Adjustment to Higher Education Amongst Alumni of a UK College on the Basis of the Accuracy of their Predicted A Level Grades

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Abstract

There is a degree of consensus in the literature, that university retention rates in the United Kingdom (UK) are largely dependent on the degree of adjustment by students, to university life and study. Various factors have been identified as being responsible for how students adjust during their higher education study in the UK; including institutional characteristics, personal attributes of learners, students' relationship with staff, amongst others. This study draws on Tinto's (1993) Student Integration Theory as a framework model to explore the accuracy of predicted A level grades, as a student's pre-entry attribute, in regards to adjustment to university. For the purpose of this study, inaccurately predicted grades are defined as grades that were over or under predicted by at least one grade.

A quantitative study, using quasi-experimental analysis of Covariance (ANCOVA) and a one-tailed t-test, was undertaken to compare a sample of two independent groups of university students, who are alumni of a UK college. The sample of 40 participants, currently in the first or second year of higher education, comprised: 20 participants whose A level grades were accurately predicted and 20 participants whose A level grades were inaccurately predicted. Data for the different indices of adjustment to university were collected using the four subscales and the full scale of the Student Adaptation to College Questionnaire (SACQ™). Questionnaires from the 40 participants were then analysed using ANCOVA while controlling for differences in year of study.

The results of this study indicated that there is a significant statistical difference in the adjustment subscales and overall adjustment scales between the participants whose A level grades were accurately predicted, and those whose A level grades were not accurately predicted. The level of significance used in all statistical inferences was 0.05. The participants whose A level grades were accurately predicted showed better academic, social, personal-emotional, goal commitment-institutional, and overall adjustments than the participants whose A level grades were inaccurately predicted.

Even though the participants were alumni of a single UK independent A level college, they were studying in a broad variety of UK universities at the time of this study. The findings of this study will, therefore, be of broad interest, as they highlight a key role for accuracy of predicted A level grades in any intervention programme to improve adjustment, and subsequently retention, in UK higher education. These findings will also be of interest to the secondary education sector, as they contribute to the debate on the accuracy and implications of A Level predictions.

Acknowledgement

Keywords

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Chapter 1: Introduction

This study is an exploratory investigation of predicted A level grades in relation to adjustment to higher education amongst alumni of a UK college. In this thesis, I addressed a gap in research in regards to the accuracy of predicted A level grades, as a pre-entry attribute, in investigating and understanding adjustment to higher education and subsequently retention in the United Kingdom. In this chapter, I introduced the key concepts and the overall organization of the thesis. This chapter is divided into nine sections. In the first section, I set the background and context of the study. Second, I clarified my role as a researcher and why I was interested in the research within my professional practice. In the third section, I highlighted the research problem. In the fourth section, I stated the research purpose, and then identified the key research questions in the fifth section, so as to begin to establish the theoretical framework for the thesis, as I did in the sixth section. The seventh section was where I described the significance of the study, justifying why it was carried out. I defined the key terms in the study in section eight. Finally, in the last section, I presented an overview or outline of the organization of the thesis.

1.1. Study Background

According to Merrill (2015), and Webb, Wyness, and Cotton (2017), embarking on the journey towards a higher education qualification is a bewildering experience for many students, including substantial life changes and adjustment to a range of demands. Researchers such as Van Rooij et. al. (2018) and Belay Ababu, Belete Yigzaw, Dinku Besene, and Getinet Alemu (2018) have suggested that the extent to which students are capable of effectively adjusting to life at university, might influence their well-being, and whether they continue with their course of study. Weale (2017) found that, 1 in every 10 students, observed at eighteen universities in the United Kingdom, abandoned higher education after spending up to a period of twelve months. It also appears, that 18.5% of students – nearly 73,500 – are estimated to fail in the completion of the course they began, either by graduating with an alternate degree, moving to another higher education institution, or leaving higher education altogether (Weale, 2017). Despite the initiatives and various programmes that have been adopted within the UK higher education sector to improve retention, Alarcon and

Edwards (2013) and Sanders, Daly, and Fitzgerald (2016) have indicated that there is an increasing rate of early depature of students from universities, worrying higher education educational stakeholders.

Van Rooij, Jansen, and Van de Grift (2018) explained that in order for students to complete higher education, they have to be able to cope with challenges and adapt to the demands that generally accompany the transition into the institution. Van Rooij et. al. (2018) asserted that adjustment to the institution is predictive of student retention and that poor adjustments by the students could lead to lower institutional retention rates. Also, Webb et. al. (2017) pointed out that in order for universities to retain more students, they have to channel their efforts towards helping students to adjust to university, by employing strategies that will improve student engagement and attainment.

The view that previous schooling experience of students may contribute to how they adjust to the higher education environment is not a new concept as this was already theorized by Tinto (1975, 1993). Patrick, Schulenberg, and Malley (2016) and Soilemetzidis and Dale (2013), conducted studies that supported the notion that attributes of students before entry into higher education are predictors of their persistence to complete their university education. In the United Kingdom, sixth form and Advanced Level (A level) college students are normally expected to pass A level examinations before entering into higher education as one of the most popular university entry routes (Gill, 2016). Gill 2018) described the A levels, as a UK qualification offered by colleges or sixth form schools, typically attained after two years of study. It is the traditional qualification which institutions of higher education employ to ascertain whether a student is qualified to register onto a degree course. Wyness (2016) explained that students in the United Kingdom apply to universities and get early offers on the basis of their anticipated A level scores, as opposed to their actual results, which are received later. In the application form of Universities and Colleges Admissions Service (UCAS), the organization responsible for processing application into undergraduate degree courses in UK universities, candidates have to select specific courses and the corresponding institutions of higher education where they wish to study. The students' A level teachers then have to specify the anticipated or predicted A

level grades on the UCAS form before the students sit the final examinations (McAlinden & Noyes, 2018). Universities offers are often made based on these predictions. According to Everett and Papageorgiou (2011) and Wyness (2016), the predicted A level grades, more often than not, may differ from the final A level grades. Students may achieve final A level grades below or above their expected grades, which may create an institutional mismatch during the admission process (Wyness, 2016). As a result of the lack of 'fit' that often arises between applicants and universities, due to inaccurately predicted A level grades, I found it necessary to investigate the post admission implications of this in regards to students' adjustment to higher education and retention.

1.2. My Role and Interest as a Practitioner Researcher

The population of this study are the alumni of an A level college in the North West of England. My role in the college is that of the director of the A level programme. This is in addition to my subordinate position as an A level Maths teacher. Apart from the fact that I provide predicted A level Maths grades for our second-year A level students during the UCAS application stage, I am also responsible for ensuring that other teachers take into account internal mock examination grades, AS grades, GCSE grades coupled with their opinions on the students current and projected future academic attainment, so as to provide fair predictions of the final A level grades. On the A level results day, I usually experience first-hand the effect that inaccurately predicted A level grades have on our students. There have been instances where our students have changed courses, moved to other universities, or did not even complete higher education in some rare cases to pursue other interests. This of course may be for various reasons that have already been discussed in the literature, but there was also a possibility that the inaccurately predicted A level grades may have played a role. I have not found any empirical investigation in the literature that has studied the role that accuracy of A level grade predictions may have played in regards to students' adjustment to university. As all participants in the study are no longer at my institution, there was no power influence which could impact on voluntary participation in the study. In my role, part of my assignment is to facilitate the fulfilment of our students' academic potential and their participation in higher education. This was what motivated my interest in researching student

adjustment in higher education and how it may possibly be influenced by the accuracy of predicted A level grades of students when they were in A level college.

1.3. Statement of the Research Problem

Researchers such as Manyanga, Sithole, and Hanson (2017) and Holliman, Martin, and Collie (2018) have studied adjustments to higher education majorly in regards to how student integration is majorly affected by the environmental system of their higher educational institution. Other researchers such as Patrick, Schulenberg, and Malley (2016) and Olbrecht, Romano, and Teigen (2016), have emphasized students' pre-entry attributes over that of the higher education environment in regards to students' adjustment. According to Tinto's (1993) Student Integration Theory, students begin their university studies with a set of entry attributes, expectations, and intentions that affect their commitments to the institution, how they adjust, and potential departure. There is an interplay between students' pre-entry attributes and the higher education institutional characteristics in determining if a student will persist to attaining their aim for being in higher education. In agreement with this, Simpson (2013) identified pre-entry attributes such as age, previous educational qualification, and socioeconomic status as predictors of university retention.

In regards to accuracy of A level grades, there have been investigative studies by researchers such Everett and Papageorgiou (2011) and Wyness (2016), who examined the challenges posed by underpredicted or overpredicted A level grades during the admission process, in regards to students' university destinations and course of study. According to Wyness (2017), Students whose A level grades are underpredicted may have been discouraged from applying to selective universities, and are more likely to end up studying courses in universities for which they are overqualified (i.e., where their A level grades are higher than the university average). On the other hand, students who have their A level grades overpredicted may gain admission to a course in a university for which they are not competent and prepared to handle. Also, Wyness (2016) found that for A level examinations held in the period 2013-2105, nearly one in four (24 percent) of applicants from lower-income backgrounds had been incorrectly predicted, in comparison to a fifth (20 percent) of those from higher-income households. Wyness (2016) argued that this may have led to different admission opportunities

for students based on their socioeconomic status. Wyness (2017) added weight to this, pointing out that, a significant consequence of incorrectly predicted A level grades is that it is further widening the already existing gap between students from advantaged households and those from socially disadvantaged backgrounds in universities.

All these aforementioned studies demonstrated the significance of accuracy of predicted A level grades during the admission process and how it may have unfairly led to a mismatch between a student and their destination course and/or university. Atherton (2018) has suggested that this lack of compatibility between a student and their course or university may be responsible for the relatively lower retention rates in certain UK institutions. Given that the research on accuracy of predicted A level grades illuminated important findings and pointed to some students being exposed to factors that put adjustment at risk, it is conceivable that poor alignment between predicted and actual A level grades may have a role to play in identifying students 'at risk'. However, I was unable to find any studies which directly investigated the interplay between accuracy of predicted A level grades and students' adjustment to UK higher education. Given such, further research was warranted that could examine the students' adjustment to higher education in view of the accuracy of their predicted A level grades, as a pre-entry attribute. This will contribute to the discourse on the problem of retention in UK higher education as pointed out in section 1.1.

1.4. Statement of Research Purpose

The purpose of this research study is to investigate students' adjustments to higher education on the basis of the accuracy of their predicted A level grades. Included in the concept of adjustment, for the purpose of this study, are the following factors: academic, social, personal-emotional, goal commitment-institutional and overall adjustments.

1.5. Research Question and Hypotheses

What are the differences in adjustments between university students who have accurate A level grades predictions, and those who have inaccurate A level grades predictions, while statistically controlling for the differences in the year of study?

(a). What are the differences in academic adjustments between university students who have accurate A level grades predictions, and those who have inaccurate A level grades predictions, while statistically controlling for the differences in the year of study?

Null Hypothesis: There are no significant differences in academic adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in academic adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for differences in year of study.

(b). What are the differences in social adjustments between university students who have accurate A level grades predictions, and those who have inaccurate A level grades predictions, while statistically controlling for the differences in the year of study?

Null Hypothesis: There are no significant differences in social adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in social adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for differences in year of study.

(c). What are the differences in personal-emotional adjustments between university students who have accurate A level grades predictions and the students who have inaccurate A level grades predictions, while statistically controlling for the differences in year of study?

