceived as a major hindrance that would stop them from participating in HE, but was more likely to influence students' choices between different types of HEI.

First of all, there were three students (Paola, Mandy and Kaden, all from public school) who mentioned they were reluctant to continue their studies because of concerns relating to the affordability of university tuition fees. Two girls both said they would like to find a job first and then support

themselves in further education. Paola said she had a wish to continue to study yet she was afraid her family could not afford it:

> '*To be sincere actually, I wish to go to university after the GCE (A/L), the thing is I'm not sure they (her family) will support financially, so I plan to, first of all, try to depend on my own, to find a job, before going to University* ' (Paola, female, public school)

> '*I want to finish my study, because first, I want(ed) to play football but now what I want to do is to find my job and help my younger brothers and sisters*.' (Kaden, male, public school)

For most of the students, economic concerns had an influence on their HEI choices and they would choose HEIs that were affordable for their families (see Chapter 2.4). For example, those students who selected a public university as their first choice made the choice out of consideration of the lower tuition fees in public universities.

> *'I'm just looking for public university. Since my family situation, just like looking back today to the country [sic], that I'm not too sure that my family can sponsor. Because public university is cheap, so I just go and focus on the public university and remain there, for some moment. Because they are cheap.'* (Eason, male, private school)

According to the students' responses, as most of their families were responsible for paying their tuition fees, they could continue into HE unless something unexpected happened to their families. A few of them said they would like to find a part time job later to support themselves in the university.

> *Q: Can your father afford you to attend professional school?*
>
> *'Hah.. I don't know.. well.. I might say yes, I might say no. I don't know his (her father)… you know business is something, you might not just understand what's going wrong with the business. Maybe during that period, I pray things work well and he's capable of sending (me to school), not only capable of sending me to the professionals as far as my education and I am also ready to study and*

I'm serious. But at the same time, if things go wrong, maybe things are not working well there at his job site and he cannot afford. That's it. I might have to drop.' (Manga, female, private school)

Financial concerns were also one reason why those students who mentioned studying abroad did not take it seriously (see Chapter 9.4).

Broadly speaking, economic concerns in this study were surprisingly less emphasised as imagined; this might be due to the students having stayed on to the later stage of their study, their families being able to afford their studies, or the family having made the choice that they were the ones that would be educated, possibly by sacrificing the education of their other children. However, economic concerns did play a role in influencing students' choices between different types of HEI.

9.5.3 Academic achievement

In Chapters 7 and 8, students' past AA (GCE O/L for Anglophones and *Probatoire* for Francophones) did not make an important contribution to their attitudes to participation in HE. However, in the interviews, the future AA (GCE A/L and potential *Concour*) was stressed by the students as being a potential barrier to participation in HE. For all the Anglophone students, entrance to a public university requires as a minimum the passing of two papers for GCE A/L, and for those who prefer professional schools, the competitive examinations (*Concour*) determined whether they could gain access or not (see Chapter 2.4).

Some of the students were concerned about passing the GCE A/L, and others said they might have to stop their studies if they could not pass the *Concour*. For some popular public professional schools, the *Concours* can be quite competitive, such as the Advanced Teachers Training College (ENS) and Combined Military Academy (EMIA). For example, Elena said that compared with economic concerns, academic achievement was more likely to stop her from continuing with her studies:

'I'm preparing so hard for the exams so that maybe only my grades can put me off from the level I wish to be. Because most of times, the financial problems don't really do for you. But sometimes you might have financial problem, but you don't have the opportunity to get to where you want to, unless you buy what you want. Sometimes your results. For example, you pass your exams so well, you might have scholarships to continue study. Writing Concours can be tedious. You have to a very good grade to pass the Concour. They select very excellent students'. (Elena, female, private school)

This type of concern was common among those students who preferred professional schools but were not confident in passing the competitive entrance examinations. Public universities, on the other hand, were considered to be an easier option as they accepted students with lower grades. Therefore, many students said that the public universities would be their backup plan if they could not enter professional schools.

9.5.4 Difference between secondary schools

As has been discussed in the previous chapters, the type of secondary school a student attended also linked with their attitudes towards HE. Students from Anglophone and private schools were more positive about attending HE compared with their counterparts. The differences were also confirmed through the interviews.

First of all, private school students were more satisfied with their secondary school experiences. For example, Truth was transferred from a public secondary school to a private one in lower sixth, he said his study experience in the public school was not good:

'I left (the public school) because the nature of things I saw there. That school, teacher just write knowledge on board, after you need to work on you own. But there are students who don't know how to study

on themselves, so now how they do? That's the problem.' (Truth, male, private school)

Another private school student said:

'T*he school, it just has been very well, I understand the teachers, what they explain, they direct us on how to take our lives. My classmates, they are comfortable, they are like family*.' (Oriana, female, private school)

However, the opinions of students from public schools were more restrained and neutral. A girl mentioned that she liked the teachers and the classes she attended were important, but the classes and knowledge the school provided were not enough, she would preferred more classes to get herself ready for passing the GCE A/L. Some negative opinions were also revealed from the interview:

'*It's alright. Just... sometimes, I'm not very encourage the way some teacher(s) teach us here… because at this stage of secondary school, they should give us explanations, but here they are working as lecture, like in university'*. (Ben, male, public school)

Secondly, private school students were more positive overall about continuing their studies. This was also consistent with the findings from the questionnaire (see Chapter 7) - the percentage of the students from private schools willing to attend HE was 5 percentage points higher than that of public school students. This might be related to students' perceptions of schooling experiences between different types of schools (e.g., public or private). Positive secondary schooling experiences could play a role in easing students' transition to HE. This could possibly be supported by the number of students who were reluctant to continue with their studies, with only one out of the five students being from a private school. Moreover, private school students were more certain of their preferred HEIs, generally mentioning one specific HEI or one type of HEI, while the majority of students from the public schools were hesitating around different options - either professional schools or public universities.

9.5.5 Influence from significant others

Significant others played a crucial role in influencing students' future plans, not only regarding their attitudes towards HE, but also their HEI choices. The significant others who were mentioned during the interviews included teachers, relatives, siblings and peer groups. This was consistent with the questionnaire findings where 88% of the students stated they had many friends/close family members who studied at university and approximately 70% of their friends and teachers encouraged them to go to university. Students' attitudes towards significant others was highly correlate with students' attitudes towards HE (Pearson r =0.24) and HEIs (Pearson r =0.14).

First of all, teachers played an important role when students thinking about their future plans. Students sought their teacher's advice when they were thinking about the type of HEIs they might attend. This was particularly clear with the students from the private school, four out of the eight students in the Arts subject stream mentioned the same teacher (their history teacher) who had a substantial influence on them.

> *'I can say I have one of the best teachers in Cameroon presently, because, he did all the possible job to give us the best of the materials, that's why at school I had the best results. He is my history teacher, he is waiting for his PhD now. That's the main reason I want to do history, I want to be like him.'* (Christian, male, private school)

> *'I for one, to teachers, I do appreciate the history teacher very much, he is a good teacher. He told us that, while waiting, after you finish your advanced level, we can write Concours, and then if it's possibly, you can apply, if you succeed there, you can move further.'* (Truth, male, private school)

The teacher's influence on public school students was moderate. This also reflects the questionnaire findings, as private school students were more positive in their attitudes towards significant others (see Chapter 7.4). According to the public school students, their teachers encouraged them to continue with their studies but did not provide specific suggestions. Lois

(female, public school) said: '*they think its personal choice, because all the teachers, they just encourage us to continue school, not where to go*.'

Secondly, siblings also had an impact on students' HE attitudes and HEI choices. According to the questionnaire data, the average number of siblings was four. Given the large number of siblings that students had, it would be surprising if they did not have some influence on a student's decision making. This was especially true of those who had older siblings who were better able to advise on the advantages and disadvantages of different type of HEIs.

> *'My sister wants me to go to professional school. Because her too, she's in one. And she says that better for me to go there. And she told me in the university, there's a lot of leisure, free time. The teacher who just come for the classes.'* (Layyah, female, public school)

Furthermore, the number of siblings and their gender composition also linked with students' opportunities of attending HE. As has been discussed, there was a tendency to prioritise education for the male or the younger child in the family (Hunt, 2008; Lloyd et al., 2005; Boyle et al., 2002). This was not observed in students' attitudes towards HE, as up to 90% of the students said they would like to continue with their studies. However, this might be explained by the fact that these students have stayed up to the final year of the secondary school and were already enjoying the priority of receiving education, which might have resulted from sacrifices made by their family or siblings.

> '*The family is too large, because the population at home. Something happened, two of us dropped from the school. The other one was trying to play football… but I'm so the last boy, so I have to opt. Others couldn't go to secondary school, they dropped after O/L and get married*.' (Eason, male, private school).

Among the students I interviewed, many of them mentioned their relatives when they talked about their future plans. As has been mentioned at the beginning of the chapter, a large proportion of students' guardians were not their biological parents, some of them were living with relatives and it was

common to see large families with extended family members. Hence, it is unsurprising that relatives would have an impact on students' future plans.

> *'Why my hopes in university is slim [sic], I have seen activities are going on there, I have my uncle, my sisters, that have gone to university and they study all there, even my aunty, she told me that don't go to university. I saw my uncle, I saw people around me, most of them they are having degrees in their hands, they have bachelor degree, but they don't have anything doing, they are jobless, they just sitting in the house, without anything doing. That's why I just say no, it's better for me to go to a professional school and become someone better.'* (Truth, male, private school)

> *'I have my mind now, I have just discussed with my uncle, because he was telling me the advantage of going to university, to go and do law can easily obtain at least you can proceed. Just like telling me some good ways if you study so I just like very interested. Because nearly all my aunties are studying laws. I just have the passion of it. I will go to university of Yaoundé II, to go and study law.'* (Eason, male, private school)

Students sought advice from their relatives, or they saw or heard what people had experienced in university and afterwards, which helped to shape their own attitudes towards HE and their preferred HEI choice. This was consistent with the literature, whereby African families rely more on close relatives and extended family members (Eloundou-Enyegue and Williams, 2006).

Some of the students mentioned their peer groups when they talked about their future plans. Their ideas were mutually influenced, and this was more obvious among the boys, who mentioned their friends when they thought about the HEI they would like to attend. Some of the boys expressed their willingness to attend the same school as their friends and continue being together.

> *'My classmates…I can say 30% of the class want to go to university, the others might write Concours, or search for jobs. We have a group*

of boys. We have seven boys and we are all going to University of Yaoundé I next year. Because we are close to the environment. We don't want to change the environment. We decide to be here, everybody will be here.' (Christian, male, private school)

'I have few of my friends who want to go to university, they also have this conception of mine that maybe go to the university for a year and direct to the professional school the next year.' (Manga, female, private school)

Peer influence was important in influencing students' HEI choices, however, this was more likely to be the result of a motivation to stay together, rather than an evaluation of the different types of HEIs. Peer advice was also not seen by the students as being as important as that from senior groups, such as teachers, relatives and older siblings.

In summary, this section has emphasised the influence from significant others including teachers, siblings, relatives and peer groups. All of these worked together helped to forming students' attitudes and choices for higher education, although different group of significant others appeared to have varying degrees of importance. The advice from the more experienced group (e.g., teachers, relatives) was more valued by students and was taken into consideration when they were making their choices.

9.5.6 Teaching language

The teaching language of the university was also a factor the Anglophone students considered when they were making their choices about HE. As explained earlier, there are two education subsystems in Cameroon, each with a different teaching language. However, given that eight out of ten provinces in Cameroon are Francophone regions, students from the Anglophone section expressed their concerns about continuing HE in Francophone regions. There was only one Anglophone public university and although the other public

universities were officially bilingual, French was the dominant teaching language (see Chapter 2.4). According to student:

> *'If you can understand there's Francophone area and Anglophone area. For us, in public university, mostly Francophone, they give lectures in French language and all like that, so us Anglophones, we are there, we just get lost. So, we have to go and translate the note we have to look for translation. We have some difficulties if they don't provide the note in English, so we need to go somewhere, that just pure English, to go out of the country to go outside and study pure English. It's not too easy. I can speak French but not that good.'* (Eason, male, private school)

Given that the interviews were conducted with Anglophone students, apart from students who came from a Francophone family, the majority of the 'pure' Anglophone students were concerned about continuing their studies in Yaoundé, and some of them said they would prefer to attend universities in Buea or Bamenda (both are Anglophone cities). The teaching language and the French dominant situation might also be an explanation for why more Anglophone students preferred to study abroad. According to Chapter 7, 43% of the Anglophone students chose study abroad as an option for HE, compared with 19% of Francophone students. Teaching language was therefore a factor that impacted upon students who preferred HEIs to a certain degree; this was especially true of Anglophone students.

9.5.7 Subject stream and future occupation

Apart from the factors above, subject stream and preferred future occupation were mentioned by students as influencing their decision to attend HE when choosing the type of school they want to attend. It was also not surprising to find that nearly all the students wanted to continue in their subject stream for secondary school. This was in line with the numerical findings that 87% of the arts stream students chose arts subjects in HE, and a similar proportion (85%) of science students continued with their science subject from

secondary school. For example, among those students who were doing a science subject in secondary school, over half of them expressed that they wanted to go to a professional school and to be a doctor in the future. Overall, arts students were more likely to choose a public university (6 out of 11), while science students favoured professional schools (9 out of 14). This was also consistent with the findings from Chapter 8. Therefore, students' subject stream and the occupation they wanted to pursue in the future were also contributing to their HEI choices.

9.5.8 Aspiration for alternative post-secondary school plans

Another factor that might prevent students from accessing HE studies was their alternative plans for afterwards. In Chapter 7.3.4, the questionnaire responses revealed that approximately 10% of students chose not to attend university but instead to find a job or get married. For example, in the interviews, two girls explained that they were reluctant to continue to HE mainly because of economic concerns and indicated that they would like to find a job instead (see Section 9.5.3). It is interesting to see that, of the three boys who said they would not continue to study, all mentioned that they would like to start a football career, and continuing schooling was their backup plan if they failed in their football career. Three boys said they would choose playing football after secondary school. One of them (Kaden) said that playing football was his first plan for after secondary school, but in the interview he changed his mind to wanting to find a job. The other two boys continued to prefer a career in football.

> *Q: What will stop you from continuing study?*
>
> *'The only thing is if I can success in playing football.'* (Tim, male, private school)
>
> *'If I can continue football career. I want to be footballer. I might continue study after my football career.'* (Ben, male, private school)

Football culture is prevalent in Africa, however, it is surprising to see that it sometimes can work as a hindrance preventing students from participating in HE. Francis (2002) also finds out in her study that in the UK, the most popular occupation aspiration for boys was professional footballer, and boys were more interested in sporting careers than do girls (Francis, 1996).

9.5.9 Safety problems

Safety concerns echoed the questionnaire findings. Students were aware of safety issues, but indicated that these would not affect their decision to go to university and it was not a deterrent that would prevent them from continuing with their studies. In the interviews, students were all aware of, and talked about, safety issues on campus, especially the girls.