Null Hypothesis: There are no significant differences in personal-emotional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in personal-emotional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

(d). What are the differences in goal commitment-institutional adjustments between university students who have accurate A level predictions and those who do not have accurate A level predictions, while statistically controlling for the differences in year of study?

Null Hypothesis: There are no significant differences in goal commitment-institutional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in goal commitment-institutional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for differences in year of study;

(e). What are the differences in overall adjustments between university students who have accurate A level predictions and those who do not have accurate A level predictions, while statistically controlling for the differences in year of study?

Null Hypothesis: There are no significant differences in overall adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study;

Alternative Hypothesis: There are significant differences in academic adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

1.6. Theoretical Framework of The Study

The underlying theoretical framework guiding the formulation of the research questions, research methodology, sampling, and the data collection methods is that of Tinto's (1993) Student Integration Theory.

Specifically, Tinto (1993) asserted that prior schooling or previous educational experience, as a pre-entry attribute of students in higher education, is a major determinant of their goal commitments, institutional experiences, and adjustment to the institution, which then determines their decision to continue or not. According to Sidelinger, Frisby, and Heisler (2016), the original model of Tinto's (1975) interactionist theory, Tinto (1975) outlined five main categories showing how the interaction between various constructs determines the decision to leave higher education. The key elements are: (i) the personal attributes such as prior schooling and family background of the student before entering the institution of learning; (ii) the student's personal goals and aspirations in relation to the institution; (iii) the students experience and interaction with the institution; (iv) the student's commitments outside the institution; (v) degree to which the student integrates both academically and socially. However, in response to the criticism of Tinto's (1975) model, Tinto developed the newer model of Student Integration Theory in 1993 (Aljohani, 2016). I described this further in section 2.1.4 of the literature review of this thesis clarifying why I chose the more recent Tinto's (1993) model over that of Tinto's (1975) model as the theoretical framework for this thesis.

In Tinto's (1993) Student Integration Theory, the first segment is that of pre-entry attributes which comprise of the elements of family background, skills and abilities, and prior schooling. Although the educational experience within the institution could play a significant role in how the student interacts with the institutional environment, however, pre-entry attributes of the students are the factors that play a substantial role in how they will respond to the challenges within the institution. For example, Rodríguez, Tinajero, and Páramo (2017), identified university entry grades and previous educational experiences as pre-entry attributes that predicted their adjustment to higher education. In this thesis, the degree of alignment or accuracy of predicted A level grades with the final A level grades was considered as a pre-entry attribute within Tinto's (1993) Student Integration Theory. Tinto's (1993) postulation was used as the basis to hypothesize that there will be differences in adjustments to university between students whose A level grades were accurately predicted and students whose A level grades were inaccurately predicted.

1.7. The Significance of the Study

According to Harvey and Szalkowicz (2017), stakeholders in the UK higher education sector such as universities, employers, government agencies and regulatory bodies have become extremely concerned about low retention rates and are trying to reach a consensus on how best to improve it. Pike and Robbins (2019) were of the opinon that retaining students until graduation should be important to a university as it determines the achievement of its mission to teach and prepare students for life beyond the institution. Pike and Robbins (2019) concluded that the decision of non-continuation by students, might reflect an institution's inability to meet students' needs and negligence of the support that should be provided to them. They also pointed out that persistence to graduation is vital for students as it fulfills their expectations to attain anticipated learning aims and, in that way, enhances their likelihood of meeting long-standing career and personal aims. Aina, Baici, Casalone, and Pastore (2018) were of the view that from a socio-economical perspective, students leaving higher education has a huge financial consequence not just for universities, but for the economy of the country as a whole. Aina et. al. (2018) argued that students who did not complete higher education might suffer loss of future earnings and miss out on employment prospects, which may negatively affect the country's productivity as a whole. Douglas, Douglas, McClelland, and Davies (2015) and Woodfield (2014) noted that there have been significant efforts and interests in examining particular predictors that can assist the various stakeholders in understanding how and why students discontinue their higher education study, in order to address the problems posed by low institutional retention rates. Douglas et. al. (2015) and Woodfield (2014) also pointed out that in order for institutions to adopt the most effective collective or individual intervention methods, it is vital for institutions to precisely evaluate those factors that lead to students' withdrawal from higher education before they complete their study.

I, therefore, considered my thesis on accuracy of predicted A level grades as it relates to adjustment of students to higher education neccessary, as it highlights the role of accuracy of predicted A level grades in regards to strategies and intervention programmes to improve adjustment, and subsequently retention in UK higher education. Atherton (2018) and Wyness (2016) have noted that the use of predicted A level grades has

been widely criticized amongst higher education researchers, and by the media, however, this has yet to bring an impactful improvement in the system despite the recent 2015 A level reforms. The findings in this study will of broad interest to secondary schools, universities, and higher education policymakers as they contribute to the debate on A level predictions and its implications, adjustment to higher education and retention.

1.8. Definition of Terms

In this study, an attribute is regarded as any defining characteristic of the student that may be instrinsic to them such as ethnicity, acquired such as skills, and gained such as an academic qualification or experience. Attributes that are intrinsic to the student have been referred to as individual attributes in some parts of the study.

As described by Gill (2016), Advanced Levels (often shortened as A levels) is a two-year final qualification offered by UK schools and colleges which is acceptable as a university entry qualification.

Adjustment to University or Higher Education, as described by Terrazas-Carrillo, Hong, and Pace (2014), is a multi-faceted procedure of collaboration, between a student and the institutional enviroment, in order to synchronize between the needs of the students and the demands of the institution, which may become stronger or weaker over time. The reader should take note that 'adjustment to higher education' is different from 'UCAS Adjustment' as used in this thesis. For the sake of avoidance of doubt, at any point the word 'adjustment' is used in this thesis, it refers to 'adjustment to higher education'

Higher Education [HE] is the learning that takes place at universities and other institutions who award degree and professional qualifications at the post-18 level. In this thesis, the term 'higher education' is meant to strictly refer to university education.

Retention in the United Kingdom "refers to students remaining with one HE [higher education] institution and completing their program of study within a specific time frame (Higher Education Academy, 2011, para.1). Retention rate is the percentage of enrolled university students who stayed until graduation.

College can be described as the optional UK further education (FE) system that allows students who are above 16 years old to take A levels. UK secondary schools who offer college level courses are referred to as sixth forms. At some points in this thesis, the word 'college' has also been used to refer to American universities, due to some of the references, instruments, and the adopted theoretical framework being of American origin. It is expected that the reader will be able to make a distinction between these two uses of 'college' in this thesis, by taking the context of the usage into consideration.

UCAS is the acronym for the 'University and Colleges Admission Service'. UCAS provides admission application services for UK universities.

UCAS Clearing or simply referred to as Clearing elsewhere in this thesis, is the way UK universities fill up remaining places on their courses after candidates who were offered places in the first round have been accepted to the course after the release of the final A level results (UCAS, 2018b).

UCAS Adjustments, according to UCAS (2018b), is the process that enable applicants who exceeded their conditional offers to negotiate their release from the universities that have accepted them, so as to find alternative courses and/or universities for which they are qualified based on their final A level grades. Though it has often be referred to as 'Adjustment' by other researchers and writers, it will be referred to as 'UCAS Adjustment' all through this thesis so that it is not mistaken for 'Adjustment to Higher Education.

1.9. Summary

I had already presented the first chapter of this thesis which was the introduction. Chapter two is the review of existing literature on retention, adjustment, pre-entry attributes, the UK admission process, and the A level prediction system, and how this led to the identification of the research gap. In this chapter, I will also discuss the theoretical framework used in this thesis in the formulation of the research questions. The third chapter is description of the research methodology and the procedures of data collection and analysis used in the study. Chapter 5 will include data analysis and the presentation of the results and findings. There will be a discussion and interpretation of the findings in chapter five, while chapter six is a summary of the thesis, an

acknowledgment of the limitations of the study, and sets of recommendations for stakeholders in UK higher education, based on the outcome of the research.

Chapter 2: Literature Review and Theoretical Framework

This section is a critical reflection upon the key concepts of this study, such as (i) the topic of student retention and the various retention theories and models in the literature; (ii) Tinto's (1993) Student Integration Theory which is the adopted theoretical framework for this study; (iii) adjustment to university and its measurement from a social, academic, personal-emotional, goal commitment-institutional perspective with a particular focus on the UK; (iv) pre-entry attributes; (v) the UK Admission system; and (vi) the A level prediction system.

2.1. Student Retention

Perry and Allard (2009) explained that retention is the way institutions aim to achieve the permanence of students in classrooms in order to guarantee that cycles and levels are completed in the anticipated time frame, while also ensuring that students achieve the mastery of the corresponding skills and knowledge that is required. Habley, Bloom, and Robbins (2012) indicated that the term 'retention' was introduced in the 1970s to describe student persistence in order for universities to share part of the responsibility for students' decisions regarding leaving higher education. Researchers such as Gairín et al. (2014), expressed retention in terms of persistence to reflect this shared responsibility between universities and the students, explaining that retention is the persistence of students in a university programme until they attain the degree qualification for which they are enrolled. The Higher Education Academy (2011) stated that retention in the United Kingdom "refers to students remaining with one HE [higher education] institution and completing their program of study within a specific timeframe" (para. 1).

According to Gairín et al. (2014), the notion of retention can be referred to as either a situation where students obtain their degree in the minimum time established by the institution to complete it, or in a more general sense, without considering the time it takes to complete, due to delays caused by repetition or suspension of studies during academic periods. In the literature, different terminologies have been associated with retention. For example, as described by Currie et. al. (2014), the term 'attrition' has been used to understand retention in a negative sense, and often refers to a student abandoning their course of study, not

enrolling for the next academic term or session, or just simply opting out of the programme. Other researchers such as Beer and Lawson (2017), have regarded attrition as accepting a university offer, but not enrolling at the university, or enrolling, but not proceeding to the next stage. In the same vein, Mantle (2019) used the term 'non-continuation' to describe attrition in the 2017/2018 UK universities' performance indicator.

Sanders, Daly, and Fitzgerald (2016) distinguished between three types of student retention. Firstly, there is a retention for graduation. This category includes graduation in the time set for it, graduation from the institution where the students initially enrolled, and graduation from the program in which they initially enrolled. Secondly, there is retention for the completion of the course or academic period. In this case, the attention usually focuses on student retention during his first and second years. Thirdly, there is the retention for the achievement of objectives other than that of graduation. This demonstrates the degree of student retention, adjacent to how well the student adjusts to the new environment, academically as well as socially.

2.1.1. Origin of student retention theories and models. Douglas, McClelland, and Davies (2015) reported that the analysis of the retention of students in higher education has only recently been of major recent research interest in the UK compared to the international arena. For example, in the United States, the issue has been the focus of several decades of research and there are numerous studies in this regard (e.g., Iffert, 1957; Nam & Folger, 1965; Tinto, 1975, 1993; Trent & Ruyle, 1965). According to Styron (2010), at the beginning of the 1930s in the United States, there was an emergence of theoretical and empirical knowledge about student retention, with some studies on student mortality and desertion in higher education. Then, in the late 1960s, a more systematic knowledge base emerged as a synthesis of several studies developed in previous years. The pioneers of this theme were Feldman (1969) and Epstein (1983), who analysed the impact that entering higher education had on students. Subsequently, Tinto (1975) published his interactionist model of retention of students, which aroused enormous interest in the subject. Other important studies developed at that time were those of Astin (1977) and Bean (1980, 1982), which made great contributions to the theoretical foundations of attrition and retention. According to Feldman (1969), in

the United States, the emergence of these theories stimulated the development of numerous investigations, making this subject, one of the most popular in the field of higher education. Over the years, the number of theories gradually reduced, compared to the increase in the number of investigations that were dedicated to applying the existing models to different institution types and diverse student groups.

Furthermore, some authors integrated several theories or used concepts from other disciplines in order to obtain new models for the analysis of student retention. Tinto (2010) explained that the psychological viewpoint was the underlying paradigm of the original studies on the retention of students in higher education. The decision of a student to complete higher education or depart early, was consequently perceived as an offshoot of his or her personal characterisitcs and ability. It was thought that the students did not persist for lack of capacity, demotivation or because they were not willing to postpone gratification, in order to obtain a university degree. In other words, the students failed, not the institutions. Although this notion was held in the first set of theories on retention, in the nineteen-seventies, this point of view began to change, as part of the great turnaround that occurred in the way of understanding the relationship between individuals and society (Tinto, 2010). Therefore, researchers began to consider the impact of the environment, especially, the institution, in regards to retention. The decision reflected the adjustment level of the transition to the new environment. In the following years, according to Tinto (2010), the study and practice of retention was the subject of several changes. It was recognized that there is a set of cultural, economic, social forces and institutional factors that affect student retention, which was also explained earlier by Bean (1980). Wintre and Bowers (2007) also concluded that it was essential for some students to maintain contact with their family, church, friends, and other support groups in order to persist in higher education. Epstein (1983) established that the student retention process is different for each institution and for each group of students. Adamson and Clifford (2002) remarked that different theoretical models were developed to explain retention rates across a wide range of educational disciplines. Cook and Leckey (1999) conducted a study that linked educational innovations and practices in a higher education setting with student retention, filling the void that existed until then between theory and practice, and demonstrating the importance of the actions of teachers on retention.

2.1.2. Theoretical approaches and models of student retention. Many reasons have been investigated to justify students' retention in higher education. Models have been developed to theoretically describe interconnecting variables that explain retention rates. Braxton, Shaw Sullivan, and Johnson (1997), Donoso and Schiefelbein (2007) and Gairín et al. (2014) all agreed that theoretical approaches to retention could be classified into psychological, sociological, economical, organizational and the interactionism. Habley et al. (2012) also used a similar categorization of theoretical perspectives of retention into psychological, sociological, cultural, organizational, and economical. These categorized approaches highlight the interplay of various external and internal factors that may affect student retention rates. According to Gairin et al. (2014), it is crucial to note that, psychological and interactionism approaches are mostly related to a student's internal perception of the environment around him or her; while sociological, economical and organisational models focus on how external factors influence the student's adjustment to their environment. Tinto (1993) explained that the sociological, economical, and organizational theoretical models could be labeled as forms of environmental approaches, as they are focused on the impact of other factors other than individual characteristics on retention. These external factors are related to the presence or absence of structures and systems within the university or higher education.

2.1.2.1. Psychological approach. In this approach, according to Donoso and Schiefelbein (2007), there is a focus on the analysis of personality features that distinguish between students who complete their studies and those who do not. In general terms, it is an investigation of the characteristics and attributes of students that account for different degree of adjustments leading to persistence in or early departure from their course of study in higher education. The first researchers who worked under this approach were Fishbein and Ajzen (1975), who found that the behavior of students is influenced to a large extent by beliefs and attitudes. In this way, the decision to defect or continue in an academic program is influenced by previous behaviours, attitudes about discontinuing, persistence and subjective norms. This generates a defined behavioural pattern that affects their beliefs and convictions about the

consequences of their actions. Ethington (1990) reported in an empirical study, that the level of personal aspirations of a student had a direct effect on his or her value system. In the study, the Ethington (1990) observed that students' self-efficacy is the building block of their expectations of success, and the perception of any difficulty that they experience during their studies. Therefore, both values and expectations of success influence the persistence in the university. A well-known model that used this approach is that of Bean and Eaton (2000), who based their model primarily on the processes by which psychological problems relate to social and academic integration. On this basis, they presented four psychological theories as the model's baseline: (a) behaviour and attitude theory using Fishbein and Ajzen (1975)'s original postulations, which provided the general structure to the model; (b) management theory of behaviour, ability to understandably adapt to a novel environment; (c) theory of self-efficacy, personal view about the capability to deal with particular situations and tasks; and (d) attribution theory, where a person has a sturdy sense of inner control. In this model, the claim is that a student's departure from higher education can be viewed as the cummulative effect of previous intentions to do so. The theoretical postulation is that the intention to leave education is influenced by the student's attitude before entering higher education and the general interaction between the student and the school. As the interaction continues to take place, there is a development of attitude within the student develops based on the norms and experiences they go through. As depicted in figure 1 below, the Bean and Eaton model (2000) gives a clear graphical representation of the psychological process of a student concerning their environmental interaction and response.

Entry Characteristics   Environmental Interactions   Psychological Processes   Psychological Outcomes   Intermediate Outcomes   Attitudes

Intention

Behavior

Direct effects

Past behavior

Personality

Initial self-efficacy

Initial attribution

Normative beliefs

Coping strategies

Motivation to attend

Skills and abilities

Bureaucratic interactions

Academic interactions

Social interactions

Interactions external to institutions

Self efficacy assesments

Coping process approach / avoidance

Attributions Locus of control

Positive self-efficacy

Reduced stress, increased confidence

Internal attribution and motivation

Academic integration and performance

Social integration

Institutional fit

Institutional commitment (loyalty)

Intent to persist

Persistence

Feedback

Figure 1 : Bean and Eaton: Model of student retention (2001)

2.1.2.2. Sociological approach. According to Donoso and Schiefelbein (2007), the sociological approach to student retention was developed almost simultaneously with the psychological approach and focused on highlighting the influence of factors external to the individual in regards to retention. This model was one of the best known in its era for being the first complete model of abandonment-retention. It emphasizes the interaction between the personal characteristics of the student and key aspects of the institutional environment as being responsible for their decision to stay in the institution or discontinue their studies. Spady (1971) developed this model of retention for the first time from Durkheim's suicide theory. Durkheim (1951) described suicide as the result of the rupture of the individual within a given social system due to inability to integrate into society. The chances of suicide increased with a low moral conscience (low normative congruence) and inadequate social affiliation. Spady (1971) explained that this concept could be extended to students in education if the university is treated as a form of a social

system. He argued that early departure from or desertion of higher education is a result of the lack of integration of the students within the higher education environment. He goes on to conclude that the probability that a student will abandon their studies is higher when they struggle to blend with the study environment. This may lead to poor academic performance and a low level of social affiliation, and therefore, dissatisfaction and lack of institutional commitment. Tinto (1993) supported Spady's (1971) application of Durkheim's suicide theory to student retention by explaining that suicide within a societal system and discontinuing school are both voluntary withdrawal actions. Although, Tinto (1993) was of the opinion that the psychological perspective was the dominant one since it gave birth to the sociological models, Habley et al. (2012), however, disagreed, explaining that the sociological model has been the most popular in the past four decades.

     2.1.2.3. Economical approach. Under this approach, Donoso and Schiefelbein (2007) highlighted two types of economic models: cost/benefit and subsidy targeting. The cost/benefit approach summarized that when there is a perception that the economic and social benefits derived from university studies are inferior compared to the benefits from other activities, then a student may choose to withdraw from the university. However, given that the benefits are not so clear, this can happen speedily and unexpectedly. In addition, it must be taken into account that the student's perception of the labour market may become different from reality. A decisive element in this model is the student's view of his or her capacity to cover the costs associated with university studies. However, according to Donoso and Schiefelbein (2007), this factor is influenced by another series of variables such as long-term loans with relatively high rates, soft, partial or total subsidies (including tuition, food, etc.). On the other hand, this subsidy targeting model or approach includes the amount of support in monetary value, which will constitute a way to influence retention. This model focuses on improving the retention of students who have real limitations to remain in the system (cost of studies, opportunity cost). Keohane and Petrie (2017) emphasized the importance of this theoretical approach by demonstrating the interplay between students' perception of their economic status and their decision to stay in higher education. In a study carried out

by Camos (2016), based on data from 136 first-year undergraduate psychology students in the UK, the economic circumstances of the students were the major determinants of retention.

   2.1.2.4. Organizational approach. According to Gairín et al. (2014), in organizational models, there is an analysis of retention based on the characteristics of the institution, taking into account the services it offers to its students. Under this model, variables such as the quality of teaching, the activities on campus, size of class groups, and the students' experiences in the classroom play a fundamental role (Guevara, 2010). In other cases, these variables could also include benefits provided by the organization, such as health services, sports, cultural support, and academic assistance. Tillman (2002) included the availability of bibliographic resources, laboratories and indicators such as the number of students per teacher, as other equally important organizational factors under this approach. Kamens (1971) carried out a much earlier study based on an organizational paradigmatic approach to retention, in which it was argued that the size and complexity of an institutional organization could affect the socialization of students and their retention.

   2.1.2.5. Interactionist approach. This approach considers that a student's departure is as a result of the interaction between the student perceived as an individual and the organizational institution. Cabrera, Nora, and Castaneda (1993) claimed that this interaction is how the student subjectively relates to the formal and informal dimensions of the institutional organization. According to Tinto (1975), who is considered one of the foremost researchers adopting the interactionist approach to investigate student retention, students construct their social and academic integration in such a way, that if they perceive the benefits to remain in the institution are greater than personal costs (for example, effort and dedication), they will remain in the institution. However, if they find a different source of greater rewards, they will tend to leave. Tinto (1975) also highlighted that a poor trajectory of interactions of the person with the academic and social systems of the university can result in the abandonment of the institution. Conversely, Donoso and Schiefelbein (2007) pointed out that a good institutional integration is important for the permanence of students, since it depends on their experiences during their stay in the university, in

terms of how well they adjust to their surroundings, the experiences prior to university access and individual characteristics.

Muller et. al. (2017) and Rhoden (2015) argued that the interactionist approach of Tinto (1975, 1993) is probably the most tested and validated of all the approaches. Also, according to Pascarella and Terenzini (2006), it is the only foundational approach that primarily incorporated previous educational experience as a university entry characteristic that could play a role in how the students interact and stay committed to their institution and the goal to graduated. Though Ben and Eaton (2000)'s psychological approach had entry characteristics as the starting element of its model, this did not include prior schooling or previous educational experience. These two aforementioned reasons were why Tinto's (1975, 1993) models were considered as the theoretical framework for this study amongst the other theoretical approaches.

2.1.3. Tinto's interactionist models. Based on Durkheim`s (1951) classical work on suicide theory and Spady's (1971) treatise, Tinto`s (1975) early works on interactionist theory has been the foundation upon which various other models have been developed for the past few decades. In his book 'Leaving College', Tinto (1975) revealed how Durkheim's theory impacted his study on retention theories. Amongst the various suicidal features elucidated by Durkheim, Tinto focused on egoistic suicide. This behaviour is exhibited by an individual who finds it difficult to adapt to the societal values of his culture, which tends to separate him or her from the society or its members due to the existing weak bonds. The theory holds that people who find themselves more distant from the other members of the society or tend to portray features which do not match those of other members are more prone to suicidal acts. Applying this theoretical perspective to a college or institution, students experiencing difficulties in fitting into certain learning environments either in their academic or social lives, are vulnerable to distancing themselves from the rest, with the result of leaving the institution before completion.