> *'In the university, university campus, ehhh… is not quite safe, especially for girls. It says quite all right, the security. But to an extent it's not safe for girls. Because maybe you are living in the hostel, in the evening, a guy might just harass you.'* (Manga, female, private school)
>
> *Q: Will that stop you from continuing study?*
>
> *'No, it won't. It depends on you. You need to be careful, you know your times when you should go and where you shouldn't to go. There's some guy zone, if you go there, you will be harassed.'* (Manga, female, private school)
>
> *Well, harassment, mostly harass girls, because they know girls are weaker sex. So if you are not strong, mentally to face the other thing that survive from the harassment. Because they might say they see you disrespect them, people harass you until you begin to respect. But I will still go to school.* (Elena, female, private school)

> *I heard about safety issue happened in university but… I don't think…I will have problem, I don't really know*. (Christian, male, private school)

Girls seemed to express more concerns regarding being safe at university, however, this was not stressed as much as other concerns, such as the affordability of tuition fees or passing the entrance examinations. Boys on the other hand, were not concerned and safety issues had no influence on their HE aspirations and choices.

9.5.10 Gender stereotypes

Although few gender differences were found in students' overall attitudes towards HE, some strong gender stereotyped views were uncovered in the interview. The stereotyped views can be generalised into three dimensions: family, marriage and social lives.

First of all, respondents indicated that from when they were children, family tended to favour boys more than girls; boys had more freedom whilst girls were more controlled by their parents due to their perceived fragility.

> *'In Cameroon, it all about boys... much about boys. The family lays more on the boys, they have more estimate on boys than girls. Because in African they say a girl is born to go, she will get married and she take the name of her husband and she will go with him. While the boys will keep the name of the family. So, they give more importance to boys, in African, than to girls. We say our parents prefer to send male students to the school than the females to the school. So .. but it's more common in the poor families, they make the choice to rely more on boys. If they have enough money they will send all to schools. Everybody is going to school in my family.'* (Christian, male, private school)

On the other hand, many of them said that their family paid more attention to girls. This includes their father being more concerned with girls' safety as

they were seen to be more fragile, and their mother cultivating their daughter's ability to do housework to prepare them for marriage.

> *'I guess workload will be easier for me because my mum has taught how to work. And in our tradition, before you go into the marriage, you should be spiritually prepared, physically prepared, for the marriage. You should be physically prepared for everything, you should know that you are into the family, not to sit-down and fool your family. You should know how to do the housework. If your husband come back home very tired, you have to bring your shoulder to him to lie on and what so ever. That's it.'* (Elena, female, private school)

Secondly, when they talked about marriage, girls were expecting to get married at a relatively early age (under 25), while boys expressed their willingness to get a job first and marriage later (over 26). For example, Sandy said*:*

> *'Here in Africa, when a girl just passes the age of 25, without getting married, I swear! It is a problem for her to get married. Meanwhile, I think in the abroad, you see people don't get married. But here, it will be a problem. That's how us here Africa.'* (Sandy, female, wanted to marry at 23)

The meaning of marriage for the girls in the study was to create a new family and gain financial support from their husband but some of the girls mentioned that they also wanted to find a job before getting married, so that they won't have to rely on their husband. From the boy's point of view, getting a job was the priority so that he could support the whole family after getting married. Hence, the respondents generally believed that it was the male's responsibility to be the breadwinner of the house, financially supporting the family. This therefore led to the belief that 'the *man is the head of the house*' (Layyah, female, public), and '*kitchen is the place for women*' (Christian, male, private) and '*the nature of girls is demand*' (Truth, male, private).

Furthermore, as with their position in society, the 'superiority' of males was also reflected in employment. According to the students, males were more

likely than females to have higher status occupations and more important positions in the workplace. Females were seen to be subordinate, facing difficulties in reaching the top in the workplace and instead taking less significant jobs. Johan (male, public school) described the work females can do as 'small skilled jobs', for example, opening a small shop, selling cloth and cosmetics, or becoming a hairdresser. In addition, some girls perceived that they were being marginalised in society, especially as an adolescent female. For example, Maia (female, public school) said: '*as adolescents, we are a vulnerable group, we can only get respect until we get married*'.

Overall, gender stereotyped views were widespread in family and society according to the responses of the students. This implies that although few gender differences were revealed from students' attitudes towards HE and both male and female were positive in aspirating to go to university, gender might still be an issue. Therefore, gender roles were still very apparent in this study, in terms of how the students interact with their family members and wider society. In this sense, education was a 'protected' field where their education opportunities isolated the female students from the gender stereotyped views of the society. Therefore, although few gender difference was revealed regarding their attitudes towards HE, gender stereotypes can still be a very real problem for these young people.

9.6 Actual barriers experienced by students

One year after the first round of interviews, a second round of (follow-up) interviews were undertaken online using WhatsApp. The follow-up interviews were conducted to understand the students' experiences after secondary school and to see if they encountered any barriers in the process of participating in HE. However, it was challenging to reconnect with all the interviewees after a long time. This, and the geographical distance, meant that I had to rely on students' access to the internet and phone coverage, which was limited. Therefore, in total, 14 students took part in the follow up interview. Table 9-2 summaries the follow-up interviews.

Table 9-2 Follow up interviews (shaded with the non-schooling students)

Name	Gender	Future plan	Follow up
Christian	Male	Public university	Public university
Eason	Male	Public university	No schooling
Truth	Male	Professional school/study abroad/private university	SOA (public university)
Tim	Male	Football, if not professional school	ESSTIC (public professional school)
Eve	Female	Study abroad/professional school	CITEC (private professional school)
Joy	Female	Professional school	University Yaoundé I (public university)
Mandy	Female	Find a job/private university	No schooling, got married
Lois	Female	Professional school	University of Yaoundé I (public university)
Ander	Male	Public university	Public university
Kaden	Male	Football/find a job	University of Yaoundé I (public university)
Yokan	Male	Public university, mentioned study abroad	No schooling
Simon	Male	Study abroad, if not professional school	Public university
Maia	Female	Professional school, mentioned study abroad	Public university
Johan	Male	Study abroad, if not professional school	Private university

Among the 14 students who I was able to maintain contact with, three of them were not currently in school: Eason (male, private school), Mandy (female, public school) and Yokan (male, public school). Eason was not in school because he didn't pass the GCE A/L and he said he was preparing at home to take the exam again so that he could apply for a public university again this year. Yokan dropped out of school due to a traffic accident after he graduated from secondary school. He stayed in hospital for three months and was currently staying at home and planning to find a job later. Mandy was not in school because she was preparing to get married. She met her fiancé after graduation and was planning for the wedding, after which she may find a job. Marriage after secondary school was common, according to Johan (male, public school), who did attend university, mentioned during the follow-up interview that he knew that five of his female classmates had become married

after secondary school, although I was unable to make contact with these respondents in order to confirm the report.

Therefore, the actual barriers that stopped students from participating in HE were quite personal to a certain degree, as neither AA or marriage were underlined in the questionnaire findings. However, it indicates that although those barriers were not perceived as barriers for the majority of the students, they can work as an actual barrier for some individuals.

Among those 11 students who participated in HE, only three of them fulfilled their original plans to attend their preferred HEIs, the others made somewhat different choices. Five of the students who originally aimed for professional schools but instead attended public universities. The interviews revealed two reasons for selecting a public university: economic concerns and AA.

> '*My decision to enrol in the public university temporarily was because, shortly after the A/L, I couldn't afford to write any Concours, and I don't want to wait and waste of a year at home, so I decided to embark on where I am now (SOA, a public university in Yaoundé). But I'm still planning to write some Concours this year which shall grant me access into a professional school*.' (Truth, male, private school)

The others did not succeed in attending professional schools because they failed the entrance examinations (*Concour*s). According to Lois (female, public university) the *Concours* were too competitive, with around 8000 students competing for only 75 places. Public university was a concession and temporary choice for them and they were all planning to take *Concours* for the following school years.

In addition, Eve (female, private school) and Johan (male, public school) were both schooling in private HEIs and they both had a desire to study abroad. They asked me for information about studying in the UK, but Eve's parents finally decided to enrol her in a private professional school because the cost was too high to study abroad. Similar to Eve, Johan was also unable to study abroad because his family could not afford the high tuition fees abroad.

It is surprising to find that Kaden (male, public school), who desired to play football or find a job was schooling in a public university when I did the interview. He said he wanted to play football but there was no opportunity, so he decided to continue to study and his family were supportive. He was, however, also undertaking a part time job in the university to support himself.

Overall, only three students had continued with their original plans. The others all encountered barriers to participating in their preferred HEIs, and these barriers - which included AA, economic concerns and marriage - stopped them from following their original plans.

9.7 Conclusion

This chapter provides detailed personal explanations regarding students' HE aspirations and choices. Students' responses to the influencing factors and the extent to which they were perceived to be an issue were also demonstrated.

With respect to students' aspirations for HE, the majority of them were positive about continuing with their studies because they believed HE was worth attending and might help them to fulfil their dreams for the future. As for the preferred choice of HEI, most of them preferred professional schools, with public universities generally being considered a backup plan; some students talked about studying abroad, but not all of them took it seriously. Students' HE attitudes and choices were highly interrelated with their parents' attitudes, and were also associated with their economic concerns, academic achievement, the secondary school they attended. Significant others also played a role in contributing to students' educational attitudes. Also, the interviews revealed strong gender stereotyped views, yet they seemed not directly linked with students' attitudes towards HE. It might be argued that education provided a 'sanctuary' for those students who were able to remain until the final year of secondary school, and who were somewhat insulated from the gender biased views of wider society, and were able to remain engaged with their studies and aspire to attending university.

The follow up interviews shed some light on the actual barriers students encountered, these included economic concerns, academic achievements and marriage. However, instead of preventing students from participating in HE at all, the barriers appeared to have more influence in preventing them from participating in their preferred HEIs.

Chapter Ten : Discussion and conclusion

10.1 Introduction

Following the presentation of empirical data analysis and findings in the previous chapters, this chapter returns to the research questions raised in chapter one and uses them to guide the discussion of the findings and to consider their implications. This chapter begins with a summary of the research background and research questions. The findings are then discussed with reference to these research questions. The discussion includes a refined conceptual framework and a short section answering each research question. This study's contribution to knowledge is demonstrated from empirical, methodological and theoretical dimensions. The implications and limitations of this study, and directions for further research, are discussed in the final part of this chapter.

10.2 Summary of the study

This study investigated gender differences in barriers to participation in higher education (HE) among final year secondary school students in Cameroon. The impetus for this study came from my personal experience as a volunteer Chinese language teacher in Cameroon, where I gained the impression that females faced discrimination because of their gender. I was curious about gender differences in students' educational experiences in Cameroon, especially the process of accessing HE.

Access to education, especially female access to education, in sub-Saharan Africa (SSA) generally, and Cameroon in particular, has been of concern when compared with other countries. To start with, the Gross Enrolment Ratios (GERs) in SSA have been among the lowest globally at primary, secondary and higher education levels (UNESCO, 2017a) (see Chapter 2.5). Although the HE participation rate in SSA has grown, it is still very low

compared with other regions of the world. The HE GER in SSA was 9% by the year 2016, while that figure for the world average was 37%, and for North America and Western Europe it was 78%. As one of the SSA countries, the GER for HE in Cameroon was 19% in 2016 (UNESCO, 2017a). In terms of access to HE, Cameroon has performed well within the region, but it still lags behind the majority of developed countries.

Furthermore, in addition to the lower educational enrolment rate, gender gaps in access to education persist in SSA, including Cameroon and especially female access to HE. Global efforts to promote gender equality in education have made significant advances, and by 2006 the worldwide HE participation rate for females was higher than that for males. However, in SSA countries, including Cameroon, the HE enrolment rate is still far lower for females than for males. For example, by 2017, the HE GER in SSA for females was 7.5%, while that figure for males was 10.5%. Similar, in Cameroon in 2016 there was 5 percentage points difference in GER rates for HE between females and males (see Chapter 2.6).

Therefore, this study investigates the gender differences in attitudes towards, and experiences of participating in, HE in Cameroon. The research questions addressed in this study are:

1. To what extent are there gender differences in attitudes towards participation in higher education among final year secondary school students?
2. What are the perceived barriers to participation in higher education among final year secondary school students?
3. What are the actual barriers experienced by final year secondary school students that influence their participation in higher education?

In order to investigate gender differences in attitudes towards, and students' experiences of, participation in HE, a conceptual framework was developed to guide the research. The conceptual framework was based on Hyde (1993) and Gorard et al. (2007)'s classifications for investigating educational participation. Hyde's study focuses on female education in SSA countries,

while Gorard et al. explore barriers to participation in HE. With the combination of these classifications and the review of relevant literature, five types of barriers were chosen for investigation in this study: personal barriers, family barriers, institutional barriers, socio-cultural barriers and economic barriers (see Chapter 4).

A mixed methods design was adopted in order to answer the research questions. A questionnaire survey was employed to collect numerical data regarding gender differences and students' perceived barriers to participation in HE. Two rounds of semi-structured interviews were then conducted to provide more in-depth explanations of the key questionnaire findings, as well as to investigate actual barriers experienced by students. As a longitudinal study, the first two research questions were explored before students graduated from secondary school, while the third research question was explored after students had begun their HE courses or ended their studies. In total, 1,975 students from 14 schools participated in the questionnaire survey. Participating schools included public and private bilingual schools, public and private Francophone schools and private Anglophone schools. In the second phase of data collection, 25 interviews were conducted with Anglophone students from one public bilingual school and one private Anglophone school. 14 out of the 25 interviewees were followed up for the second round of interviews in the third phase of data collection.

The following sections present a discussion of the main findings with reference to the key literature. The first section discusses the first research question regarding gender differences in students' attitudes towards HE, and how other background factors related with their choices, to help understand the extent to which gender is an influence. The second section presents students' perceived barriers and the actual barriers they encountered, using the themes from the conceptual framework.

Before discussing the findings, it should again be emphasised that, considering the unexpectedly high proportion of students wanting to participate in HE, the term 'barriers', in regard to participation, was not considered appropriate for this study when describing the preventative effect.

Therefore, the term ‘factors’ is used in this section instead of ‘barriers’. This allows both positive and negative influences to be presented, to include factors contributing to the students’ aspirations for HE as well as factors that work to hinder participation. Moreover, instead of focussing solely on the students’ aspirations and attitudes towards HE, their preferred higher education institutions (HEIs) and subject streams are also explored in presenting the findings and discussions.

10.3 Gender and aspirations towards participation in higher education

The most significant findings from this study are that no gender differences were found in students’ aspirations to attend HE, and the majority of students were positive about participating in university. According to the data, the same high percentage of male and female students (90%) expressed a wish to attend HE (see Chapter 7).