As Kember (1995) explained, Tinto's (1975) interactionist theoretical model, as shown in figure 2 below, provided the theoretical context for understanding the behaviour of students in higher education. Tinto (1975) summarized that the entry characteristics of students (family background, individual attributes, and prior schooling) and their extent of environmental, academic and social integration within a learning institution are determinants of the decision to complete higher education or discontinue their studies.
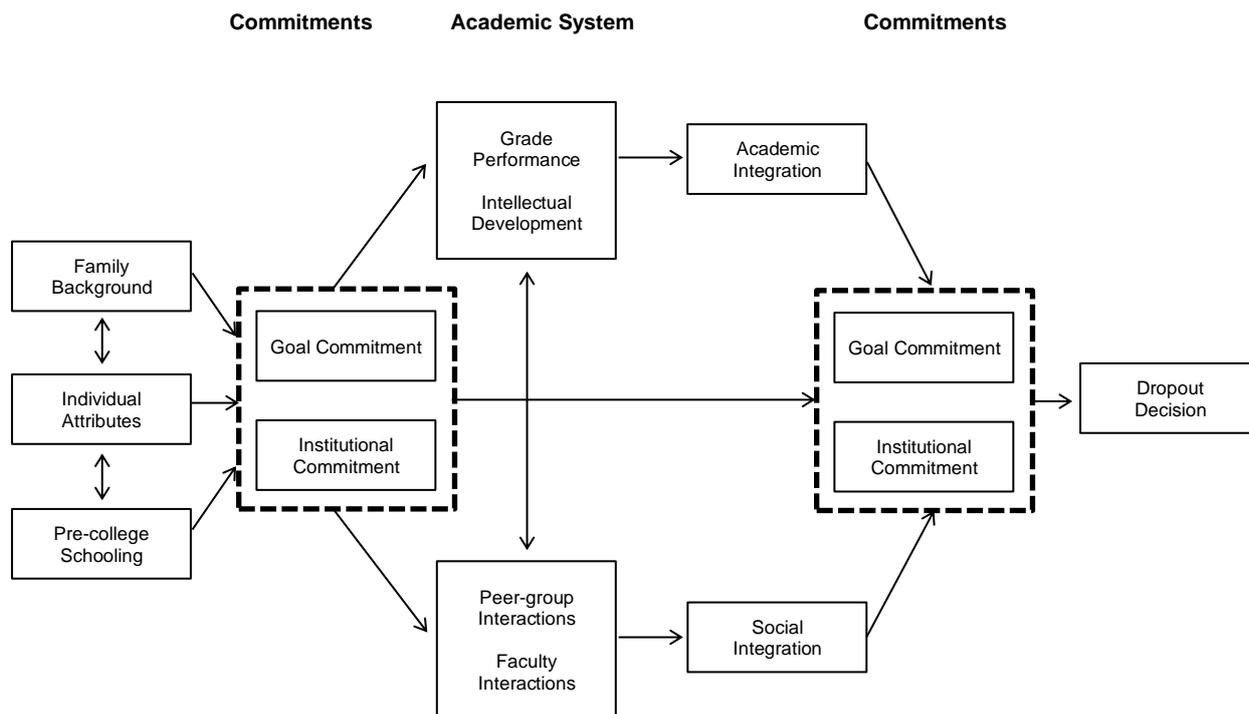
Figure 2 : A Conceptual Schema for Dropout from College (Tinto, 1975)

As reported by Pascarella, Smart, and Ethington (1986), there were criticisms of Tinto's (1975) model for its lack of emphasis on student-faculty (lecturers) relationships in understanding institutional integration. Specifically, though the model pointed out the issue of pre-entry attributes, it had a weak stance on explaining and exploring how students' entry attributes affect their institutional experiences. This may make the model unsuitable for a rigorous study on how pre-entry attributes could influence a student's decision to discontinue higher education (Pascarella et al., 1986). In response to the criticisms, Tinto (1993) developed another model, which he described as the 'Student Integration Theory' as shown in figure 3 below. In this model, Tinto (1993) used the word 'departure' in place of 'drop out' and argued that departure of students from higher education

institutions can be viewed to be the result of the longitudinal process of interactions between students' pre-entry attributes, dispositions (commitments and intentions), and integration with the institutional social and academic systems.

Pre-Entry Attribute	Goals Commitments	Institutional Experiences	Integration	Goals Commitments	Outcomes

The Academic System

FORMAL

Academic Performance

Faculty/Staff Interactions Performance

INFORMAL

Family Background

Skills and Abilites

Prior Schooling

Intentions

Goals and Institutional Commitment

External Commitments

Academic Integration

Social Integration

Intentions

Goals and Institutional Commitment

External Commitments

Departure Decision

FORMAL

Extra-Circular Activities

Peer Group Interactions Performance

INFORMAL

The Social System

Figure 3 : Student Integration Theory. (Tinto, 1993)

According to Tinto (1993), pre-entry attributes include features related to family background, skills and abilities, and prior schooling. These attributes majorly influence how students will respond and persist within the institutional environment. Various scholars, such as Chrysikos, Ahmed, and Ward (2017), Pather and Chetty (2016), and Rodríguez et. al. (2017) have added weight to Tinto's (1993) postulation, asserting that pre-entry attributes must be put into consideration when researching the willingness and ability of students

to meet the demands set by their learning institutions. Chrysikos et. al. (2017), Pather and Chetty (2016), and Rodríguez et. al. (2017) all agreed that it is necessary to consider background qualities and previous experiences of students in order to comprehend their interactions within their learning settings.

Tinto's (1993) model also depicted how the goal and institutional commitments could affect retention in higher education. The revised model describes the addition of external commitments and student intentions as major contributors to the decisions by students. These dynamics prepare the students to react to experiences they face in the learning institution. External commitments from various entities, such as family, work, and friends also have impact on the students' decision to leave university. In such cases, external forces may be supportive or negative. This, in turn, influences the students' abilities to commit to their institution or choice to discontinue from it. Chrysikos et. al. (2017) found that, initial and later goals had the greatest effect on retention amongst first-year degree student studying computing in a UK university.

Institutional experience is another aspect under Tinto's (1993) model used to study students' retention in learning institutions. This aspect is different from the original 1975 model in that formal and informal facets were added. The influence of academic and non-academic staff of the institution on the decision of students to depart early from the institution was also added to this aspect of the revised 1993 model. As discussed earlier, external communities such as friends and families, continue to be influencing factors. The commitments of students were seen to be largely influenced by the institutional environment. According to Permzadian, and Credé (2016), positive interactions of the students with their advisers, peers and the faculty, are the major factors that increase students' satisfaction and commitment to their schools. This assist in creating a sense of strong communal commitment and belonging for the students.

Tinto (1993) argued that academic and social integration are pivotal themes in retention studies. He summarized that students' sense of belonging in their various learning institutions is either increased or decreased through the quality and extent of their institutional social and academic relations. For example, Schaeper (2019) concluded that a cognitive group-based learning environment enhanced academic and social

integration while direct tutor instruction has a negative impact, after conducting an investigative study on 10,697 first-year undergraduates in a German higher education institution. Tinto (1993), however, emphasized that the students' career objectives and robust intentions can majorly overpower impacts of negative and poor integration and experiences of the culture of the learning institutions.

     2.1.4. Criticisms and countercriticisms of Tinto's (1993) model. Tinto`s (1993) model has been subjected to keen scrutiny and critical review by researchers in regards to its relevance and applicability. Brunsden, Davies, Shevlin, and Bracken (2000) and Rovai (2002) criticized the model because of its homogeneity in only assessing a predominantly white North American student population. However, Van Zyl, Gravett, and De Bruin (2012) disagreed with this criticism after they were able to empirically validate Tinto's (1993) proposition using a sample of 7 766 participants composed of 37.2 percent white, 52.8 percent Black African, 5.8 percent Indian, and 4.2 percent students of colour, at a South African university. In Van Zyl et. al.'s (2012) study, Tinto's (1993) postulation was validated when applied to a highly heterogeneous context, as opposed to the claims of the above criticisms of the model.

     Rendón, Jalomo, and Nora (2000) and Stage and Anya (1996) have indicated that Tinto's (1993) model is unable to explain the nuanced factors that affect retention of racial minorities in universities. Nevill and Rhodes (2004) also criticized the model for its neglect of the wider array of student populations that have been allowed entry into institutions of higher learning on account of increased access. However, McCubbin (2003) refuted the aforementioned criticisms levelled against Tinto's (1993) model. First, McCubbin (2003) argued that in order for researchers to validate the model, they had to develop their own "testable conceptualization of it" (p.3). McCubbin (2003) asserted that there is a possibility that the developed concepts may not exactly mirror the various aspects of Tinto's (1993) model. So, dismissing the applicability of Tinto's (1993) model on such a test may be unjustified. Secondly, McCubbin (2003), also affirmed that even if the conceptualized models were exact replica of Tinto's (1993) model, the results of such research studies might not necessarily constitute grounds to dismiss the applicability of Tinto's (1993) model to non-traditional students and those of racial minorities. This is because students of ethnic minorities may naturally not have access to a wider

social network of students of their race in university (McCubbin, 2003). It is therefore conceivable that social adjustment will be less important to them. McCubbin (2003) therefore asserted that the aforementioned criticisms of Tinto's (1993) model on this basis are unwarranted, as Tinto (1993) already pointed out that social integration will be an important factor in predicting retention provided there is access to a wider social network in the first place that the students can take advantage of.

Other researchers such as Melguizo (2011) and Davidson and Wilson (2013) have also objected to Tinto's (1993) model, arguing that he did not give measurable parameters that can be used to assess the two constructs of social and academic integration which has led to some researchers subjectively defining and appropriating them for their use. Aljohani (2016) and Holden (2015), also added weight to this criticism by explaining that two constructs of social and academic integration in Tinto's (1993) model were too broad categories, and did not adequately cater for the specific examples such as non-traditional entry routes into the universities. Tinto (2016) responded to some of the criticisms by adding that the Tinto's (1993) Student Integration Theory, should only be adopted for the needs of specific groups, whose academic and social circumstances are clear to the researcher. Tinto (2016) also extensively advocated the adaptation of his theories, postulations, and models to a more socio-economicallydiverse student population.

    2.1.5. **Tinto's (1993) model as a theoretical framework for retention research**. Tinto's (1993) model is one of the most widely used tool of choice in understanding students' behaviours with regards to early departure from university or being retained in higher education (Eales-Reynolds, 2006; Kember, 1995; Muller. et al., 2017). Braxton and Lien (2000) investigated peer-reviewed studies that have used some or all of Tinto's (1993) propositions as their underlying framework. Though there were challenges concerning internal data consistency in some of the studies, necessitating a partial revision to Tinto's (1993) model, there has however been an appreciable level of support for Tinto's (1993) theory in most of the empirical studies. In support of Braxton and Lien (2000), Seidman (2005) reported that in most empirical studies using Tinto's (1993) model as the theoretical framework, the researchers were able to justify the following Tinto's propositions: (i) the initial commitment of students to an institution could be

influenced by various entry attributes they bring in to higher education; and (ii) the initial commitment displayed by a student to an institution will have an influence on the future commitment as well. An enhancement to a continued commitment is achieved by the degree of social integration developed previously. If a student is highly committed to an institution, then there is a high chance that they will stay until graduation.