This was a brighter picture than expected and overturns the presumption of gender differences in barriers regarding participation in HE. Specifically, according to the available data from previous studies conducted in Cameroon and other SSA countries, the HE participation rate in SSA is low and underrepresents female students in the majority of SSA countries’ educational systems (Kane, 2004; Assie-Lumumba, 2006; UNESCO-IBE, 2006; UNESCO-EFA, 2015; Lewin, 2007a). By 2006, the worldwide overall female HE participation rates exceeded that of males, especially in developed countries. Yet, the gender gap remains in SSA countries, including Cameroon. Therefore, participation in HE, especially female access to HE in Cameroon, and SSA in general, lags behind that of other countries globally. Although the aspiration for HE is not the same as the actual participation rate, the overwhelmingly positive picture in this study is quite surprising. In addition, where the national data reveal a gender gap in students’ actual participation rate in HE in Cameroon, no study has been conducted regarding students’ aspiration towards HE and their HEIs choices.

A potential explanation for the unexpected higher aspiration for attending HE among students could be that students who have stayed in secondary school to the final year might have had to overcome barriers to stay in the education system and were therefore positive in continuing their studies. The dropout rate in Cameroon supports this notion. In a study undertaken by Eloundou-Enyegue et al. (2004), around 58% of students entered secondary school, while only 25% of them reached the final year of secondary school. Dropout rates were higher around some key education milestones, notably grades 6, 10, 12 and 13, and the leading cause of school dropout (up to 46% of dropouts) was lack of money. Therefore, those who have stayed to the final year of secondary school may have overcome certain barriers, such as lower expectations, economic barriers and gender barriers. Nevertheless, this is still an interesting and important group of students to study. Since we do not expect all students to progress to HE, even in Western nations, the factors that may or may not be faced by students who reach the final 'hurdle' for participation are still an important area of investigation.

Furthermore, considering that the schools and students were selected from Yaoundé and Maroua, both urban cities in Cameroon, students may have come from relatively affluent families compared with students from other regions, and it might be that more girls have access to education in big cities. Shabaya and Konadu-Agyemang (2004) support that female students from urban areas in African countries have better education opportunities than those from rural areas. This has also been supported by an albeit dated study conducted in Cameroon (Cooksey, 1981); although girls from disadvantaged families suffer both by being girls and by coming from a lower class, which may contribute to a failure to enter secondary school, girls from elite families can overcome any gender disadvantage and have a higher pass rate in secondary school than boys from all other backgrounds.

Another possible explanation could be that most of the aspirational have stayed on, and hence their aspiration for higher education continues to be high. Therefore, in the present study of students in their final year at secondary school, who were mainly from urban areas, no gender differences were

revealed regarding aspirations towards HE – both males and females were eager to continue their studies.

Gender differences in students' preferred HEIs and subject choices

Although gender was not seen to influence students' attitudes toward HE, their preferred type of HEIs and subject streams were significantly influenced by gender. First of all, regarding the type of university they wanted to attend, close to a third of the male students indicated that they would like to study abroad, while the largest proportion of female students (29%) chose local professional schools. Given that the professional schools are less expensive and have lower enrolment requirements compared to studying abroad, one can argue that the females were less ambitious than the males in their HE choices. Francis (2002) suggests that, in the UK, boys' choices are mainly ambitious, and a higher proportion of them would like to participate in HE studies. This is also in line with the findings from other developed countries, that females are overrepresented in less selective and less prestigious institutions, while males are more likely to attend the most selective institutions (Mullen and Baker, 2015; Vincent-Lancrin, 2008; Dunnett et al., 2012). Furthermore, according to UNESCO (2017b), the outbound ratio of international students' mobility in tertiary education in Cameroon is 6%, which indicates that only a small proportion of students actually study abroad. For mainly practical reasons around access to the field and participants, this study concentrated more on aspirations than on actual participation in HE; we might argue that the males tended to have more ambitious and unrealistic aspirations, while the female students were more realistic for their future plans.

Another important influence from gender was the subject the students studied in secondary school and the subject they would like to study at university. Females tended to study arts and social sciences, while male students favoured science subjects. This difference was seen both in secondary school and at university. According to the data, the distribution of male students among arts and science subject streams was the same in secondary schools (34% of arts and 66% of science) and in their subject choices at university

(34% of arts and 66% of science). For female students, the percentage choosing arts (55%) for university was 2% points higher than the percentage in secondary school. This was consistent with other research on gender stereotyped subject choice. In both developed and developing countries, science is seen as a 'male subject', while females dominate in the arts and social science subjects (Francis, 2000; Buchmann, 2009; O'Connor, 2003; Morley et al., 2007). The reason for the gender difference across the subject streams has been widely discussed; potential explanations include students' personal perceptions and interests, and parents' expectations and social values. (Ásrún, 2018; Clark Blickenstaff, 2005; Osborne et al., 2003; Collins et al., 2000).

In conclusion, the results of this study paint a positive picture, with only a few small gender differences found between students' attitudes, especially their aspirations for HE. This might be because the majority of students had made a positive decision to remain in education for longer (e.g., until the final year of secondary school) and so social influences on those that remained might be reduced. However, students' preferred HEIs and subject choices do appear to have been influenced by their gender, with the girls indicating a preference to study at local professional schools while boys favoured studying abroad; similarly, girls aspired to study arts subjects while boys favoured science subjects.

10.4 Factors contributing to students' attitudes and choices

The data analysis identifies some factors from the framework as associated with students' HE attitudes and choices. Overall, parental influences, institutional factors, economic factors and significant others were shown to have important role in relation with students' attitudes towards HE. Personal factors and other socio-cultural factors were not as important in the process of participation in HE. This section summarises the influencing factors thematically, based on the conceptual framework, and investigates the association of each factor with students' HE aspirations and choices. The

illustrations in this section combine the perceived barriers and actual barriers, employing both questionnaire data and interview data to demonstrate the impact of each factor.

10.4.1 The role of parents in predicting students' attitudes and choices

Parents and family influences were the most important factors linked with students' HE aspirations and choices in the present study, and the association mainly coming from the parents' attitudes, parents' education levels and parents' occupations. Other family factors, such as family type, number of siblings and siblings at university were less important than the parental influence.

To start with, students' attitudes towards HE were strongly interrelated with their perceived parents' attitudes. Up to 82% of the students agreed that their parents thought going to university was important, and about 78% of them stated that their parents encouraged them to go to university. According to the regression model (see Chapter 8), parents' attitudes had the largest R^2 (0.278) in explaining students' attitudes towards HE. This was supported by previous studies from both developed and developing countries (Gale et al., 2013; Collier et al., 2003; Gil-Flores et al., 2011; Laila et al., 2016; Buchmann and Dalton, 2002). The significant role of parents' attitudes was also found in the interviews. Some of the students, especially girls, mentioned that their parents not only influenced their attitudes, but sometimes their parents were the ones who can decide whether they could attend university or not as well as which HEI they could attend.

Secondly, the parents' education levels had a substantial relationship with students' attitudes, and with their choices throughout the process of participation in HE. The better educated the parents, the higher the educational aspirations their children had. Based on the overall high percentage of students who indicated their willingness in continue their studies, students with better-educated parents were 6% points more likely to want to attend HE than their counterparts with less educated parents. This is

consistent with numerous studies that emphasise the importance of parental education in predicting their children's education (Gil-Flores et al., 2011; Berzin, 2010; OECD, 2015; Schultz, 2004; Chapman, 1981). Moreover, in this study, the highest proportion (approximately one third) of students with better-educated parents indicated a preference for studying abroad. This is supported by Dunnett et al. (2012), who found that students with better-educated parents were more likely to apply to higher status institutions. This finding could be explained by the parents' HE experience facilitating their children's knowledge of HE, and allowing them to guide their children through different choices of institutional pathways (Bok, 2010).

Similar to the parents' education, the parents' occupation types also showed a considerable association with students' attitudes and choices towards HE. The degree of relationship of the parents' occupation types was slightly weak than that of the parents' education levels, and the father's occupation types were less important than the mother's (Akyeampong et al., 2007; Al-Samarrai and Peasgood, 1998; Hunt, 2008). The percentage of students wishing to attend HE was 3% points greater for those whose parents had higher status occupations than for the students from lower parents occupation group, and they also had the highest proportion of studying abroad. The influence of the parents' occupation was discussed mostly under the discourse of family income and SES background. Numerous studies have demonstrated that students from disadvantaged families are less likely to attend HE and, if pursuing HE, often attend less selective institutions (Davies and Guppy, 1997; Smith, 2011; Chapman, 1981); this was also confirmed by the present study. Furthermore, students who came from richer backgrounds appeared to prefer a privileged choice, such as study abroad and private universities.

Therefore, this study confirmed the role parents play in predicting their children's HE attitudes and choices. Moreover, different from the Heyneman-Loxley (HL) hypothesis (see Chapter 4.4), both the parental and institutional factors were noteworthy in the relationship with students' education, and the parents' role was slightly significant than institutional factors in the less developed country - Cameroon. Besides, parents and family background also had an impact on the type of secondary school students attended and their

academic achievement in secondary school. Therefore, parents and family background played a fundamental role in the whole education process for children, as well as interacting with and underpinning institutional and economic influences.

10.4.2 Institutional factors contributing to students' attitudes and choices

The significance of institutional factors is demonstrated by the contribution to the students' HE attitudes and choices made by the secondary school that they attended and the type of HEIs they wished to attend. The students' subject stream (i.e. arts or science) in secondary school was also substantial in contributing to their HE aspirations and choices.

First of all, as mentioned above, the secondary school the students attended was a mediating factor that was partly influenced by their family background and would, in turn, influence the students' attitudes and future plans. Overall, only around 5% of the private and Anglophone students said they were not considering participation in HE, while the figure for their public and Francophone counterparts was up to 10%. Large effect size values were found between private and public school students (0.32) in their attitudes towards HE, and between Anglophone and Francophone students (0.69). Besides, the interaction between background factors (see Chapter 7.2) also revealed that private schools and Anglophone schools tend to be participated by the relatively privileged students, including the subgroups of younger, well-educated students and those whose parents had higher status occupations. This is supported by numerous studies which suggest that higher SES families are more likely to send their children to private schools (Considine and Zappalà, 2002; Kainuwa and Yusuf, 2013). Therefore, considering the association between the type of secondary school that students attended and their parental and family backgrounds, the private and Anglophone students' positive attitudes can be partly attributed to the influence of the parents and family background. The interviews also revealed that many of the Anglophone students came from a purely Francophone family and their

parents chose an Anglophone education for them so that the family could be bilingual. This also implies that they paid more attention to their children's education.

Secondly, choosing different types of HEI implies different kinds of barriers that students might encounter. For example, studying abroad generally requires higher expenditure and better academic achievement, and professional schools entail either better academic achievement or higher expenditure. Considering the preference order of different type of HEIs, studying abroad seemed to be the most privileged choice, followed by professional schools and private universities. Public universities were more of a backup plan for the majority of the students. In line with the findings above, studying abroad was particularly popular among Anglophone and private school students – they had the highest proportions (43% and 36% respectively) of students aspiring to study abroad. Public universities and professional schools, on the other hand, were the top choices for Francophone and public-school students. Moreover, the findings also suggest that studying abroad was prevalent among students who were male, younger, had better academic achievement, and had parents with higher education and higher status occupations. All of these subgroups were better compared with their corresponding counterparts. This has been discussed in the previous section on parents and family influences, with students from more privileged family backgrounds being more likely to choose higher status institutions (Dunnett et al., 2012; Chapman, 1981; Croll and Attwood, 2013).

Subject stream also associated with students' attitudes towards HE and their HEI choices. Arts students were slightly more positive towards participation in HE than science students, and the largest proportion (39%) of art students chose public universities as their target HEI, while science students preferred studying abroad (32%) and professional schools (32%). Considering the entrance requirements for different types of HEIs, arts students were more realistic in that it is relatively easy to get access to public universities compared to studying abroad and professional schools. This could be a reason behind why they were slightly more positive about attending HE. Science

students might encounter more barriers in gaining access to professional schools and in studying abroad.

In short, institutional factors included the secondary school that the students came from, the type of HE institution they would like to attend, and their subject stream in secondary school; all were crucial in contributing to their HE aspirations and choices. Secondary school type acted as a mediating factor, influenced by family background, and itself influencing students' aspirations and choices for HE. The different choices of HEIs implies different types of barriers students might encounter. Arts students were slightly more positive in regard to participation in HE, and science students preferred relatively privileged HEIs.

10.4.3 Economic concerns underpinning students' attitudes and choices

Related to the parents' background and institutional factors, economic concerns were also shown to be associated with students' educational aspirations and choices. Broadly speaking, economic concerns did not appear to be a barrier preventing students from participating in HE, but was a key factor in influencing students' HEI choices.

In the present study, students were not particularly concerned about paying tuition fees – up to 85% of the students believed their family would pay their tuition fees if they were to go to university, and they were not concerned with affordability for their family. This conflicts with studies from developed countries, which find poverty and financial problems to be a hindrance for children's education (Tikly et al., 2003; Kainuwa and Yusuf, 2013; Lewin, 2009; Boyle et al., 2002). A potential explanation for the conflicting finding might be that students in the present study were relatively affluent cohorts compared to students from other regions, or compared to students who dropped out earlier.

However, although economic concerns were not highlighted as influencing students' aspirations for HE in the present study, they were found to affect

students' HEIs choices. This can be explained by the final year students having overcome economic barriers, with their family being able to afford their current education. Furthermore, their HEI choice also relied on further educational expenditure and the affordability of the HEI for their family. Many students mentioned in their interview that they were not concerned with the cost unless something unexpected happened to their family or their aspired institution's tuition fees were beyond that which their family could afford, such as if studying abroad. This is also a reason why the majority of the students said that they kept public university as a backup plan. Students' HEIs choices being underpinned by economic concerns is supported by a large amount of literature (Dunnett et al., 2012; Bergerson, 2009; Paulsen and John, 2002; Perna, 2006; Terenzini et al., 2001; Kallio, 1995). In the follow-up interviews, five out of the eight students had not been able to follow their original plans and were at public universities, the affordability of lower tuition fees in public universities given as a leading reason for their choice.

Therefore, economic concerns were not seen as preventing students from participating in HE, but as key factor in associated with students' HEI choices.

10.4.4 Significant others relating to students' attitudes and choices

Significant others in this study included teachers, relatives, siblings and peers. This study demonstrated that significant others were critical in the relationship with students' attitudes towards HE.

Up to 88% of the students stated that they have friends or close family members that have attended HE, and approximately 70% of them agreed that their friends and teachers were encouraging them to continue their studies. The correlation analysis also illustrated that significant others have a substantial association with students' aspirations for HE, and their relationship with HEI choice was also significant, although to a lesser extent than their relationship with aspirations. Significant others were also identified in the multiple regression model as the factor contributing to students' aspirations for HE. Overall, the above-mentioned findings were in line with

previous studies that confirmed the positive relationship of significant others, including teachers, peers, relatives and siblings, with students' educational attitudes and choices (Wentzel, 1998; Benner and Mistry, 2007; Alcott, 2017; Wentzel, 2002; Terenzini et al., 1994; Kainuwa and Yusuf, 2013).

This was also confirmed by the interviews – students emphasised the role of their teachers, relatives and siblings. For example, according to Christian:

> '*I can say I have one of the best teacher in Cameroon presently, because, he did all the possible job to give us the best of the materials, that's why at school I had the best results. He is my history teacher, he is waiting for his PhD now. That's the main reason I want to do history, I want to be like him*.' (Christian, male, private school)

While Eason mentioned influences from his relatives:

> '*I have my mind now, I have just discussed with my uncle, because he was telling me the advantage of going to university, to go and do law can easily obtain at least you can proceed … I will go to university of SOA (YUND II), to go and study law*.' (Eason, male, private school)

Therefore, this study has identified the role of significant others, including teachers, sibling, relatives and peers. Although the specific degrees of relationship were, in some respects, different between various significant other groups, significant others, as a whole, not only related with students' aspirations for HE but also linked to their HEIs choices.

10.4.5 Personal factors and students' attitudes and choices

Personal factors consist of students' aspirations for HE, their gender, age, religion and academic achievement. Among these factors, student' personal aspiration was the dominating factor in associated with students HE attitudes and choices. Academic achievement was surprisingly less important in the relationship with students' aspirations, as were age and religion. Gender was

demonstrated to be crucial in related with students' HEI choices, rather than contributed to students' overall attitudes towards HE.

Above all, students' aspirations were strongly linked with whether they could attend HE or not. Their aspirations were a mediating factor that can be a potential deterrent to participation in HE, as well as an outcome of the students' previous educational and family influences. In this study, two sets of variables indicate the students' aspirations for HE: the dichotomous questions regarding whether they wanted to attend HE or not and the four attitudinal items regarding the importance of participating in HE. Approximately 90% of the students indicated that they wanted to continue their studies and around 80% of the students recognised the importance of HE; therefore, in this study, students' aspirations alone were unlikely to be a deterrent for their participation in HE. These figures are in line with the positive attitudes to attending HE in some developed countries, such as Australia (Gale et al., 2013; Bowden and Doughney, 2010). This was affirmed during the interviews, where the majority of students expressed their willingness to continue their studies. Furthermore, when taking the aspirations for HE as an outcome, and taking into account that students' personal attitudes were highly correlated with their perceived parental attitudes, hence, students' personal and perceived parental attitudes were combined together in the modelling section and both were highlighted as significant contributors to shaping students' aspirations for HE and their HEIs choices.

Academic achievement was less important in the correlation with students' attitudes towards HE and their HEI choices in this study. This conflicts with previous literature (e.g., Gil-Flores et al., 2011; Muijs, 1997; Rojewski and Hill, 1998; Hunter and May, 2003). Lower AA students were as interested in attending HE as their higher achieving counterparts. This might be because the academic requirements to enter public universities were fairly low and lower AA students also had the possibility of attending public universities.

In summary, students' personal aspirations were outstanding among personal factors in associating with their HE aspirations and choices. Students'

positive attitudes linked with the overall positive picture of HE aspirations in this study. Academic achievement, along with age, religion, were less important in contributing to students' HE aspirations and choices.

10.4.6 Socio-cultural factors widespread yet not influencing students' educational attitudes and choices

The role of socio-cultural factors lies in the students' gender stereotypes and the association with significant others. Significant others, and their substantial influence, has been discussed earlier. Strong gender stereotypes were discovered from the interviews, with some students holding biased gender views towards family, marriage and society. For example: '*the man is the head of the house*', '*kitchen is the place for woman*' and '*the nature of girls is demand*'.

The existence of gender-stereotyped views is supported by some of the research based in the African context (Johannes, 2010; Cammish and Brock, 1994; Cornwall, 2005; Nsamenang, 2000). Cameroon is a traditional patriarchal society, and household life is based on the supremacy of men and subordination of women (Cameroon Government Report, 2011; Nsamenang, 2000). However, it was surprising to see that these strongly gender-stereotyped views were not contributing to students' positive attitudes towards HE in this study. This conflicts with previous studies undertaken in Africa, which suggest that those traditional and gender-stereotyped views make females the vulnerable group compared to males (Devolution and Planning, 2013; Johannes, 2010; Para-Mallam, 2010; Obasi, 1997). Considering the overall positive attitudes towards HE from both males and females, it can be argued that gender stereotypes exist, and gender is still an issue, but education is a kind of 'sanctuary' area, less influenced by the gender-stereotyped views. Also, it can be argued that students who have stayed to the final year of secondary school are already the ones in their families selected to have the educational opportunity. The functioning of

gender stereotypes as a barrier might happen more in the early stages of education than during the transition from secondary school to HE.
Therefore, in this study, strong gender stereotyped views were revealed among the students, yet they were not shown to be barriers that prevented students from participating in HE or affected their choice of HEIs.

10.5 Refined conceptual framework

Using the findings of this study and existing literature, a refined conceptual framework was developed (see Figure 10-1). Based on the original conceptual framework, the refined framework demonstrates the interactions and relationships between the different factors, as well as highlighting crucial factors that associated with students' HE attitudes and choices and the actual barriers experienced by students to participation in HE. Less important factors, such as religion and family background, were excluded from the framework.

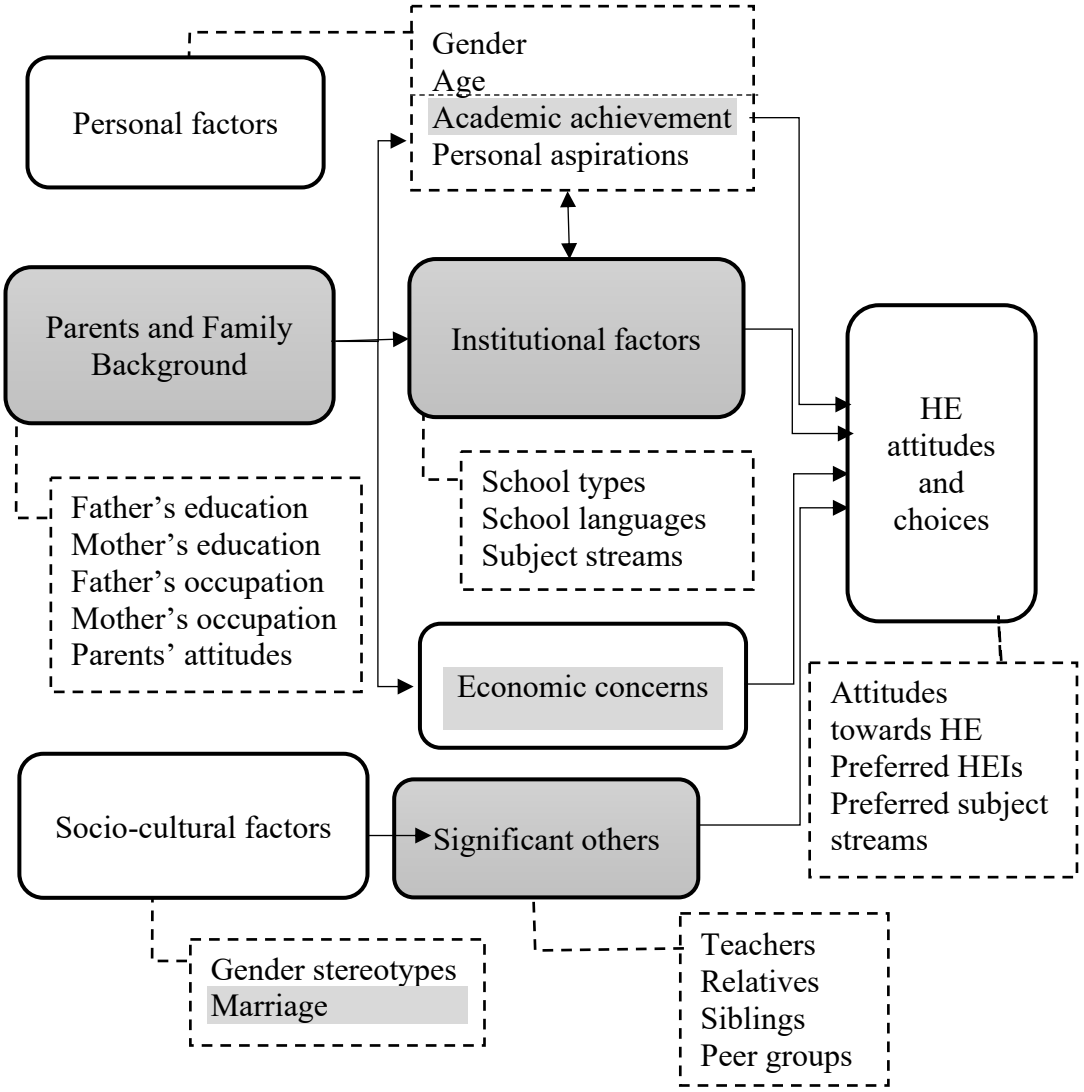

Figure 10-1 Refined conceptual framework (crucial factors highlighted)

Parents and family background, personal factors, institutional factors, socio-cultural factors and economic concerns all shown to be related with students' HE aspirations and HEI choices in this study. Parents and family background, institutional factors and significant others were more crucial than personal and socio-cultural factors.

Most significantly, parents and family background played a fundamental role in contributing to students' aspirations and choices of HEIs for HE, with students perceived parental attitudes being strongly associated with students' personal attitudes. Regarding the parents' education levels and occupations, the more highly educated the parents, and the higher status occupations the

parents had, the more positive attitudes for HE their children had. This is supported by the wide range of literature on the importance of family background in influencing educational aspirations and attainment (e.g., Hyde, 1993; Coleman, 1966; Harris and Halpin, 2002; Gil-Flores et al., 2011). Related to family background, students' secondary school also played a role in predicting their aspirations and choices for HE. Students from private schools and Anglophone schools were more positive about HE, and they favoured studying abroad, while their counterparts (public and Francophone school students) were more likely to choose public universities and professional schools. Economic concerns mainly consisted of the affordability of the HE tuition fees and were found to be less important in shaping students' attitudes towards HE. However, economic concerns was a determining factor related with students' HEI choices: students who had economic concerns were more likely to choose local public universities where tuition fees and living costs would be lower. Association with socio-cultural factors, including significant others, gender stereotypes, marriage and pregnancy influences, were relatively minor. Significant others stood out in socio-cultural influences due to its critical role in contributing to students' attitudes toward HE and their HEIs choices.

According to the follow-up interviews, three factors were found to be the actual barriers that prevented students from participation in HE: economic concerns, academic achievement and marriage.

10.6 Answering the research questions

The research questions are now addressed based on the preceding discussion.

Question 1: To what extent are there gender differences in attitudes towards participation in higher education among final year secondary school students?

Answer: There was no gender difference regarding students' attitudes towards participation in HE per se; both males and females had positive

attitudes towards attending HE. However, gender showed a strong link with students' preferences for different types of HEIs and in their subject choices: male students had more ambitious aspirations for studying abroad, while females were more likely to choose local HEIs; male students indicated a preference to study science subjects while females favoured arts and social science.

Question 2: What are the perceived barriers to participation in higher education among final year secondary school students?

Answer: Considering students' highly positive attitudes towards HE, there were few 'perceived barriers' to participation in HE. Students' parents and family background, institutional factors and significant others were crucial in contributing to their attitudes towards HE. Students from higher socio-economic backgrounds, students from private schools and Anglophone schools, and students who had encouragement from significant others were more likely to have a greater desire to attend HE. Less important associations came from students' personal factors (i.e., gender, age, religion) and socio-cultural factors (gender stereotypes).

Question 3: What are the actual barriers experienced by final year secondary school students that influence their participation in higher education?

Answer: Three actual barriers experienced by students were found in this study: academic achievement, economic concerns and marriage. These factors functioned either as actual barriers preventing student participation in HE or caused them to make compromises in their HEI choices. Students who failed to participate in HE or to attend their preferred HEI did so for three main reasons: failure to meet the HE entrance requirements, inability to pay the tuition fees, marriage.

10.7 Contributions of the study

This section focusses on the contributions of this study. First of all, the empirical contributions are demonstrated based on the findings of the study. Then the section moves on to discuss the methodological contributions and finally its theoretical contributions.

10.7.1 Empirical contributions

In investigating gender differences in barriers to participation in HE among final year secondary school students in Cameroon, influences were detected from personal, family, institutional, social-cultural and economic dimensions.

First of all, it was surprising to find out that gender was not highlighted as a factor related with students' binary choice to participate in HE or not. Both males and females had positive attitudes towards continuing their studies after secondary school. However, gender was shown to be linked with students' preferred HEIs and subject streams. The largest group of male students (close to one third) chose the relatively unrealistic choice of studying abroad, while females favoured local professional schools and public universities over studying abroad. The students' choice of subject streams were significantly associated with gender; females preferred arts and social science while males favoured science subjects. This was also in line with their subject stream distribution in secondary schools.

Secondly, regarding the factors contributing to students' aspirations and choices, parents and family background were the fundamental factors that not only related with students' HE attitudes and choices, but also showed an impact on institutional factors, economic concerns and certain personal factors (academic achievement and personal aspirations). Interacting with parents and family background factors, institutional factors (secondary school type, language and subject stream) were another key factor linked with students' HE attitudes and choices. Regarding socio-cultural factors, significant others, including teachers, relatives, siblings and peers, were also

substantial in contributing to students' HE attitudes and choices. The findings also revealed that students hold strong gender stereotypes, yet these do not relate with their HE aspirations and choices – education can perhaps be seen as a 'sanctuary' place. Marriage was found to be an actual barrier that stopped a girl from participating in HE; another two actual barriers found in this study were economic concerns and academic achievement.

In conclusion, there were no gender differences in students' attitudes towards HE in this study and the majority of the students were positive about continuing to HE. Parents and family background was one of the key and fundamental factors associated with students' attitudes towards HE, along with institutional factors, economic concerns and significant others. The empirical findings enrich the understanding of gender differences and the process of participation in HE in Cameroon.

10.7.2 Methodological contributions

In order to investigate the gender differences in students perceived 'barriers' and actual 'barriers' to participation in HE in Cameroon, an explanatory sequential mixed methods research design was employed in this study. The methodological contributions of this study derive from three dimensions. First of all, the sequential and longitudinal design of the study. Secondly, the relatively large-scale quantitative data collected from Cameroon, and thirdly the implications of conducting a study in a third country as an outsider.

First of all, this was a longitudinal study and the students were followed for up to one year. In this study, there was a sequence to the research questions – the first and second research questions, regarding students' perceived barriers, were investigated before students graduated from secondary school, while the third research question, regarding their actual barriers to participation in HE, was addressed one year later after students had graduated from secondary school. The majority of other studies that explore students' aspirations and attitudes towards HE rarely follow up on the students and investigate their experience and actual barriers after leaving secondary school (e.g., Croll and

Attwood, 2013; Gale et al., 2013; Hyde, 1993; Gorard et al., 2007; Buchmann and Dalton, 2002; Bowden and Doughney, 2010; Mathews, 1989). This study is original in its attempt to reconnect with students after a significant period of time – an effort that was compounded by geographical distance and the lack of established links with institutions in the country. Although the proportion of subsequent interview data is relatively small, it provided a significant complement to the secondary school data in understanding students' actual HE participation experiences.