According to Chrysikos, Ahmed and Ward (2017), who investigated retention among first year undergraduate computing students in a UK university, Tinto's (1993) Student Integration Theory is a model of choice in investigating adjustment and retention particularly if emphasis is on pre-entry attributes or entry characteristics of the students and how this relates to their adjustment to higher education. Tinto's (1993) Student Integration Theory therefore fits the current study as a theoretical framework, and provides an insight into understanding the problem of retention identified in section 1.3.

2.2. Adjustment to Higher Education

Terrazas-Carrillo et. al. (2014), described adjustment to be a multi-faceted procedure of collaboration, between a person and his or her environment, to synchronize between their needs and the demands of the environment, which results in a negative or positive attachment to it. Belay Ababu et. al. (2018), considered adjustment to be the psychological processes by which people cope, adapt and manage the challenges they faced within their environment. Specifically, for university students, Belay Ababu et. al. (2018), pointed out that the environment is their institution of learning. Astin (1985, 1999), Bean and Eaton (2000), Swail (2003), and Tinto (1975, 1993) all considered adjustment of students in a higher education setting as a fundamental facet of their theoretical models of student growth, continuation and non-completion. Manyanga et. al. (2017) argued that though various student retention models were developed based on different paradigms and approaches, they mostly associate a student's academic situation, social life and emotional condition with the probability of withdrawal from the institution. In context, it is important to note that some of the models describing student retention such as Tinto (1975, 1993) and Bean and Eaton (2000), have favoured the use of the word 'integration'. A cursory evaluation of their description of 'integration' reveals that it has the same

connotation as 'adjustment' as previously described at the beginning of this paragraph. Van Rooij et. al. (2018) conducted an empirical investigation into factors that influence adjustment to university, and concluded that students who experience substantial challenges adjusting to their institution are expected to depart early from higher education. Although Van Rooij et. al.'s (2018) research was conducted among first year university students in the Netherlands, their findings on adjustment to university can be considered relevant to the UK context. This is because researchers in both the UK and Netherlands have similarly reported that first year students are the most at risk of not completing their studies in both countries. For example, Inspectorate of Education (2016) found out the highest rate of attrition in Dutch universities is among first year students while Gerodetti and Nixon (2019) indicated that first year students posed the greatest retention challenge to UK universities.

The exact characterization of what constitutes adjustment is the cause of some disagreement in the field. Some researchers such as Boulter (2002) and Nonis and Wright (2003) have evaluated adjustment as an outcome variable of academic performance, while others such as Dahmus, Bernardin, and Bernardin (1992) have investigated adjustment as a predictor of academic succes. In a more broader sense,Van Rooij et. al. (2018), primarily considered adjustment in terms of retention and graduation rate, consistent with the theoretical approach of Tinto's (1993) model. Baker and Siryk (1989) whose work were influenced by Bean (1982) and Tinto (1975) presented a more comprehensive view of adjustment, explaining that students who enter university have to adapt to various demands in order to persist. They remarked that university adjustment is multifaceted and can be considered under four dimensions: academic, social, personal-emotional, and goal commitment-institutional adjustments. They asserted that these dimensions of adjustments are intricately interwoven as predictors of retention. This characterization of adjustment is the view held in this current study as described in section 1.8, due to its robust and comprehensive approach in comparison to the other aforementioned perspectives.

According to Dittman, McKinney, and Trimble (1994), academic adjustment is the most significant of all the four dimensions of adjustments to university. The ability to meet the demands of academic work in the university, and the adaptability to cope with the challenges, is essential to adjustment, and thus, retention. Besides, Holliman et al. (2018) found that a student's academic adaptability or adjustment was a predictor of academic performance.

Crede' and Niehorster (2012) viewed social adjustment as the extent to which students integrate into the social system of the university halls of residence; are participating in campus events and; making new friends. In disagreement with Dittman, Mckinney, and Tremble (1994), who believed that academic adjustment is the most critical of the adjustment types, Gerdes and Mallinckrodt (1994) argued that social adjustment may be equally as significant as academic adjustment in predicting retention. Yorke (1999) and Talanov (2012) agreed with Gerdes and Mallinckrodt (1994), by remarking that students who are not happy with the social system of a university are more likely to depart early from the institution. Talanov (2012) was of the view that the major challenge students have with adjusting socially to the institution, is the need to break away from old values, beliefs, and attitudes about relationships and to adopt new ones.

According to Baker and Siryk (1989), personal-emotional adjustment amongst higher education students can be regarded as the psychological processes through which they cope with the demands of university. Baker and Siryk (1989) also explained that personal-emotional adjustment is a measure of the emotional state of the student as they navigate the institutional environment . Although researchers such as Bluth and Banton (2015) and Tennant et. al. (2015) have shown that emotional well-being is dependent on good mental health and intrinsic harmonization of emotions, activities and thoughts, other researchers such as Ciarrochi, Parker, Kashdan, Heaven, and Barkus (2015) and Ziegler, Merker, Schmid, and Puhan (2017) have however argued that positive and negative emotions are not just based on personal self-control, but subject to personal satisfaction with prior and current external circumstances leading to reinforce positive emotions with positive experiences and reinforced negative emotions developing out of negative experiences. Albert (1989)

demonstrated that challenges faced by students when they transit from high school to college could negatively impact their personal-emotional adjustment to the institution. In the same vein, Johnson (2001) asserted that students who reported difficulty with receiving help from the campus community have their negative emotions reinforced resulting in poor personal emotional adjustment.

Tinto (1993) explained that goal commitment-institutional attachment is how committed students are to the goal of graduation and to the institution. In Tinto's (1993) model, unlike the other dimensions of adjustments, goal commitment-institutional adjustment is the only one that is directly influenced by student's pre-entry attributes or characteristics. Braxton and McClendon (2002) and Strom and Savage (2014) argued that a student's determination to persist in higher education is largely dependent on their commitment to their graduation goal and the institution.

2.2.1. Transition to university and adjustment to higher education. According to a research study carried out by Dyson and Renk (2006), the transition to university is challenging for most students due to the attendant psychological disturbance and imbalance. Pargetter (2000) categorized the issues regarding transition to higher education using some combination of the following factors: (i) issues related to personal, social and community when young adults are in the phase of sorting out their personal lives, relationships with family members, accommodation, education and travel arrangements, and coping with social pressures and problems; (ii) mismatch between the chosen field and student's interest; (iii) Lack of knowledge about university, therefore lack of preparation for what to experience and how to manage oneself in an entirely new environment; (iv) sudden loss of dependency, and support which was always present in the previous school such as friends and parents.

Reason, Terenzini and Domingo (2006) pointed out that the first few weeks of transition to higher education sets the foundation for the entire student experience on a degree course while Birch and Rienties (2014), and Nora, Barlow, and Crisp (2005) found there is a major hazard of students leaving higher education during their first year. The process involved in the transition period into higher education could be a major

pointer to how students will adjust for the rest of their study. Van Rooij et. al. (2018), explained that adjustment to higher education is a measure of how students have transitioned into higher education. This was consistent with the study conducted by Urquhart & Pooley (2007), where they pointed out that students who are faced with challenges that require them to make major changes to their academic, social and personal lives when transitioning into the new institutional environment, may experience great pressure and tension. On a positive note, Paragetter (2000) argued that the transition period could help in skills development, independent mindset, and the building of new friendships and associations. Despite these possible benefits a student may derive from the transition process, there is still the possibility of encountering stress and other difficulties.

      2.2.2. Measuring adjustment to university. Parker, Summerfeldt, Hogan, and Majeski (2004) contended that the pivotal role of students' adjustment in regards to university retention has brought about a significant amount of research interest in the field. As explained by Feldt, Graham, and Dew (2010), a range of techniques and measures have been used in evaluation of adjustment to university. There are, however, major differences among the techniques, in the way adjustment to university is quantified and measured, as discussed in the following four paragraphs.

      Baker and Siryk (1984) developed a self-report inventory that was administered to 734 students as a measure of adjustment to college. According to Dahmus et. al. (1992), Baker and Siryk's 52-item inventory which they presented in a paper in 1984, later developed to become the 67-item Student Adaptation to College Questionnaire (SACQ), which was published in 1989, after they demonstrated the reliability and validity of the data. This has been discussed further in section 3.4.1. The SACQ is a 67-item inventory that measures overall adjustment to university using the overall scale (Baker & Siryk, 1989). It can also be used to access academic, social, personal-emotional, and goal commitment-institutional attachments using the subscales associated with each of the areas. Participants respond on a 9-point scale to what degree different items relate to them, producing a score for each subscale and overall scale. There is a more elaborate discussion on the SACQ scale and subscales in sections 2.2.3 and 3.4.

Some investigators have focused on specific aspects of the issues faced by students as they adjust to a university as a means to measure adjustment. Lapsley, Rice, and Shadid (1989) used a combination of interpersonal or psychological constructs such as anxiety, depression, social support, and self-esteem to measure adjustment. Using this measure, good adjustment can be observed in students with greater levels of optimisim and lower levels behavioral dysfunctions. Rice, Cole, and Lapsley (1990) examined non-cognitive measures of student adjustment using the College Inventory of Academic Adjustment. In the 90-item scale, the Rice et. al. (1990) attempted to distinguish between low and high performers, and includes 6 sub-scales, all focused on recognizing student features believed to be associated with educational performance (for example, study practices and skills, personal efficiency, level of aspiration and maturity of goals, curricular adjustment, personal relations, and psychological health). They contended that the result of the inventory is a measure of the degree of adjustment of the students to college.

Lafreniere, Ledgerwood, and Docherty (1997) used a single-item approach to measure adjustment to university. They conducted an assessment of predictors of adjustment to university, in which participants were asked to self-report how well they have adjusted to university on a range of 1 (poor) to 5 (outstanding). This is an instance of measuring adjustment to university using a single-item measure. This technique has benefits regarding minimization of the burden on participants and the easiness of administration, although Baker and Siryk (1984), had earlier criticized the psychometric appropriateness of using single-item techniques due to their lack of robustness before Lafreniere et. al. (1997) developed theirs.

There are also less-extensively-used, adjustment measures that have facets with sub-scales dealing with comparable concepts to those that are included in the Student Adaptation to College Questionnaire. One instance of such a measure is the College Adjustment Scale is a long (108-item) scale of adjustment to college developed by Sinha and Singh (1995) with sub-scales associated with self-esteem, substance abuse, suicide ideation, depression, anxiety, and family, interpersonal, career and academic issues. As such, according to Sharma (2012), the College Adjustment Scale places its main emphasis on relationship and psychological

concerns, with the goal of recognizing students who might need support or counseling. In comparison, the Student Involvement Questionnaire which was proposed by Fantuzzo, Tighe, and Childs (2000) has sub-scales associated with social integration, academic interactions, institutional and goal commitment, and as such it does not handle the physical and psychological aspects of adjustment encompassed in the Student Adaptation to College Questionnaire. .

One of the relatively recent instruments of measuring adjustment, the Academic Adjustment Questionnaire (AAQ), was prepared by Clinciu and Cazan (2014). It was a questionnaire designed to explore the adjustment of students to university demands and was first administered by the researcher to 517 students at Transilvania University of Brasov who were studying courses in humanities. However, it is important to note the fact that even though developed in 2014, this psychometric tool was a partial adaptation of the Baker and Siryk's (1989) SACQ and was used in conjunction with it when tested. As pointed out by O'Donnell et. al. (2018), the SACQ questionnaire, therefore, remains one of the most extensively used and adapted university adjustment measurement instruments. Several researchers such as Bailey and Phillips (2016), Bitz (2012), McGuffin, Riggs, and Taylor (2019) and Trevisan, Bass, Powell, and Eckerd (2017) have either used the SACQ instrument or a measure that was developed based on the SACQ when measuring adjustment to university.