Furthermore, in order to investigate gender differences and students' perceived barriers to participation in HE, a large-scale survey was necessary to draw a more generalised conclusion. Therefore, a partly self-developed questionnaire was employed in this study. In order to maximise the representativeness of the sample for the study, the questionnaires were distributed widely cross the city, but less-so across the country, apart from the opportunistic link with one school outside. Various types of schools were involved in this study. In addition, the questionnaire could be further developed or applied in similar research in a similar national context.

Last but not least, this study was conducted by the researcher as an outsider in a non-home country. This has methodological implications for conducting similar research, especially for undertaking studies in Cameroon as an outside researcher. The position as an outside researcher can provide a more neutral perspective when investigating this topic – the assumptions can be more objective without being affected by the researchers' previous personal knowledge and experience (Breen, 2007; DeLyser, 2001). Besides, the practical process of data collection in Cameroon, including application for the authorisation letter and negotiations with the school principals and teachers, is also relevant for future researchers.

10.7.3 Theoretical contributions

Drawing on the findings of this study, several theoretical contributions have been made in understanding the process of participation in HE in Cameroon.

First of all, the refined conceptual framework fits the Cameroonian context in exploring students' attitudes and choices in the process of participation in HE. The original conceptual framework built up the basic structure of exploring students' attitudes towards HE, containing personal barriers, family barriers, institutional barriers, socio-cultural barriers and economic barriers. The five categories of barriers were suitable for this study, however, the interaction between different factors and the priority sequence of these factors were not declared. The refined conceptual framework excludes less important factors and structures the outstanding contributing factors associated with students' attitudes to participation in HE. Moreover, this conceptual framework also includes students' HE choices - their preferred HEIs and preferred subject streams. These were not taken fully into consideration at the beginning of this study, yet they were revealed to be significant in distinguishing gender differences and attitude differences in the students' process of participation in HE.

In addition, according to the findings of the study, the term 'barrier' was not suitable for describing the findings. The five types of factors did not all function as 'barriers' – some of them were contributing to an increase in the students' positivity towards HE. Therefore, the use of the term 'barrier' can be challenged in this research context and can be phrased in a more positive or neutral way, such as the later-used term 'factor'.

In conclusion, the theoretical contribution includes, first, the refined conceptual framework for exploring students' aspirations for HE, including the exclusion of less important factors and inclusion of preferred HEIs choices and subject stream choices. The theoretical contribution also includes the replacement of the term 'barrier' with 'factor' and the rigorous investigation of the terms employed.

10.8 Implications for stakeholders

Based on the previous discussion and taking into account the contributions of this study, implications for relevant educational stakeholders are now given

for increasing and promoting fairer access to HE in Cameroon. The stakeholders include policy makers, institutions, parents and the students themselves.

To start with, one of the key implications drawn from this study is that, if girls are encouraged to stay in school for as long as possible, their aspirations for attending HE might be similar to that of boys, or even higher. Gender issues may impact on education at earlier stages, where girls may drop out for different reasons, such as early marriage, housework or lack of money. The overall positive attitudes students had in this study were partly because these students had stayed in the schooling system to the final year of secondary school – they had already been the ones selected in their family for education, or they might have overcome barriers to education; this is especially relevant for girls. Therefore, the first implication for policy makers is that, in order to promote fairer access to education and improve retention, policy interventions should come earlier, and more efforts should be paid to keeping girls in school through primary school and secondary school. Female education is crucial for promoting the social and economic development of a nation and is conducive to reducing fertility rates and mortality rates and improving the social status of women in developing countries.

Moreover, policy makers should address the issue of regional imbalance within Cameroon. As previously discussed, the overall positive attitudes towards HE in this study were surprisingly high considering the low national HE enrolment ratios. This can be partly explained by the sampling strategy of this study, where the majority of the students were selected from the capital city. Hence, one can argue that students from the capital city and urban areas are more likely to have greater opportunities to participate in education, especially HE. Therefore, more efforts could be paid to rural regions and other cities, so that the national HE participation rate as a whole can be increased.

In addition to that, the government and policy makers can also pay attention to the institutional imbalance between different types of HE institutions. Considering the preference sequence for different types of HEIs, public universities tend to be the last choice for most students, and a compromised

first choice for some students. Students in this study had lower expectations for public universities, regarding the teaching quality and the facilities. Therefore, more attention could be paid to public universities. The teaching quality in public universities should be improved, while the facilities and capacity of public universities need to be updated to meet the increasing demand for HE.

Furthermore, with regard to the distinction between the Anglophone and Francophone systems in Cameroon, Francophone has become overwhelmingly dominant and Anglophone has been marginalised to a large extent (Konings and Nyamnjoh, 1997). Anglophone students in the present study expressed concerns over attending HE in Yaoundé, as the officially bilingual universities actually provide French instruction. Therefore, the government should also pay attention to the Anglophone universities, and promote Anglophone education, to make the country truly and equally bilingual.

In addition to government efforts, the institutions themselves should also attempt to increase students' aspirations for HE and recruit students from a variety of backgrounds, especially disadvantaged students. First of all, the 'mind set' of universities could be optimised to provide fairer access to HE. For example, Endeley and Ngaling (2002) explore the gender-inclusive culture in Cameroonian HEIs, and find that the University of Buea now has a positive perception of feminism and strong support for this kind of culture. However, the further sustainable development of gender-inclusive culture should be the responsibility of all institutional stakeholders, rather than relying on individual interests and goodwill. Moreover, appropriate programmes can be provided to meet the requirements of different groups. For example, in Nigeria, part-time degree programmes are useful in helping women overcoming gender barriers to participation in HE and achieving their potential (Aderinto et al., 2006), as this provides a chance for women to balance family life and study.

Parents and students themselves were the determining stakeholders in the process of participation in HE. Parents were found to play a fundament role

in shaping and influencing their children's access to HE. In order to increase and promote fairer access to HE, the first step is for parents to be mentally positive about education. For example, they need to encourage more of their children to receive education. Furthermore, gender should not be used as a label to determine educational opportunities; both boys and girls have an equal right to be educated. Stereotypes such as 'girls should not be educated' and 'boys are important for the family' need to be challenged.

Therefore, the government and policy makers, institutions, parents and students themselves, all working together, can speed up the process of increasing and promoting fairer access to education in Cameroon.

10.9 Limitations of the study

Apart from what has been achieved in this study, there are also several limitations to be considered. First of all, as an outsider-researcher conducting this research, I was not familiar with the country and socio-cultural background of Cameroon, as a native would be. This limited my awareness and appreciation of the cultural dynamics. However, on the other hand, as an outsider-researcher, I could stand in a more neutral position and be more careful not to judge without investigation. I took nothing for granted in carrying out this study. Therefore, this was an advantage which has allowed me to bring a different perspective to research in Cameroon, and this study can complement local research. Moreover, research into gender equality and fairer access to HE is an important area – it is worthy of investigation regardless of where the researchers come from.

Secondly, the sampling strategy was sometimes pragmatic. I aimed to carry out a national study with data collected from all over Cameroon. However, many obstacles prevented me from collecting data from different regions. These included the political strike in the Anglophone areas of Cameroon prevented me from visiting the Anglophone cities; the difficulty of obtaining the government authorisation letter to undertake surveys in Cameroon, as well as the time limitation for me to stay there; and safety issues for me traveling

alone around the country to collect the data. Regarding the interview sampling, given that I was not fluent in French, the interviewee selection was constrained to Anglophone schools. All these practical problems constrained the sampling strategy of this study. However, I tried my best to collect as much representative data as possible within the capital Yaoundé.

In addition, the follow-up interview data one year later was from a very small proportion of those who completed the questionnaire and first-round interviews. It was mainly an attempt to reconnect with students for a follow-up investigation, however, it was truly challenging considering the geographical distance and the lack of established links with institutions in Cameroon. I had to rely on students' access to the internet and phone coverage, which was limited.

All these constrained the follow-up interview data collection. I was not concerned solely with understanding students' aspirations for HE, I was also keen to know what actually happened to them. It would have been better with richer data, although I tried my best to conduct the follow-up interviews. Therefore, although it was a small proportion of the possible data, it was a crucial element added to the research design.

10.10 Directions for further studies

The present study has investigated the extent to which gender influences students' attitudes and the process of participation in HE among final year secondary school students in Cameroon. Based on the findings of this study, some untouched or less addressed topics were revealed that may need to be further explored. The following are potential areas for further research:

- The regional disparity and imbalance regarding access to education in Cameroon.
- Differences in students' aspirations for higher education between students in the Anglophone and Francophone education systems.

- The relationship between students' preferred higher education institutions and their experiences in secondary schools.
- Differences between higher education institutions and their impact on students' aspirations for higher education.
- The impact of gender stereotypes on access to education at different stages.

10.11 Conclusion

In summary, this study has investigated the gender differences in the process of participation in HE among final year secondary school students in Cameroon. An explanatory sequential mixed methods research design was employed to collect data. The findings surprisingly revealed no gender difference in students' attitudes towards HE, yet gender was found to contribute to students' preferred HEIs and subject choices. Students whose parents had higher education levels and higher status occupations, as well as students from private and Anglophone schools, were more positive about continuing to HE. Significant others also played an important role in predicting students' HE attitudes and choices. Students' personal aspirations were the outstanding personal factor associated with their HE attitudes and choices. Widespread gender stereotypes were found among the students, however, they seemed not to be related with their attitudes towards education, and education being a 'sanctuary place' for these students. This study revealed three actual barriers preventing students' participation in HE: economic concerns, academic achievement and marriage.

All in all, although the national data have revealed a lower rate and a gender gap in HE participation in Cameroon, this study suggests that students who stay to the final year of secondary school tend to have overcome certain barriers to education. If females are able to remain in education longer, they have similar aspirations to attend HE as males. Therefore, a key intervention

available to policy makers is to facilitate the sort of societal change that would make it easier for females to remain in the education system longer.

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Appendix 1 - English Questionnaire

Your plans for after graduation

Dear final year student:

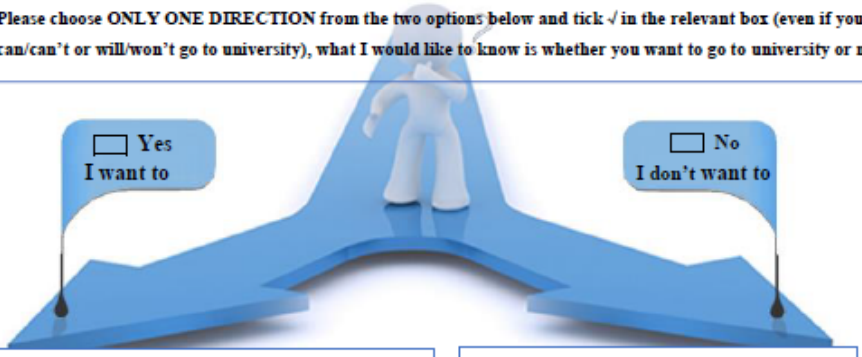
Thank you for taking part in this survey. I'm a PhD candidate from the University of Leicester, UK. I'm trying to find out what you plan to do when you leave school. For example whether you want to carry on studying or get a job, and why you have made these decisions. Please be completely honest, this questionnaire is anonymous, there are no right or wrong answers and everything you write down will be kept confidential. Your answers are very important so please answer as many of the questions as you can. You can also withdraw from the study at any time.

Thank you so much for your kind support!

Sincerely Tongtong Zhao

➢ **Do you *want* to go to university after graduation from secondary school ?**

Please choose ONLY ONE DIRECTION from the two options below and tick √ in the relevant box (even if you can/can't or will/won't go to university), what I would like to know is whether you want to go to university or not.



1) **Please write down the name of university you want to go:**

_____

(If you are not sure, you can tick one from below

☐ State university
☐ Private institution of higher education
☐ Study abroad
☐ Others(please specify)_____)

2) **Please write down the major you want to study in university (If you are not sure, just tell us it's Art or Science, or I don't know)**

_____

If you don't want to go to university, please tell us your possible plans for the future, you can choose MORE THAN ONE choice:

☐ Find a job
☐ Get married
☐ Go back to family and help at home
☐ Others (please specify)_____
☐ Not sure

1

Section A: Your attitudes towards going to university

Please indicate how far you would agree or disagree with each of the statements below(please tick in the box)

Your opinion on going to university	Agree a lot	Agree a little	Disagree a little	Disagree a lot
I think getting a degree will help me to have a successful career	☐	☐	☐	☐
I think getting a degree will help me to earn more money	☐	☐	☐	☐
I think going to university will help develop my confidence as a learner	☐	☐	☐	☐
I admire people who go to university	☐	☐	☐	☐
Your parents' attitudes on your going to university (if you don't live with your parents, please indicate your other legal guardian's opinion)	**Agree a lot**	**Agree a little**	**Disagree a little**	**Disagree a lot**
My parents think that going to university is important	☐	☐	☐	☐
My parents encourage me to go to university	☐	☐	☐	☐
My parents are good role models for influencing me to go to university	☐	☐	☐	☐

Section B: What influences your decision to go to university

Please indicate how far you would agree or disagree with each of the statements below(please tick in the box)

About your secondary school	Agree a lot	Agree a little	Disagree a little	Disagree a lot
I like the courses I studied in secondary school	☐	☐	☐	☐
The knowledge I learned in secondary school is useful	☐	☐	☐	☐
My secondary school teachers encouraged me to go to university	☐	☐	☐	☐
My secondary school teachers have told me that going to university is important	☐	☐	☐	☐
About university	**Agree a lot**	**Agree a little**	**Disagree a little**	**Disagree a lot**
I have many friends/close family members who have studied at university	☐	☐	☐	☐
My friends encourage me to go to university	☐	☐	☐	☐
I think I have limited choices for a major (subject) in university	☐	☐	☐	☐
I worry about being safe while at university	☐	☐	☐	☐
About your personal values	**Agree a lot**	**Agree a little**	**Disagree a little**	**Disagree a lot**
I will stop my studies if I get married	☐	☐	☐	☐
I think women should have jobs outside the home	☐	☐	☐	☐
I think women should take more responsibility (e.g., housework) in the family	☐	☐	☐	☐

I think girls are less suitable to go to university than boys	☐	☐	☐	☐
About the tuition fees	**Agree a lot**	**Agree a little**	**Disagree a little**	**Disagree a lot**
My family will pay my tuition fees if I go to university	☐	☐	☐	☐
I will need to have a part-time job to cover my cost if I go to university	☐	☐	☐	☐
I worry about paying my tuition fees if I go to university	☐	☐	☐	☐
I will only be able to go to university if I can get financial support from outside my family	☐	☐	☐	☐

Section C: About you and your family

1. **Your Gender:** ☐ Male ☐ Female
2. **Your Religion:** ☐ Christianity ☐ Islam ☐ Indigenous religious ☐ No religion ☐ Other(specify)_____
3. **Your Age:** _____
4. **What's your family background:** ☐ Monogamous family ☐ Polygamous family
5. **What are your father(guardian)'s and mother(guardian)'s jobs:**

   This question asks about your mother and father or the people who are like a mother or father to you (e.g. guardians, step-parents, grandparents). If you only live with one parent then just tell us what they do. If they are not working now, please tell us about their last main job.

   a) What is your *father(guardian)'s* main job? (e.g. school teacher, sales assistant, works at home. You can also give some details about what does your father do in his job)

   _____

   b) What is your *mother(guardian)'s* main job? (e.g. school teacher, sales assistant, works at home. You can also give some details about what does your mother do in her job)

   _____

6. **What are your father(guardian)'s or and mother(guardian)'s highest level of schooling:**

Father:	Mother:
☐ No formal schooling	☐ No formal schooling
☐ Primary education	☐ Primary education
☐ Secondary education	☐ Secondary education
☐ Higher education	☐ Higher education
☐ I don't know	☐ I don't know

7. **How many brothers/ sisters (all your siblings) you have in your family?**
   - ☐ I'm the only child in my family, please go to question 8
   - ☐ I have sibling(s) in my family, please indicate how many (the number) below

     How many *older brother(s)* do you have _____

How many *older sister(s)* do you have _____
How many *younger brother(s)* do you have _____
How many *younger sister(s)* do you have _____

7a. Among your sibling(s), do you have *brother(s)* who are attending or have attended university?