2.2.3. Measuring adjustment with the SACQ instrument. Baker and Siryk (1984, 1989) described the Academic Adjustment subscale of the SACQ as a measure of how far the student is able to deal with the various academic challenges that goes with the university experience. It is broken into four clusters namely: 'academic environment', 'motivation', 'performance', and 'application'. Baker and Siryk (1984, 1999) explained that the Social Adjustment subscale of the SACQ is a measure of how successful the student is, in coping with institution at the interpersonal and societal level.The subscale also has four clusters namely: 'social', 'environment', 'general', 'other people', and 'nostalgia'. According to Baker and Siryk (1984, 1989), the aim of the Personal-Emotional Adjustment subscale of the SACQ is to examine the student's feelings both psychologically and physically, as it relates to stress,

anxiety, and other emotive states. It is made up of two clusters, namely: 'general' and 'this college'. Baker and Siryk (1984, 1989) depicted the Goal Commitment-Institutional Adjustment subscale of the SACQ as a measure of the student's commitment to the graduation goal and dedication to the same college where they initially enrolled. This subscale likewise has two clusters namely: 'general' and 'this college'. See Appendix E for the combination of item numbers that make up the Academic Adjustment, Social Adjustment, Personal-Emotional, and Goal-Commitment Institutional subscales of the SACQ instrument.

2.2.4. Improving adjustment to university and retention. According to Thomas and Jamieson-Ball (2011), the most effective way to deal with the challenges of adjustment in order to improve retention, with the right intervention programmes, is for universities to understand the various reasons why students struggle to adjust. Researchers such as Cooke, Bewick, Barkham, Bradley, and Audin (2006), Soucy and Larouse (2000) and Gall, Evans, and Bellerose (2000), have investigated different cohort-based trends and patterns of adjustment to university, as students transit from one academic year to another and have advocated for corresponding intervention programs as a result. However, this notion was challenged by Nightingale et. al. (2013), who argued that everyone within a given student population or cohort did not necessarily have the same adjustment problems, meaning that a blanket approach would not be appropriate when intervening. For example, Dodgson and Bolam (2002) reported the success of pre-entry activities and support that was targeted at the specific challenges encountered by mature non-traditional students enrolled at six UK universities. The support provided to these students for some months before they started the academic year in September was found to be directly related to their retention and graduation rate compared to previous years when there was no such intervention.

Allen, Robbins, and Sawyer (2009), Sneyers and De Witte (2018), and Webb et. al. (2017), also concluded that early faculty-student intervention and mentoring for at-risk students in university have proven to greatly improve retention compared with carrying out later interventions. Specifically, Van Rooij et. al. (2018) advocated that especially in the first year, universities helping students to develop personal study skills

and satisfaction with the course, are ways to improve academic adjustment. Arani, Asayesh, and Hoseini (2017) reported that individual counselling sessions and support groups have greatly enhanced social and personal-emotional adjustment. Barraza (2012) found that meetings with academic counsellors, creating educational plans, and the use of progress reports led to improved commitment to the goal of graduation and retention.

     2.2.5. Institutional support and adjustment to university. According to Boyd and Mckendry (2012), there has been a gradual transition from research that aim to find out why students are likely to leave higher education to investigations that seeks to understand what is effective in improving student retention. Boyd and Mckendry (2012) however argued that inspite of this shift, it still remains unclear which factors are the most important for policymakers and institutions to focus on so as to effective and efficient in improving retention rates. Tinto (2010) explained that in order for students to be supported in order to persist until graduation, universities need to understand four basic things. First, there is need for students to have clarity about the university's academic expectations and general requirements. Second, students ought to be given opportunities to have social, academic as well as personal support that best suits their needs. Third, students ought to feel valued, with frequent and high-quality interactions with staff, faculty as well as other among colleagues. Fourth, the learning in these institutions ought to be in tandem with student's interests, whereby they are actively involved in their learning. Tinto (2010) suggested that there is a need for the existence of all the factors mentioned above for students to persist through classroom and campus involvements. Fishbein and Ajzen (1975) emphasized the importance of the institution having a teaching service, communities of learning for new students, induction programmes and mentoring sessions, which would lead to the positive perception of the environment in the student's cognition and, therefore, the development of a level of attachment towards the institution by the student. According to Soilemetzidis and Dale (2013), tutoring, peer to peer mentoring networks, and preuniversity inductions are critical to providing institutional support that enhance the transition of first year students into university. Sneyers and De Witte (2018) also argued that ensuring students are

retained in higher education requires a range of support services from the institution such as peer tutoring support, mentoring, counselling services, and implementation of early warning system.

     2.2.5.1. Preuniversity Induction. Soilemetzidis and Dale (2013) explained that preuniversity induction programmes in UK higher education may include courses, orientations, workshops, and seminars organized by universities to students who have already been offered university places few months before they resume their studies in September. Soilemetzidis and Dale (2013) pointed out that preuniversity induction exercises have been demonstrated by researchers to improve student retention. James (2010) and Thayer (2000) explained that well-planned induction programme targeted at the most "at risk" students could considerably improve their current university experience. Bolam and Dodgson (2003), Curran et. al. (2015), English (2017), Vincent (2016), and Yorke and Thomas (2003), have all documented the increasing trend among UK universities to conduct pre-entry induction and transition support for their potential students over the summer period before they are admitted in September, as a means of improving adjustment and retention.

     2.2.5.2. Peer tutoring support. As explained by Grillo and Leist (2014), peer tutoring support aims at supplementing and complementing learning sessions. This tutoring support is provided by students who previously succeeded in their studies, helping other students by guiding, explaining, or facilitating the understanding of the materials. Balzer Carr and London (2019) argued that students participating in peer tutoring often earn high grades as well as persist in subsequent semesters and years. Khalid, Shahid, Punjabi, and Sahdev (2018) found out that peer tutoring was a more effective way of teaching clinical skills to students in a UK medical school compared to when they are being taught by faculty. Khalid et. al. (2018) also concluded that students were more motivated to persist in their studies when they received tutoring support via their peers. Thomas, Bell, and Shoulders (2013) and Grillo and Leist (2014), pointed out that peer support assist in the social integration of students into the university systems. In addition, Grillo and Leist (2014), explained that students using peer support services tend to have higher chances of achieving success and persistence until graduation.

2.2.5.3. Mentoring. According to Collings, Swanson, and, Watkins (2016), mentoring is the social, psychological, and emotional support provided by peers or university staff, to help students cope with the demands of university. Foy and Keane (2018) explained that mentors may provide targeted academic skill support, orientation on the use of library and technological facilities, and organizing of social events. Collings et. al (2016) pointed out that the use of peer mentors as an effective strategy to improve retention is increasingly becoming popular among UK universities. Hixenbaugh, Dewart, Drees, and Williams (2006) found out that peer mentoring helped first year students to be well integrated to university and satisfied with their study. Foy and Keane (2018) argued that if first year students are to be effectively helped in the transition process into university, mentoring must not only be seen as a back up strategy to aid adjustment to university, it must be seen as a major strategy in improving retention.

2.2.5.4. Early warning systems. According to Fitzgibbon and Prior (2003) who carried out a study on developing a model intervention alert system at the university of Glamorgan in the UK, early warning or alert systems refer to strategies that institutions use to identify students that struggle in their early academic careers so as to provide appropriate and timely the intervention. Green, Plant and Chan (2016) explained that the warning systems used by UK universities vary from basic data records for tracking student attendance and academic performance to more sophisticated softwares that monitor the overall progress of students. The university staff are expected to respond with the appropriate intervention dependent on what is flagged on the warning system. Interventions may include attendance register checks with regular follow ups of students who are unexpectedly absent for a considerable period of time, providing assistance to students who do not submit assignments, regular reports to monitor the progress of students who are struggling academically as detected by the alert system (Green, Plant & Chan, 2016).

2.3. Pre-entry Attributes and Adjustment to Higher Education

As previously highlighted, the first segment of Tinto's (1993) model depicts that pre-entry attributes of students influence their institutional integration. Rodríguez et. al. (2017) added weight to Tinto's (1993) proposition, explaining that though post-entry factors cannot be underestimated in regards to how they affect

adjustment to university, it is the pre-entry attributes that provide major insight into students' adjustment to higher education and if they are going to persist. Students respond to the university environment based on their family backgrounds, skills, abilities and previous schooling experiences. Tinto (1993) pointed out that students enter higher education with characteristics and expectations in the first year, which may be strengthened or weakened, depending on how they interact socially and academically with their institutions. Weaker interactions lead to the decision to depart from higher education while stronger associations promote persistence to graduation. The pre-entry attributes are determinants of attitudes of the students in regards to establishing long term interaction with their institutions. Although a few researchers in the past such as Fox (1986) and Terenzini and Pascarella (1978) claimed to either find no or conflicting evidence for the association of pre-entry attributes with adjustment and retention, a vast number of researchers such as Astin (1975), Attewell, Lavin, Domina, and Levey (2006), Berger (2001), Bishop (2016), Carr et. al. (2018), Feldman (1993), Galla et. al. (2019), Gorard et. al. (2006), Hutt, Gardener, Kamentz, Duckworth, and D'Mello (2018), Marrero (2016), McLaughlin, Muldoon, and Moutray (2010), Olbrecht et. al. (2016), Porter (1990), Randall (1999), Stinebrickner and Stinebrickner (2003), Rodríguez et. al. (2017), Titus (2006), Walpole (2003), Westrick, Le, Robbins, Radunzel, and Schmidt (2015), and Woodfield (2014), have demonstrated through empirical studies that background attributes are vital to the prediction of student retention, demonstrating a correlation between withdrawal or persistence and specific pre-entry characteristics. According to Tinto (1993), the pre-entry attributes are classified into: (i) family background or settings; (ii) individual attributes and; (iii) prior schooling or education.

2.3.1. Family background or settings as pre-entry attributes. As reported by Astin (1975), the retention rate of university students increases with family income. This was confirmed by Bishop (2016), Feldman (1993), Olbrecht, Romano, Teigen (2016), Porter (1990), Stinebrickner and Stinebrickner (2003), Titus (2006), and Walpole (2003), who demonstrated that students from low-income family backgrounds are more likely not to complete their higher education students when compared to those from wealthy families. However, Chiu et. al.'s (2016) findings contradicted this, as they concluded that

parental income level does not have any significant effect on academic achievement as a determinant of retention. They argued that parental income level is not as important compared to other factors such as age of student and previous school attended.

In the UK, higher education sector, some researchers have discussed the retention among students with different parental level of education. Woodfield (2014) found that students with at least one parent with a higher education qualification are less likely to depart early from university, when compared to those whose parents do not hold a higher education qualification. This was supported by Chiu et. al. (2016) and Elkins, Braxton, and James (2000) who concluded that students' parental educational level was a significant predictor of academic engagement and persistence. Ortiz and Dehon (2008) explained that extra support provided by highly educated parents may account for why their children have reported better academic attainment and graduation rates, while Janke, Rudert, Marksteiner, and Dickhäuser (2017) are of the opinion that it may be because children of highly educated parents have been accustomed to academic social circle before entering university. They suggested this pre-university familiarity with higher education may have helped them deal with anxieties that often lead to early departure of students from university.