☐ Yes, please indicate how many _____
☐ No

7b. Among your sibling(s), do you have *sister(s)* who are attending or have attended university?

☐ Yes, please indicate how many _____
☐ No

8. Please indicate the *grades* of papers you have got for GCE OL? Leave the subject blank if you didn't study it

English language _____	French_____	Mathematics_____
Economics _____	Geography_____	Additional Mathematics_____
Commerce _____	History_____	English literature _____
Biology_____	Chemistry_____	Physics_____
Religious studies_____	Computer science and ICT_____	Food and nutrition_____
Human biology_____	Other (please specify the subject and grade) _____	

9. What's your serie now?

_____

Are there any other things that you think will influence your decision about whether or not to go to university, please describe these below.

_____
_____
_____
_____
_____
_____

Finally, I would like to invite you to take part in an interview so that I can find out a little bit more about your plans for next year. It doesn't matter whether you want to go to university or not, I would still like to talk to you. If you are OK with this then please provide your contact details below. If you change your mind later and decide that you do not want to be interviewed, that will be fine.

A. *Name:* _____
B. *Facebook account:* _____
C. *Tel or mobile phone:* _____
D. *E-mail:* _____

Thank you very much for completing the questionnaire!

Appendix 2 - French Questionnaire

Votre décision après le Baccalauréat

Chères élèves de terminale:

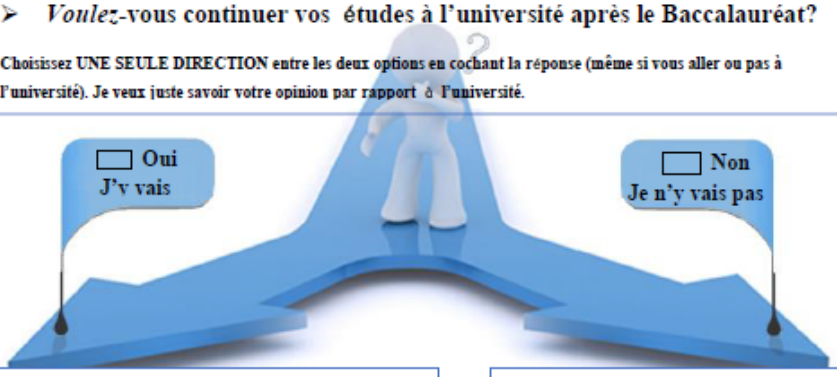
Je suis candidat au doctorat d'université de Leicester. Merci d'avoir pris part dans ce questionnaire. J'essaie de savoir votre décision après le Baccalauréat, continuer d'étudier à l'université ou chercher un travail, et aussi les raisons pour prendre cette décision. Ce questionnaire est anonyme, vous pouvez être honnête puis qu'il n'y a pas de réponse standard et vos réponses seront confidentielles. Pour nous, vos réponses sont très utiles donc nous vous prions de répondre complè tement aux questions possibles.

Merci beaucoup pour votre coopération!

Tongtong Zhao

➢ *Voulez*-vous continuer vos études à l'université après le Baccalauréat?

Choisissez UNE SEULE DIRECTION entre les deux options en cochant la réponse (même si vous aller ou pas à l'université). Je veux juste savoir votre opinion par rapport à l'université.



1) Écrivez le nom de l'université que vous préférez

_____

(Si vous n'êtes pas sûr, vous pouvez cocher une réponse ci-dessous

☐ Université d'État
☐ Institution privée d'enseignement supérieur
☐ École de formation
☐ Étudier à l'étranger
☐ Autres (à préciser)_____)

2) Écrivez le nom de la filière que vous voulez étudier à l'université (Si vous n'êtes pas sûr, il suffit de nous renseigner sur le domaine(science humaine/naturelle) ou je ne sais pas)

_____

Si vous ne voulez pas aller à l'université, quels sont vos plans pour l'avenir (Vous pouvez choisir plusieurs):

☐ Trouver un travail
☐ Mariage
☐ Rester à la maison
☐ Autres (à préciser)_____
☐ Pas si sure

1

Section A: Vos avis à propos de l'Université

Montrez le degré de vos avis (d'accord ou pas d'accord) en cochant les réponse ci-dessous.

Votre avis concernant aller à l'université	Fortement d'accord	Plutôt d'accord	Plutôt pas d'accord	Fortement pas d'accord
Je crois que le diplôme universitaire me permettra une carrière réussie	☐	☐	☐	☐
Je crois que le diplôme universitaire me permettra une reuissite décente	☐	☐	☐	☐
Je crois que l'expérience des études à l'université peut favoriser le dé veloppement de ma confiance	☐	☐	☐	☐
J'admire les gens qui peuvent aller à l'Université	☐	☐	☐	☐
L'avis de vos parents (ou tuteur) à propos de l'université (Si vous n'habitez pas avec vos parents, veuillez indiquer l'avis de votre autre tuteur légal)	Fortement d'accord	Plutôt d'accord	Plutôt pas d'accord	Fortement pas d'accord
Mes parents croient que l'expérience des études à l'université est très importante	☐	☐	☐	☐
Mes parents m'encouragent toujours à faire mes études à l'université	☐	☐	☐	☐
Mes parents sont les bons exemples pour mes études à l'université	☐	☐	☐	☐

Section B: Quelles sont les raisons qui influencent vos décisions

Montrez le degré de vos avis (d'accord ou pas d'accord) en cochant les réponse ci-dessous.

À propos de votre collège	Fortement d'accord	Plutôt d'accord	Plutôt pas d'accord	Fortement pas d'accord
Je suis satisfait(e) du programme d'études de mon collège	☐	☐	☐	☐
Les connaissances que j'ai appris au collège sont utiles	☐	☐	☐	☐
Mes professeurs m'encouragent toujours à faire mes études à l'université	☐	☐	☐	☐
Mes professeurs m'ont dit que l'expérience des études à l'université est très importante	☐	☐	☐	☐
À propos de l'université	Fortement d'accord	Plutôt d'accord	Plutôt pas d'accord	Fortement pas d'accord
J'ai de nombreux amis/proches membres de la famille qui sont déjà à l'université	☐	☐	☐	☐
Mes amis m'encouragent à aller à l'université	☐	☐	☐	☐

Je pense que j'ai des choix limités pour des filières à l'université	☐	☐	☐	☐
Je m'inquiète des problèmes de sécurité qui peuvent se produire à l'université	☐	☐	☐	☐
D'après l'idée de vous-même	**Fortement d'accord**	**Plutôt d'accord**	**Plutôt pas d'accord**	**Fortement pas d'accord**
Je vais terminer mes études si je me marie	☐	☐	☐	☐
Je pense que les femmes ont le droit de travailler	☐	☐	☐	☐
Je crois que les filles doivent prendre plus de responsabilité de famille	☐	☐	☐	☐
Je crois que les filles sont moins adaptables à l'université	☐	☐	☐	☐
À propos de frais de scolarité	**Fortement d'accord**	**Plutôt d'accord**	**Plutôt pas d'accord**	**Fortement pas d'accord**
Ma famille va payer le frais de scolarité si je vais à l'université	☐	☐	☐	☐
Je devrais avoir un emploi à temps partiel pour couvrir mon coût si je vais à l'université	☐	☐	☐	☐
Je m'inquiète de payer mes frais de scolarité si je vais à l'université	☐	☐	☐	☐
Je ne pourrai pas aller à l'université que si je peux obtenir un soutien financier de l'extérieur de ma famille	☐	☐	☐	☐

Section C: Vous et votre famille

1. **Votre Sexe:** ☐ Male (Masculin) ☐ Femelle (Feminin)
2. **Votre Religion:** ☐ Christianisme ☐ Islam ☐ Religion indigène ☐ Pas de religion ☐ Autre (spécifier)_____
3. **Votre Âge:** _____
4. **Quel est votre contexte familial:**

   ☐ Famille monogame ☐ Famille polygame

5. **Quelle est la profession de votre père(ou tuteur) et de votre mère(ou tutrice):**

   Cette question concernant votre mère et votre père ou les personnes qui sont comme une mère ou un père à vous (par exemple gardiens, beaux-parents, grands-parents). Si vous habitez avec un parent, dites-nous simplement ce qu'ils font. S'ils ne travaillent pas maintenant, veuillez nous parler de leur dernière profession .

a) Quelle est la profession de votre *père(ou tuteur)*? (Par exemple enseignant, assistant de vente, travaille à domicile. Vous pouvez également donner quelques détails sur ce que fait votre père dans son travail)

_____

b) Quelle est la profession de votre *mère(ou tutrice)*? (Par exemple enseignant, assistant de vente, travaille à domicile. Vous pouvez également donner quelques détails sur ce que fait votre mère dans son travail)

_____

6. **Quel est le niveau niveau de formation le plus élevé de votre père(ou tuteur) et de votre mère(ou tutrice)?**

Père:	**Mère:**
☐ Pas de formation formelle	☐ Pas de formation formelle
☐ Formation primaire	☐ Formation primaire
☐ Formation secondaire	☐ Formation secondaire
☐ Formation universitaire	☐ Formation universitaire
☐ Je ne sais pas	☐ Je ne sais pas

7. **Avez-vous des frères / sœurs dans votre famille?**
   - ☐ Je suis le seul enfant de ma famille, passez à la *question 8*
   - ☐ J'ai un/une/des frère(s)/sœur(s), veuillez indiquer combien (le nombre) ci-dessous

     Combien de grand frères avez-vous _____
     Combien de grande sœur avez-vous _____
     Combien de petit frères avez-vous _____
     Combien de petite sœur avez-vous _____

     7a. Avez-vous des frères qui font ou ont fait leurs études à l'université?
     - ☐ Oui, veuillez indiquer combien _____
     - ☐ Non

     7b. Avez-vous des sœurs qui font ou ont fait leurs études à l'université?
     - ☐ Oui, veuillez indiquer combien _____
     - ☐ Non

8. **Vous avez eu le PROBATOIRE avec quelle moyenne?**

   _____

9. **Quelle est votre série maintenant?**

   _____

Ya-t-il d'autres chose qui influencent votre décision après le Baccalauréat? Veuillez les décrire ci-dessous.

_____

_____

Merci beaucoup de votre coopération !

Appendix 3 - Interview schedule

Family

1. Could you introduce ***yourself and your family***?

What do your family members do, and describe/tell one day of your family life ***in the family***
What is your and your siblings life at home like? What do they do, examples …
How about outside the family, what are their jobs, and why they do these jobs, how do you think about these jobs, will you do that ***job***? (What do you think about the roles of male and female)

You

2. What's your plan for **future (for example ….)**, why?

What's your family's opinion about your plan, what do your siblings think about your plans?

3. Do you think about getting married sometime in the future? When do you want to get ***married***?

4. Why do you want to / don't want to go to ***university***?

5. What do you think might ***stop*** you from going to university?

For example- Economic
Could you give me some example? Specially what kind of barriers

6. How do you think you can deal with that / those barrier(s)?

Schools

7. How do you think of university? ----Major, tuition fee, safety problems

8. How do you like your high school? -----Teacher, subject, classmates

Opinion

1. Do you think girls are treated differently in Cameroon, and why
   - In the family
   - In the society
   - Can you give me some examples that you think they are treated equally or differently

2. What your hopes and fares to go to university?/ If you don't want to go, what are your hopes and fares for the future
   - Job & Life

Appendix 4 - Ethical authorisation letter from Cameroon

REPUBLIQUE DU CAMEROUN
Paix – Travail – Patrie
****
MINISTERE DES ENSEIGNEMENTS SECONDAIRES
****
DELEGATION REGIONALE DU CENTRE
****
BP 5281 YAOUNDE-NLONGKAK-
Tél. / Fax 222 23 51 87 / 222 22 95 07
Courriel : drescentre@yahoo.fr

REPUBLIC OF CAMEROON
Peace – Work – Fatherland
****
MINISTRY OF SECONDARY EDUCATION
****
CENTRE REGIONAL DELEGATION
****
BP 5281 YAOUNDE-NLONGKAK-
Tél. / Fax 222 23 51 87 / 222 22 95 07
e-mail : drescentre@yahoo.fr

Yaoundé, le 07 DEC 2016

N° 823 /16/AR/MINESEC/DRES-CE

Le Délégué Régional
A
Mle TONGTONG ZHAO
PhD candidate
University of Leicester, UK
Tél : +4407553767080/+237 651051554
E-mail : 283248542@qq.com

REF : V/Lettre du 29/11/2016 (Demande d'autorisation de Recherche))
Objet : Accusé de réception.

Mademoiselle,

J'ai l'honneur d'accuser réception de votre correspondance citée en référence.

Y faisant suite, je marque mon accord à votre demande et vous invite à prendre attache avec les Chefs d'établissements sollicités.

Je vous prie d'agréer, Mademoiselle, l'expression de ma haute considération.