2.3.2. Individual attributes as pre-entry attributes. In previous studies, the comparison of retention levels between male and female students led to divergent conclusions. Murtaugh, Burns, and Schuster (1999) and Ramist (1981) pointed out that there was no disparity in retention on the basis of gender. However, Hilton (1982) using data findings from extensive national research on retention, detailed that there was slight variation in the attrition rates between female and male respondents. This finding was corroborated by Berger (2001) and Feldman (1993) who asserted that there is a connection between gender and persistence when tested independently. Elkins et. al. (2000) also reported differences in persistence based on gender. Additionally, according to Stratton, O'Toole, and Wetzel (2007) and Woodfield (2014), male students recorded lower graduation rates than their female counterparts, revealing that female students are less likely to discontinue their university studies. Carr et. al. (2018) and

McLaughlin et. al. (2010) also argued that adjustment to university and consequently retention is

associated with the student's gender.

In other studies, researchers have focused on the notion of retention rates among minority students.

For example, according to Randall (1999), white students in the United States recorded lower attrition rates

than Hispanics and African American students. Randall (1999) conducted a four-year study in public

institutions in Maryland, United States, in which it was established that the African Americans cohort reported

a lower 40 percent graduation rate out of the average graduation rate of 56 percent among the 1992 graduation

group. In another six-year study conducted by Porter (1990), Hispanics and African Americans had higher

attrition rates than their White and Asian counterparts. This was corroborated by Caroll's (1989) study which

focused on students who enrolled in university from the year 1980 to 1983. In this research, it was concluded

that Hispanic students had 42 percent persistence rates, White students recorded a 56 percent rate, while the

African American students had 44 percent persistence rate. In agreement with this trend, Attewell et. al.

(2006), found that White students are almost twice as likely to graduate than African American students. In

contrast, French, Homer, Popovici, and Robins (2015), however, found that when personal abilities and

differences in socioeconomic status were controlled for, African Americans advanced further in higher

education with higher graduation rates. In the United Kingdom, Gorard et al. (2006) concluded that black

minority students are not just underrepresented in the university; they also have a higher risk of not completing

higher education. Woodfield (2014) also demonstrated that white students showed better performance than

any other ethnicity, and entrants from underprivileged areas achieve lower degree outcomes and graduation

rates on average. Previous national studies do not aim to rationalize why these patterns in entrants occur or

what institutions of higher education might do to address these problems. Richardson (2008) however argued

that the reported lower retention rates among black minority students were a matter of correlation rather than

causation. Richardson (2015) noted that there is no evidence that ethnicity in itself is the factor responsible

for differences in retention. Richardson (2015) concluded that there are yet to be identified factors associated

with ethnicity which may be responsible for the disparity in retention rate among different ethnic groups.

2.3.3. Prior schooling or previous educational experiences as pre-entry attributes. According to Waugh, Micceri, Takalkar (1994), high school grade point average (GPA) and the Scholastic Assessment Test (SAT) results are major university entry requirements in the United States. Murtaugh et al. (1999) argued that the high school Grade Point Average (GPA), does not only demonstrate a student's academic competence, but also highlights a student's attitude about education and their work ethic. Murtaugh et. al. (1999) contended that a student's high school GPA could be used to work out the probability of not completing university. Astin's (1993) extensive research performed on 39,243 learners in close to 100 universities, revealed that students who recorded SAT grades of 1300 and above and achieved an A average have five times lower prospects of early departure from university than learners with an average of C minus and SAT scores below 700. A research study by Loury and Garman (1993) established a relationship between graduation rates and a student's high school GPA. Feldman's (1993) study results indicated that weak high school GPA points had a more considerable influence on not just the student's degree results, but also on his or her chances of completing higher education. Elkins et al. (2000) in their studies affirmed that Grade Point Average scores in high school positively influenced a student's persistence in college. In recent studies, Galla et. al. (2019), Hutt et. al. (2018), and Westrick et. al. (2015), all agreed that high school grade point average (GPA) and SAT scores are significant measures and predictors of adjustment and retention in American universities.

In the United Kingdom, Walker (1999) claimed that a student's university entry qualifications are the most appropriate tool to predict their academic performance and sense of institutional attachment. This notion was supported by James (2010), who asserted that admitting students with lower entry grades into UK universities puts pressure on the university support systems, puts such students at the risk of withdrawal. James (2010) expressed concerns that the lowering of entry grade barriers as a means of widening participation in higher education, has hurt retention. Soilemetzidis and Dale (2013) conducted an empirical study that established the link between entry grades and university retention rates. The study was carried out on university entrants in UK universities using data over a 10-year period. It was reported that within that period,

students who entered higher education with UCAS tariff points greater than 481, had an attrition rate of less than 2%. Entrants with a lower UCAS tariff points of 250, were three times more likely to discontinue at rates greater than 6%, and those with UCAS tariff points less than 100, were six times more likely to discontinue at rates greater than 12%. Soilemetzidis and Dale (2013) also established the consistency and similarity of the findings for the period, admitting that their results showed that the effect of entry qualification on retention is less important for mature students who may have gained university entry through non-conventional routes. Bean and Eaton (2000) contended that the association between the non-continuation of students in their institution and entry grades is quite understandable, as explained by the high rates of withdrawal amongst those with no formal entry or unknown qualifications. Birch and Rienties (2014) claimed that students with low grades are frequently ill-equipped for higher education. In the study, they reported that academic success and entry qualifications have a direct relationship, and students with higher entry grades typically require fewer resources and support in order to remain in the university. In the study, Birch and Rienties (2014) examined 135 British and 92 international undergraduates at various phases of their academic careers. One of the major findings of the Birch and Rienties' (2014) study was that, the main predictor for educational achievement and institutional integration is whether or not students had prior UK qualification. Slaughter, Harrison and Wyatt (2016) also argued that students who enrolled in higher education with lower A level qualifications in the UK, showed lower performance at university and were more prone to struggle with adjusting to higher education. According to Slaughter et. al. (2016), this was most prominent in the first year of university and, although these students did show improvement, the trend persisted until degree completion. I can see from the aforementioned studies, that the problem of adjustment and retention identified in section 1.3. of this current study may be understood by looking into the previous education or prior schooling experience of university students in the UK.

2.4. UK Higher Education Admission System and A level Predictions

Schwartz (2004) noted that, although there are government policies that provide a framework for universities in recruiting students, the admission process of setting the recruitment criteria and assessment

procedures for student selection are the responsibilities of universities in the UK. James (2010), Patrick, Schulenberg, and Malley (2016), and Slaughter et al. (2016) emphasized that previous educational achievement is central to most universities' admission process as it is the most important indicator of success in higher education. Thiele, Singleton, Pope, and Stanistreet (2016), however disagreed, explaining that students' examination grades before university education may not necessarily be accurate predictors of higher education achievement. Thiele et. al. (2016) found that students with the same entry grades from different socioeconomic backgrounds do not have the same potential for higher education success. Thiele et al. (2016) advocated that, in addition to examination grades, admission officers of institutions should consider other factors such as the socioeconomic context of an applicant's educational achievement, results from interviews, assessments, non-academic experiences, and other applicable skills. The need to widen participation in UK higher education has made the selection of students who have the greatest potential to succeed the more challenging during the admission process.

Schwarz (2004) also suggested that retention rates might be associated with university admission practices. This was corroborated by Wong and Lavrencic (2016), who asserted that lower university retention rates may indicate potential quality issues with the admission process. HESA (2017) reported that there is a large disparity in retention rates across UK universities. They found out that 20% of undergraduate students leave university by the end of the first year in the most affected institutions while fewer than 1% quit from top universities such as Cambridge and Oxford University. Bonetti (2018) explained that in order for Cambridge university to make offers on most of their courses, applicants may have to do the following: submit a Supplementary Application Questionnaire (SAQ) so that the university can collect more data about the students that is not included in the UCAS application; complete a written assessment before or during the interview; attend interviews which could sometimes span a few days. Although various factors outside the scope of my research study have been discussed by researchers such as Arcidiacono, Aucejo, and Hotz (2016), Christie, Munro, and Fisher (2004), and Gordon (2016), to account for the relatively high retention rates

among prestigious UK universities, according to Wong and Lavrencic (2016), the relatively lower attrition rates of such top-tier universities may also be due to their robust admission practices.

According to Gill (2016, 2018), although there are different qualification pathways to higher education in the UK, such as A levels, IB, BTEC, and Pre-U, the A level route remains the most popular, with 70 percent of UK 18-year old's studying three or more A level subjects when they apply to study for higher education study. McAlinden and Noyes (2018) pointed out that in some sixth form schools and colleges, although candidates may be enrolled for a standalone AS (first year A level) examinations at the end of Year 12, the final A level examination is taken at the end of Year 13. As reported by Birch and Rienties (2014), applicants can apply to their universities of choice before the final examination results by including their predicted A level grades for each subject on the application. As noted by UCAS (2015a), and explained by Hay (2016), during the UCAS university application period at the beginning of the second year of the A level programme in September, candidates register with the UCAS service and are expected to apply for up to five university choices. This may be in the same or different subject areas. UCAS (2019c) revealed that at the barest minimum, students are expected to apply to a first-choice university with higher A level grades entry requirement, regarded as the firm option, and a second-choice university with a lower A level grades entry requirement, regarded as the insurance option.The usual deadline for application is 15th January, except for some few prestigious universities such as university of Cambridge and Oxford whose application deadlines are 15th October of the preceding year. Late applications are still received by UCAS between January 16th and June 30th. Atherton (2018) indictated that, although admission offers may be made based on applicants' GCSE results, personal statements, interviews, or a combination of these, the predicted A level grades remains a major decision factor. UCAS (2019b) remarked that the universities then make offers to the candidates which may be conditional upon them meeting their targeted grades or unconditional If an applicant did not receive any offer from all the universities they applied to, or declined any received offer, they are allowed to make two extra choices via the 'UCAS Extra' process. Wyness (2016) explained that predicted grades represent an

estimate of what the student is expected to achieve in the final A level examination results, often referred to as the target grades provided to UCAS before the application deadline.

      2.4.1. The accuracy of predicted A level grade(s). Holliday (2018) claimed that predicting A level grades is a 'flawed science' and the art of accurately predicted A level grades, just like predicting the future, is a daunting one for teachers even when they have up to date performance data of their students such has AS results, class assessment scores and mock exam results, few months to the final A level examinations. Expecting predicted A level grades to be accurate may be an unrealistic aspiration. Everett and Papageorgiou (2011) reported that for the 2009 A level examinations, "51.7% of the A level grade predictions were accurate, 41.7% of all predictions were overpredicted by at least one grade, and only 6.6% of all predicted grades were underpredicted" (p.6). They also found that "under 90% of grades were accurately predicted to within one grade" (p.6). The 'A' grades had the most accurate prediction at 63.8% while 'C' grades has the least accurate prediction, with only 39.4% of "C" grades being accurately predicted. Wyness (2016) revealed an upward trend in the percentage of inaccurately predicted A level grades over the previous years, by showing that for the 2013-2015, only 16 % of grades were accurately predicted, 8.5% of grades were underpredicted, while 75% of grades were overpredicted.