Ampliation :
- Gouv-CE
- DDES
- Archives/Chrono

Le Délégué Régional

Mme Ndok Anne Marie Francine
PLET / Hors Echelle

Appendix 5 - Coding of the occupations according to the ISCO-08 major groups

ISCO-08 major groups	Skill level
1 Managers	Diplomat, Principal, Director, Manager, Entrepreneur, Regional Delegate, Minister, Mayor, Police commissioner, State Controller, Chancellor, Senator
2 Professionals	Accountant, Agronomist, Architect, Anaesthetist, Artist, Botanist, Chemist, Civil engineer, Computer engineer, Dentist, Doctor, Economist, Engineer, Environmentalist, Geographer, Journalist, Judge, Judicial consultant, Lawyer, Lecturer, Musician, Ophthalmologist, Pharmacist, Political scientists, Psychologist, Radiologist, Researcher, Statistician, Teacher, Translator, Religious professionals priest, Pastor. Librarian, Civil administrator
3 Technicians and Associate Professionals	Administrative co-operator, Agent (of a state), Cadre, Civil servant, Commercial agent, Contractor, Counsellor, Consultant, Custom officer, Commercial sales representatives, Engineer in forestry, Engineer of telecommunications, Footballer, Government worker, Inspector, Instructor, Magistrate, National assemble, Nurse, Police inspector, Social assistant, Sports man/sports worker, Tax inspector, Technician, Vet assistant, Decorator, Monitor, Professional trainer, Paramedical delegate, Lab attendant, Optician
4 Clerical Support Workers	Clerk, Banker, Secretary general, Officer, Tax collector, Customer services clerk, Hotelkeeper, Documentarist, Receptionist, Treasure, Poster
5 Services and Sales Workers	Business man, Salesman, Army (police, policeman, police officer), Hairdresser, Seller, Chief of security in ministry, Stylist, Security guard, Firefighter, Sale assistant, Dressmaker, Seamstress, Cashier, Waiter, Babysitter, Hawker, Bartender, Cooker, Tour guide
6 Skilled Agricultural Forestry and Fishery Workers	Skilled Agricultural Worker/agriculturalist, Gardener, Farmer
7 Craft and Related Trades Workers	Electrician, Bricklayer, Mechanic, Tailor, Carpenter, Baker, Welder, Builder, Sculptor, Shoemaker, Blocks moulder, Plumber, Planer, Cabinetmaker
8 Plant and Machine Operators and Assemblers	Driver, Brewer, Seer, Forester, Taxi driver prospector
9 Elementary Occupations/House help	House help
0 Armed Forces Occupations	Colonel, Commander, Army, Military, Solider
10 Jobless/Retired	Jobless/retired/of late/ no father

Note: If students didn't fill in the job and education at the same time, will be treated as -999= missing data

Appendix 6 - Descriptions of schools

School 1 - VH This was a private francophone school located in the south west of central Yaoundé. This school had both primary and secondary sections, which were separated into two buildings. The buildings in this school looked new and were painted a pure light-yellow colour with some cartoon pictures painted on the wall. The primary section building comprised two floors, while the secondary section was a four-floor/story building. This was a large school for the area, but not as large as some schools in the centre of Yaoundé. The classrooms were clean and tidy with bright glass windows. There were three terminal classes (final year) in this school. I collected 116 questionnaires from this school in total. Among these students, the majority religion was Christianity, with various minority religious groups including Islam, Jehovah's Witnesses, Buddhism and Deism. Indeed, this was the only school that included Deists among the 14 schools. With regards to their parents' main occupations, around one-third of their parents, both fathers and mothers, had professional occupations. A higher proportion of around 60% of the students had fathers who had received higher education, and 44% of mothers who had received higher education. Hence, this was a comparatively affluent school where the parents generally had high levels of education.

School 2 - NE This was a public francophone school with a large number of students. It was located in central Yaoundé, near a public university. This school had two campuses located opposite to each other on two sides of a main road. The school buildings were single storey detached buildings with natural light passing through the cement window holes. The playground was purely mud. This kind of school setup (e.g., mud playground, cement window) was found to be quite common among public schools. All the final year secondary classes were located in the smaller campus, while the administrative offices and principal's office were all on the other campus. I administrated 180 questionnaires to three final year classes, including art and science classes. There were slightly more girls than boys in the sample. Around a quarter of the students came from polygamous families, the third

highest in this regard amongst all 14 schools. Up to about one third of the students indicated their mothers' (or female guardians') main occupation to be home helps. This means that the majority of students in this school had mothers with no occupation or just do housework. It was interesting to find out the proportions of fathers (or male guardians) who had received a higher education and a secondary education were the same, with both at 33%, whereas for mothers (or female guardians), the majority had were educated to the secondary education level. Therefore, according to the parents' education levels, this was a relatively poor school.

School 3 - HS This was a private Anglophone school in the central area of the capital city. The school was medium-sized compared with the other schools in the sample. During my several visits to this school, I met a number of students who came from the Anglophone province of Bamenda (capital of the Northwest Region - English speaking area), because a strike was going on in Bamenda and all the schools were shut down. Some families, who could afford to or had relatives in Yaoundé sent their children to the Anglophone school in Yaoundé. In addition to this group of students, it was quite common to find students from Anglophone provinces in this school. The campus of this school was small, with a three-floor building, and there were many classes in this school from the primary school to secondary school levels, so it was a little bit narrow and dark in the classrooms. The uniform of this school was black and white, and looked more western in style compared with the uniforms of the public schools. The school uniform policy was very strict; for example, on Monday and Friday, all students were required to dress up, including ties, waistcoats and black school shoes, or otherwise they were not allowed to get into school. On other days, they could attend without ties and waistcoats. Christianity was the majority religion of this school (98%), which was also apparent from the school motto: 'the fear of lord is the beginning of future'. Most of the students' fathers had professional occupations (30%). Among their mothers, the majority occupations were service and sale worker (29%) and professional occupations (26%). In terms of parents' levels of education, there were no students whose parents had not received formal

schooling, and around half of their parents (both mothers and fathers) had received some form of higher education.

School 4 – DE This was a public bilingual school located in the west of Yaoundé, at around 4 km from central Yaoundé. This school had a large campus and contained classes ranging from kindergarten to secondary school. The classrooms were large enough for over 60 students. The school was clean and tidy with large trees on the campus, but the playground was bare earth. The day I visited it had rained heavily, and the playground was therefore extremely muddy. Similar to the majority of public schools, classrooms were a bit gloomy, lit only with natural light. Most classes were francophone, so I collected 255 questionnaires in the Francophone section and 161 from the Anglophone section. The top two occupation types for their fathers were professional occupations and service and sales occupations at 28% and 25%, respectively. The majority of their mothers were undertaking services and sales occupations. In terms of their parents' levels of education, approximately half of their fathers had received higher education while secondary education was the most common level of education amongst their mothers.

School 5 – MB This was a public bilingual school located in the far east of Yaoundé. There were very few Anglophone students, even though this was a bilingual school. 221 questionnaires were collected at this school, only nine of which were from the Anglophone section. This was due to the overall lower number of Anglophone students in this school, but also because I visited the school during the exam period for the Anglophone students. Therefore, only a few of the Anglophone students were actually available to take part in the questionnaire survey. The facilities in this school were similar with other public schools: a large mud playground, large classrooms, simple wooden tables and chairs. Professional occupations and services and sales worker were the major occupation types amongst their fathers, whereas for the mothers, services and sales work and home helping were the more common

occupations. With regards to the levels of parental education, it was mostly fathers who had received higher education, whilst the majority of mothers had received secondary education.

School 6 – DC This was the largest public bilingual school in central Yaoundé. This school was located close to a university and was often used as an exam centre for numerous national exams. This school was built at the foot of a hill. Secondary classrooms were located on the hillside with an entrance to it, and the primary section was located at the foot of the hill with a medium-sized mud playground and main gate to the school. The view from the secondary section building was impressive, with a small forest outside the school, but few trees grew on the campus itself. The classrooms used for final year students were not as large as those at other public schools, with around 30 to 40 students in each classroom. There were more females than males in both the Anglophone and Francophone samples I selected. Christian was still the dominant religious group, accounting for 90% of all students. It was also interesting to find that the top two occupation types amongst the students' fathers were professional occupations and services and sales occupations, both at 21%.

School 7 - BF This school was a small-scale private bilingual school located in the far east of Yaoundé. Whilst it was bilingual school, only Francophone students were found in the final year classes. This school could only be approached by motorbike or on foot, and the school buildings were outstanding in that area. The secondary and primary sections of the school had separate entrances and campuses, but they were joined at a wall. The secondary section campus had only one two-floor building and it was smaller than that of the primary section. 22 final year Francophone students were present in the school on the day I visited and took part in the questionnaire survey. In contrast to some of the other schools considered, the fathers' main occupation was services and sales in this school, while home helping was their mothers' most common occupation. It was surprising to note that

majority of these students (47%) indicated they did not know their fathers' levels of education; for the mothers' levels of education, the same percent (35%) of the students stated their mothers' level of education as either secondary level or that they did not know. It seemed students from this school came from a relatively poor background and students were not as familiar with their parents' levels of education or occupations compared to students from the other sampled schools.

School 8 - HN This was a small public school in a village that was a considerable distance from central Yaoundé. It was located in a small village where only a few people were living. The infrastructure was poor in that village and, perhaps unsurprisingly, was also poor in the school. There were 21 students in final year class in total, all of whom were in the Francophone section. However, students could not be present in school every day for various reasons (such as carrying out housework, farm work, transport issues, illness, etc.). Therefore, only 11 questionnaires were collected from this school. Among the participants, six out of the 11 participants were male students, where the average age of the students in this school was the oldest compared to other schools at approximately 21 years old. This school had the second-largest proportion of polygamous families among the schools sampled, at 36%. All the participants were Christian, and the majority of their fathers (60%) were skilled agricultural, forestry and fishery workers while home helping was the most common occupation amongst their mothers. Around three-quarters of their parents (both fathers and mothers) had received secondary education.

School 9 - TG This was a public Francophone school located in a Muslim-dominated area. There was a market and a mosque near the school. This school was relatively large amongst those sampled, and indeed the secondary school classrooms were also large with around 50 to 70 students in each classroom. Only one final year class of students was invited to take part in the questionnaire survey due to an examination being in progress at the time I

visited the school, in which there were slightly more boys than girls. 15% of the students were Muslim, which was the largest proportion among all the schools sampled in Yaoundé, though less than that of the school in Maroua. The rest of the students were all Christian, and no other religious group could be found amongst the students in this school. Similar to some of the other schools, professional occupations dominated the fathers' occupation types, while house-keeping was the primary occupation amongst mothers. The highest proportions of fathers' and mothers' levels of education were higher education (39%) and secondary education (53%), respectively.

School 10 - YD This was the largest public bilingual school in Yaoundé, which was located in the east of Yaoundé, about half an hour's drive from the city centre. The school's campus was also the largest amongst those considered. There were many small gardens and green trees all over the campus, which made the school look tranquil and tidy. Terraced one-floor buildings were distributed across the campus according to grade. The equipment available in this school was slightly better than other public schools, classrooms had bright glass windows and there was also a dedicated laboratory. All the senior classes were placed at the back part of the school, and the classrooms were large enough for up to 100 students. Similarly, there were more girls than boys in both the Anglophone and Francophone sections. It was the only school that had Baptist and Bahá'í Faith religions among the sampled schools. It was worth noting that the average GCE O/L and *Probatoire* grades gained by the students in this school was second-highest among the 14 schools considered. The proportion of students' fathers with professional and sale service occupations were almost identical, with both at around one-quarter. The most common occupation amongst the mothers was home helping.

School 11 - SE This was a private bilingual school located in the far east of Yaoundé and was relatively small-sized. The school was located at the back of a small village, and was difficult to approach. However, the school

buildings were outstanding compared to the substandard housing nearby. The campus was set out in a square with school buildings surrounding it. Within the 34 students from the Francophone section, the number of boys and girls were equally distributed, whilst more girls than boys were found in the Anglophone section. It was interesting to find out that in this particular distant private school, a larger proportion of girls had remained to do their final year of secondary school. The majority of fathers (30%) were employed in services and sales work, in contrast to the majority of the other schools in the survey which were dominated by professional work, the majority of whom had received a secondary education. With regards to their mothers' occupations and levels of education, around 45% with mothers employed in housekeeping and having a secondary level of education. In terms of the GCE O/L and *Probatoire* grades, both were lowest among the 14 schools.

School 12 - MR This was a public bilingual school in Maroua, the capital city, in the Far North province. I was unable to gain access to this school by myself, so the questionnaires were collected by one of my friends who was a volunteer Chinese teacher in Maroua. This school was chosen for reasons of convenience, and was one of the largest bilingual schools built by the government. The whole Far North province is a Muslim-dominated area, therefore it was not surprising to find that 59% of the students were Muslim, while Christians made up only 37% of the student. With regards to the gender distribution, there were almost the same number of boys and girls in the sample. Up to 40% of the students were in polygamous families, which was the highest among the 14 schools. In contrast to the other schools, however, the major occupation type of the fathers was services and sales works, though the number in the armed forces, at 13%, was higher than any of the other schools as well. Up to 72% of these students' mothers were housekeepers, about one-quarter of whom had not had any formal schooling. These figures were remarkably higher than the other schools in this survey.

School 13 – LG This was a private bilingual school located in an affluent district in the centre of Yaoundé. It was an international school with a Chinese language class. The buildings in this school were brand new, with a concrete outdoor playground and ceramic tiles within the buildings. There was also a large ritual hall for meetings and performances. A swimming pool and basketball court were also provided in the school. The canteen was well decorated with modern chair and table designs. Equipment in this school was considerably better than in the other schools, which actually gave me the expression that I was not in Cameroon once I entered the campus. The uniform had an international and smart appearance; it was a dark navy and white-coloured suit, with ties and sweater waistcoats. I visited this school twice to administer the questionnaire survey. However, given the Francophone section classes were between examinations on each of these occasions, only five Francophone students ultimately took part in the survey. Another 33 questionnaires were collected from the Anglophone section. There was only one girl amongst the five participants from the Francophone section, whilst 21 out of 33 were girls in the Anglophone section. The average age of the students was the youngest in this instance compared with other schools, which was 17 years old. In terms of percentage of students who had no religion, the highest proportion (8%) was also found in this school. The percentage of fathers in professional occupations was second highest amongst the 14 schools. Another remarkable figure was the typical mother's occupation was different to that seen in other schools, being professional occupations, with only 17% of mothers being housekeepers. Over half of these parents had obtained higher education, and the percentage of mothers having pursued higher education was also the highest compare with the other schools.

School 14 - QW This was a private Anglophonic school located behind a large-scale public school in the far east of Yaoundé. The school was also built in a valley, which was difficult to approach. According to the principal, the school had moved to this location only a couple of years previously. Similar to some of the other private schools surveyed, the uniform in this school also

looked smarter than those in the public schools. It was interesting to find that the number of female students in the samples was about twice that of the male students. Furthermore, the average age of the sample in this school was 17 years old. The proportion of fathers undertaking professional occupations was the highest among the 14 schools. The dominant occupation type amongst students' mothers was similar to other schools, namely services and sales work, at around 25%. Regarding the parents' levels of education, all fathers had received at least a secondary education, with the highest percentage (68%) receiving such being found in this school; over half of the mothers had also obtained a higher education. It was also worth noting that the GCE O/L and *Probatoire* grades were among top three of these 14 schools.

Appendix 7 - Relationships between background variables and attitudinal variables

7-1 The relationship between religion and attitudinal variables

Themes	Religion	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	Christian	1600	22.07	4.427	0.03
	Non-Christian	203	21.92	4.501	
Attitudes towards tuition fees	Christian	1656	10.63	2.845	0.05
	Non-Christian	217	10.76	2.768	
Attitudes towards secondary school	Christian	1688	7.02	1.202	0.21
	Non-Christian	222	6.76	1.354	
Attitudes towards university factors	Christian	1675	4.29	1.675	0.13
	Non-Christian	221	4.08	1.705	
Attitudes towards gender stereotypes	Christian	1664	12.45	2.03	0.41
	Non-Christian	220	11.6	2.336	
Attitudes towards significant others	Christian	1683	12.43	2.801	0.04
	Non-Christian	224	12.54	2.55	

7-2 The relationship between family type and attitudinal variables

Themes	Family type	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	Monogamous	1443	22.14	4.355	0.06
	Polygamous	323	21.88	4.681	
Attitudes towards tuition fees	Monogamous	1491	10.73	2.829	0.17
	Polygamous	338	10.26	2.904	
Attitudes towards secondary school	Monogamous	1520	7.01	1.19	0.06
	Polygamous	346	6.94	1.338	
Attitudes towards university factors	Monogamous	1509	4.28	1.666	0.07
	Polygamous	343	4.17	1.728	
Attitudes towards gender stereotypes	Monogamous	1498	12.41	2.09	0.17
	Polygamous	341	12.06	2.068	
Attitudes towards significant others	Monogamous	1514	12.45	2.787	0.01
	Polygamous	349	12.47	2.634	

7-3 The relationship between father's occupation and attitudinal variables

Themes	Father's Occupation	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	Professional	753	22.5	4.387	0.16
	Labourer	744	21.81	4.284	
Attitudes towards tuition fees	Professional	780	11.07	2.8	0.27
	Labourer	770	10.32	2.861	
Attitudes towards secondary school	Professional	787	7.02	1.14	0.02
	Labourer	786	7	1.208	
Attitudes towards university factors	Professional	784	4.4	1.64	0.17
	Labourer	780	4.12	1.671	
Attitudes towards gender stereotypes	Professional	780	12.44	2.063	0.04
	Labourer	779	12.35	2.082	
Attitudes towards significant others	Professional	789	12.58	2.706	0.06
	Labourer	787	12.43	2.767	

7-4 The relationship between number of siblings and attitudinal variables

Themes	Number of siblings	Total (N)	Mean	Std. D	Effect Size
Personal and parental attitudes toward HE	Sibling <=4	880	22.09	4.438	0.01
	Sibling5+	895	22.05	4.420	
Attitudes towards tuition fees	Sibling <=4	917	10.81	2.843	0.11
	Sibling5+	925	10.50	2.809	
Attitudes towards secondary school	Sibling <=4	935	6.99	1.199	0.01
	Sibling5+	942	7.00	1.236	
Attitudes towards university factors	Sibling <=4	932	4.34	1.674	0.09
	Sibling5+	931	4.19	1.674	
Attitudes towards gender stereotypes	Sibling <=4	918	12.47	2.056	0.12
	Sibling5+	936	12.22	2.098	
Attitudes towards significant others	Sibling <=4	925	12.38	2.832	0.06
	Sibling5+	949	12.55	2.702	

Appendix 8 - Comparison of correlations with outcome variable

8-1 Logistic regression model for subject choice

Variables	Correlation with outcome (dependent) variable	Variables	Correlation with outcome (dependent) variable
FACTOR 1: Parents attitudes (PA)		FACTOR 6: Significant others (SO)	
YO4_Sum	**-.100****	SO 3	-.052
PO3_Sum	-.078**	SO 4	-.041
YOPO_SUM	-.095**	**SO 2**	**-.122****
A-R factor YOPO	-.089**	SO 1	-.005
YO 1	-.089**	A-R factor SO	-.072*
YO 2	-.047	SO_SUM	-.073**
YO 3	-.079**		
YO 4	-.089**		
PO 1	-.048		
PO 2	-.049		
PO 3	-.090**		
FACTOR 2: Tuition fees (TF)		FACTOR 5: Gender stereotypes (GS)	
TF 3	-.070*	GS 4	-.030
TF 4	-.036	GS 1	.087**
TF 1	**-.107****	GS 3	-.043
TF 2	-.001	**GS 2**	**-.129****
A-R factor TF	-.093**	A-R factor GS	-.012
TF _SUM	-.080**	GS_SUM	-.016
FACTOR 3: Subject and safety in University (UNI)		FACTOR 4: Secondary school (SC)	
UNI 4	.033	SC 2	.006
UNI 3	**.087****	SC 1	.025
A-R factor UNI	.086**	A-R factor SC	.017
UNI_SUM	.075**	SC_SUM	.023

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

8-2 Multinomial logistic regression model for HEI choices

Variables	Correlation with outcome (dependent) variable	Variables	Correlation with outcome (dependent) variable
FACTOR 1: Parents attitudes (PA)		FACTOR 6: Significant others (SO)	
YO4_Sum	-.143**	SO 3	-.108**
PO3_Sum	-.168**	SO 4	-.111**
YOPO_SUM	-.168**	SO 2	-.132**
A-R factor YOPO	**-.177****	SO 1	-.014
YO 1	-.116**	A-R factor SO	-.083**
YO 2	-.045	**SO_SUM**	**-.136****
YO 3	-.161**		
YO 4	-.106**		
PO 1	-.132**		
PO 2	-.167**		
PO 3	-.151**		
FACTOR 2: Tuition fees (TF)		FACTOR 5: Gender stereotype (GS)	
TF 3	-.026	**GS 4**	**-.065****
TF 4	-.029	GS 1	.014
TF 1	**-.060***	GS 3	-.047
TF 2	.032	GS 2	.046
A-R factor TF	-.012	A-R factor GS	-.030
TF _SUM	-.031	GS_SUM	-.037
FACTOR 3: Major and safety in University (UNI)		FACTOR 4: Secondary school (SC)	
UNI 4	-.010	SC 2	-.029
UNI 3	-.026	**SC 1**	**-.088****
A-R factor UNI	-.034	A-R factor SC	-.038
UNI_SUM	.010	SC_SUM	-.077**

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 9 - Multicollinearity for regression models

9-1 Multicollinearity for logistic regression – subject choice

	Sig.	Collinearity Statistics	
		Tolerance	VIF
(Constant)	.783		
Gender	.009	.868	1.152
Age	.237	.812	1.231
AA	.174	.840	1.190
Father's education	.573	.608	1.645
Mother's education	.344	.563	1.777
Father's occupation	.255	.661	1.513
Mother's occupation	.127	.586	1.706
Number of siblings	.957	.766	1.305
Sibling in University	.088	.786	1.273
Subject stream	.000	.819	1.220
School language	.000	.732	1.367
School type	.011	.890	1.124
YO4_Sum	.094	.785	1.273
SO 2	.130	.837	1.194
UNI 3	.494	.919	1.088
GS 2	.661	.864	1.157
TF 1	.668	.920	1.087

9-2 Multicollinearity for multinomial logistic regression – HEI choice

	Sig.	Collinearity Statistics	
		Tolerance	VIF
(Constant)	.000		
Gender	.083	.885	1.130
Age	.005	.825	1.213
AA	.849	.853	1.172
Father's education	.871	.602	1.662
Mother's education	.280	.543	1.842
Father's occupation	.832	.664	1.505
Mother's occupation	.062	.591	1.693
Number of sibling	.025	.769	1.300
Sibling in University	.222	.768	1.303
Subject stream	.000	.825	1.212
School language	.004	.646	1.548
School type	.330	.896	1.116
A-R factor YOPO	.016	.703	1.422
TF 1	.635	.889	1.125
SC 1	.853	.813	1.230
GS 4	.091	.875	1.143
SO_SUM	.671	.792	1.263

Appendix 10 - Multinomial regression odds ratios for students' preferred HEIs (N = 866) (95% CI in parentheses)

	Public university Versus Professional schools	**Private university Versus Professional schools**	**Study abroad Versus Professional schools**
Personal predictors			
Gender	**0.53 (0.35, 0.82)**	0.99 (0.61, 1.63)	**0.52 (0.34, 0.82)**
Age	**1.14 (1.00, 1.29)**	**1.14 (0.99, 1.31)**	0.96 (0.83, 1.08)
AA	0.98 (0.63, 1.53)	0.89 (0.54, 1.47)	0.74 (0.47, 1.16)
Family predictors			
Father education	0.98 (0.59, 1.62)	0.93 (0.52, 1.65)	0.79 (0.47, 1.33)
Mother education	**1.43 (0.79, 2.59)**	1.14 (0.59, 2.21)	1.24 (0.68, 2.26)
Father occupation	0.97 (0.61, 1.57)	1.07 (0.62, 1.86)	1.05 (0.64, 1.72)
Mother occupation	**0.68 (0.39, 1.19)**	0.87 (0.46, 1.64)	0.97 (0.55, 1.71)
Institutional predictors			
Subject stream	**3.03 (1.95, 4.72)**	**1.49 (0.90, 2.47)**	**1.43 (0.90, 2.28)**
School language	**0.26 (0.15, 0.46)**	**0.18 (0.09, 0.33)**	**0.16 (0.09, 0.27)**
School type	**0.54 (0.28, 1.03)**	**0.19 (0.10, 0.36)**	**0.32 (0.17, 0.60)**
Attitudinal predictors			
Personal and parental attitudes	**1.49 (1.16, 1.91)**	**1.78 (1.32, 2.39)**	**2.03 (1.55, 2.66)**
Tuition fees	0.92 (0.72, 1.18)	1.12 (0.83, 1.50)	0.91 (0.70, 1.18)
Secondary school	1.00 (0.79, 1.29)	0.92 (0.69, 1.23)	0.89 (0.68, 1.15)
Gender stereotypes	1.17 (0.95, 1.44)	0.97 (0.76, 1.23)	1.01 (0.82, 1.26)
Significant others	1.00 (0.92, 1.09)	0.94 (0.86, 1.03)	0.97 (0.89, 1.05)

Appendix 11 - Profile of interviewees

School	Name	Gender	Age	Subject	Father	Mother	Siblings	Future plan	Family situation	Follow up
HS	Christian	Male	18	A	Businessman	Housewife	5 - one older sister - one younger sister - three younger brothers	University of Yaoundé I (Public university)	Living in Yaoundé with his uncle, other family members in Bafoussam	Public university
	Eason	Male	20	A	Farmer	Housewife	8 - seven older brothers - one older sister	Public university	Living in Yaoundé with his sister	No schooling
	Truth	Male	18	A	Car mechanic	Chef	3 - one older sister - two younger sisters	Professional school/ study abroad/private university	Living in Yaoundé with his family	SOA (public university)
	Manga	Female	18	A	Teacher (cousin)	Housewife	2 – two younger sisters (from her cousin)	Father decide	Parents divorced, living in Yaoundé with her cousin and his wife	
	Harry	Male	19	A	Passed away	Housewife	5 - four older brothers - one older sister	Professional school, if not public university	Francophone family from Yaoundé	
	Tim	Male	17	A	Work abroad	Retailer	4 - one older sister - one younger sister - one younger brother	Football, if not professional school	Polygamous family from Yaoundé, living with his mother	ESSTIC (public professional school)
	Eve	Female	18	A	Secondary school teacher	Secondary school teacher	5 - three older sisters - two older brothers	Study abroad/ professional school	Polygamous family from Yaoundé	CITEC (private professional school)
	Sara	Female	18	A	Small business (brother)	N/A	4 - two older brother - one older sister - one younger brother	Anglophone university	Living with her brother in Yaoundé	

	Joy	Female	18	S	Retired soldier	Works in a company	4 - four older sisters	Professional school	Family came from Anglophone region, living in Yaoundé	University Yaoundé I (public university)
	Elena	Female	18	S	Agent in the army	Secondary school teacher	4 - four older brothers - three younger brothers	Professional school	Family came from Anglophone region, living in Yaoundé	
	Oriana	Female	18	S	Work in national assembly (uncle)	Housewife	5 - one older brother - four older sisters	Private university	Living with her sister and sister's husband in Yaoundé, she called her sister's husband 'uncle'	
YD	Paola	Female	16	S	Civil servant	Sale assistant	4 - one older brother - one younger brother - two younger sisters	Find money, university later	Francophone family from Yaoundé	
	Sandy	Female	16	S		Small business	4 - one older sister - two older brothers - one younger brother	Study abroad, if not professional school	Her parents were separated (not divorced, because they didn't get married), she was living with her mother	
	Ella	Female	18	S	Journalist (stepfather)	Housewife	3 - two younger sisters - one younger brother	Public university	Francophone family, living with mother and stepfather	
	Ben	Male	19	S	Finance	Doctor	5 - four older brothers - one older sister	Football, if not professional school	Francophone family from Yaoundé	
	Maren	Female	18	S	Medical doctor (aunt's husband)	Medical doctor (aunt)	2 - one younger brother - one younger sister	Professional school	Living with her aunt and aunt's husband, biological parents passed away.	

	Mandy	Female	18	S	Bricklayer	Bricklayer	10 - two older sisters - five older brothers - two younger brothers - one younger sister	Find a job/ Private university	Francophone family from Yaoundé	No schooling, got married
	Lois	Female	17	S	Retired	Sale in market	6 - four older brothers - one older sister - one younger sister	Professional school	From polygamous and Francophone family, living in Yaoundé with her mother	University of Yaoundé I (public university)
	Ander	Male	19	A	Late civil servant	Housewife	3 - two older brothers - one older sister	Public university	Living on the compensatory money from his father	Public university
	Kaden	Male	22	S	Farmer	Farmer	10 - one older brother - one older sister - five younger sisters - three younger brothers	Football/ find a job	Francophone family, living in Yaoundé with his old sister	University of Yaoundé I (public university)
	Yokan	Male	17	S	(not living with father)	Accountant (aunt)	3 - two younger brothers - one younger sister	Public university, mentioned study abroad	Francophone family, living with his aunt	No schooling
	Simon	Male	18	S	Late engineer	Retailer	5 - two older brothers - two younger brothers - one younger sister	Study abroad, if not professional school	Francophone family, two older brothers studied abroad	Public university
	Maia	Female	17	A	Medical doctor	Teacher	4 - one older sister - two older brothers - one younger brother	Professional school, mentioned study abroad	Francophone family from Yaoundé	Public university
	Layyah	Female	17	A	Don’t know	Translator	4 - one older sister - one younger sister - two younger brothers	Professional school, mentioned study abroad	Father from Anglophone region and mother from Francophone region	
	Johan	Male	18	S	Police commissioner	Housewife	5 - three older sisters - two older brothers	Public university, professional school	Francophone family from Yaoundé	Private university