      Vidal Rodeiro and Zanini (2015) found that, when the type of school attended and other background characteristics were accounted for and statistically controlled, students with relatively high final A level grades, such as A and A*, were more likely to have been accurately predicted. Wyness (2016) indicated that students from state schools were more expected to be overpredicted. Wyness (2016) also found that A level grades prediction accuracy varied dramatically according to students' prior educational achievement in college. Lower achieving applicants (from state schools and poorer backgrounds) were far more likely to be overpredicted, whilst high achieving applicants were more likely to be underpredicted. Since low achieving applicants were more likely to be found at state schools, once A level scores and characteristics were controlled, Wyness (2016) found out that state school students were actually less likely to be overpredicted than independent and grammar school students. Atherton (2018) remarked that in spite of the fact that

predicted A level grades are largely inaccurate, the A level prediction system continue to be used in the UK higher education admission process because: it is an established and understood system since the 1980s; changing the system may leave less time for universities to make decisions about offers and; students may be forced to take final A level examinations earlier with possible negative effect on their performance if the prediction system was not used.

2.4.2. Reformed linear A level, its implication for A level predictions and university admissions. UCAS (2015b) noted that the changes to the post-16 qualifications, including vocational, apprenticeships and A level that started in 2015 are "an unprecedented level of qualification reform" (p.32). In regards to university admissions in the UK, the major change to the A levels is the separation of the AS qualification from the overall A level programme. In other words, unlike the modular A level system which was introduced in 2000 to replace the old linear system, the new AS levels no longer contribute to the final A level results. According to UCAS (2015b), the transition to the new qualification will not be fully completed until September 2020, when the first set of university applicants are expected to hold both reformed GCSE and A level qualifications. Gove (2014), who was then the education secretary, described the main reasons for the reformation as follows: (i) to deal with the challenges which resulted from grade inflation; (ii) to encourage confidence in the reliability and integrity of the qualifications; (iii) to better prepare learners for the demands of future study and employment (iv) to better challenge the most able students. The research study conducted by Laws (2013) and submitted to Kevin Brannan, the then UK education shadow secretary, was the major evidence that the government used in revamping the policies regarding the A level qualification system. This study was conducted in 2013 using data on 88, 022 students who completed university education in 2011. Laws (2013) found that GCSE qualification is a better predictor of university degree performance than AS qualification. Laws (2013) also concluded using empirical data, that the use of both GCSE and AS results does not in any way improve the degree of accuracy of the A level predictions. He argued that on this basis, decoupling the AS level qualification from the overall A level programme will not negatively impact the ability of

teachers to provide accurate A level predictions. Laws (2013) made a policy recommendation that universities should make offers to students of schools and colleges based on their GCSE performance. However, Johnson, Jones, Manley, Hoare and Harris (2014) faulted Laws' (2013) study because of the inclusion of incomplete data which should have been excluded, inappropriate modelling strategy, and inconsistent findings. Johnson et. al. (2014) pointed out that the average 18.5% of students who usually do better in the AS levels than in their GCSE results, may miss out on greater higher education opportunities if universities were to make offers based on the GCSE results. Dhillon (2005) explained that the modular GCE A level system which was introduced in 2000 to replace the old linear system, the AS (first year GCE A level) results provided schools and colleges with midpoint feedback report on the progress of students. This enabled the teachers to deduce how many marks their students needed from their second year A2 results so as to achieve a particular final A level grade. Dhillon (2005) argued that this largely helped the teachers in predicting the final A level grades of candidates. In contrast, as pointed out by Gove (2014), the reforms that are expected to be fully effected by September 2020 will take the A levels qualifications back to the linear structure. In this system, A level schools and colleges in the UK will not be expected to offer the AS external examinations in subjects that their students intend to achieve a full A level qualification . Teachers under this arrangement are only left with the option of making of making A level predictions based on GCSE results and internal mock examinations.

UCAS (2019a) published case studies of how the admission offices of five UK universities are responding to the government's proposition that universities should make offers solely using GCSE results. Four out of the five universities have pointed out that they still and will continue to use predicted A level grades as part of their decision process to make offer to students. According to UCAS (2019a), Phil Bloor, head of admissions, Sheffield Hallam University states that "Predicted grades are a key element of an application, and we use them as an indicator of an applicant's academic suitability for their chosen course, alongside other factors such as their performance in completed qualifications and references" (para.50). He remarked that A level predictions will continue to be of relevance in the university's prequalification

admission system. Adams (2018) reported that University of Nottingham, which is one of the Russel group universities, has also announced that as from September 2019, it will be going back to majorly using the traditional approach of making conditional offers based on predicted A level grades.

2.4.3. Accuracy of predicted A level grades and the UK admission process. Wyness (2016) remarked that in most cases, students whose A level grades are overpredicted, usually have their conditional university offer places withdrawn, because they failed to meet their targeted grades. On the other hand, according to Atherton (2018), students who are underpredicted, may never receive offers in the first place from research intensive and top tier universities. They may end up studying courses in universities for which they are overqualified (that is, where their A level grades are higher than the university average). In order to deal with the admission mismatch that often results from making university offers based on predicted A level grades, there has been an increasing dependence on the use of UCAS Clearing, UCAS Adjustment, and the making of unconditional offers.

2.4.3.1. UCAS Clearing. As indicated by UCAS (2018b), Clearing is the way UK universities fill up remaining places on their courses, after candidates who were offered places in the first round have been accepted to the course after the release of the final A level results. It is a matching process which normally starts in August, whereby students who were not successful in the first application cycle which normally starts in January, or who applied late to university after June, can still fill up course vacancies at various UK universities. The process is normally opened in August and may continue in some cases till early October. Craik and Wyatt-Rollason (2002) claimed that it is increasingly becoming a means by which universities hope to deal with the institutional and course mismatch especially for candidates whose A level grades are overpredicted. Potential applicants who lost their conditional university offers due to their final grades being lower than what they were predicted, scramble for available university places. In some cases, according to Starmer-Smith (2010), applicants may not qualify to go through Clearing if their final A level grades are much lower than what any university is willing to accept. Mogaji (2016) noted that the Clearing process is a critical part in the UK universities admission schedule, as it

allows students who miss out on their targeted grades to find available university places. Researchers have demonstrated conflicting views regarding the Clearing process. Craik and Wyatt-Rollason (2002) conducted a study on 50 students who were admitted through Clearing into Brunel University, London, to study Occupational Therapy. Craik and Wyatt-Rollason (2002) found that the Clearing process provided most of the students the opportunity to know that such a course existed at the university. 90% of the respondents were satisfied with their final choice post-clearing. Craik and Wyatt-Rollason (2002) argued that candidates who entered higher education through Clearing are more likely to be conscientious about their academic future, as they tend to take personal responsibility for their eventual choice of what and where to study. On another positive note, Heward and Taylor (1993), concluded that Clearing enables lower ranked universities to still be operational and survive, as they are still able to enrol candidates who may never have applied to them in the first place.

However, Baxter and Hatt (2000) took a negative view of the Clearing process, pointing out that it puts students under pressure to make rash decisions about courses and universities, leaving little time for them to develop a sense of affiliation with the university before the academic year starts. Baxter and Hatt (2000) also argued that in the Clearing process, candidates who are poorly qualified and less motivated may be admitted. These students may then struggle to adjust to the level of academic rigour required by the institution. This is in agreement with Yorke's (1999) assertion, that the inability of a student to cope with academic demands of any institution, is a major contributor to the decision to depart early from higher education. According to UCAS (2018c), out of the 495,410 students who gained admission to full-time study in UK universities through UCAS as at September 2018, 60,100 people were accepted through Clearing. UCAS (2018c) further remarked that there is an expectation that places offered through UCAS clearing will continue to increase every year as universities contend to admit the gradually declining population of 18-year olds in the UK population.

2.4.3.2. UCAS Adjustments. UCAS (2018b) described UCAS Adjustment as the process that enable applicants who exceeded their conditional offers to negotiate their release from the universities

that have accepted them, so as to find alternative courses and/or universities for which they are qualified based on their final A level grades. The affected applicants are usually those whose A level grades were underpredicted. UCAS usually gives them five days to make the decision on switching to their desired university. Macleod (2015) reported that the number of applicants who gained admission via the Adjustment route has steadily increased from 390 in 2009 when it was introduced, to 1,160 in 2014. Mogaji (2016) analysed the websites of 134 UK universities a few days before and after Clearing and Adjustment. Mogaji (2016) found that unlike lower ranked universities who focused more on Clearing, Russell group universities tended to place more emphasis on UCAS Adjustment so that they can attract students with higher grades. Carr (2019) explained that Adjustment was developed by UCAS as a means of dealing with the mismatch that may happen during the admission process due to the under predicted A level grades. The responsibility of finding a match is left to the affected students as they have to contact universities who are willing to take them on before they decline the university places they initially had. According to Carr (2019), UCAS has always maintained that applicants do not have to go through Adjustment if they are satisfied with the universities that already accepted them. Macleod (2015) remarked that there is an increasing trend in which candidates who are qualified for Adjustments do not go through the process, choosing rather to stick to their course and university for which they are overqualified. The reasons given for this are: they do not want to lose their original university place; the Adjustment process is stressful due to the limited time to make a decision, and they have already started to make friends on the course and at the university from which they received the original offer.

    2.4.3.3. Unconditional university offers. According to UCAS (2018a), when course offers are made by universities to students, it can either be conditional or unconditional. In a conditional offer, the A level grades a student needs to achieve before they are admitted on a course, is usually specified. The offers are made to the student based on the expected or predicted grade. Unconditional offers don't require the applicants to meet any further academic requirements or the target of their predicted A level grades. UCAS (2018a) further indicated that the reasons universities give for making unconditional offers

are: to enable mature students who already hold other qualifications to meet university entry criteria; to give applicants of portfolio based courses offers based on their work and performance at interview; to be able to grant admission to capable students whose mental illness may be triggered by exam stress. Adams (2018) claimed that universities are using the medium of unconditional offers as a marketing strategy in a competitive market to forcefully attract students. Most universities will only make unconditional offers to applicants if the students make them their first choice. Also, Adams (2018) pointed out that some UK universities have also been known to change an initial conditional offer to unconditional if the students prioritize them as the first choice. According to Bekhradnia and Beech (2018), UCAS data showed there has been an unprecedented increase in unconditional offers made by universities over the years due to the removal of the limit on the number of students that universities can admit, coupled with the demographic dip in the 18-year old population in the UK. Adams (2018), however noted that the increase in the use of the unconditional offers is disproportionate amongst UK universities, as only 20 out of the 140 universities are heavily using it. For example, according to Adams (2018), The University of Nottingham, a Russel Group university, has announced its commitment to largely stop the use of unconditional offers as from September 2019. It has recently been pointed out that even though there is little research into the implications of making unconditional offers, UCAS (2018d) published data that showed that applicants who were made unconditional offers are increasingly getting less than the expected or predicted A level grades. In the 2018 admission period, 65 percent of those who received unconditional offers had their A level grades over predicted compared to 56% of those who received conditional offers. Based on this reported data analysis, the connection between unconditional offers and A level attainment or accuracy of predicted grades cannot be ignored. According to Sellgren (2018), some stakeholders believe this may be because the students became complacent since their university admission did not depend on their final A level grades. Sellgren (2018) also reported that these stakeholders hold the opinion that this may have far-reaching consequences as such candidates may end up not being adequately prepared for university or missing out on future career opportunities that may require certain A level grades.

2.5. Summary of Literature Review and Research Gap

As demonstrated in the literature review, according to Adamson and Clifford (2002), Gairín et al. (2014), and Sanders et. al. (2016), student retention has been guided by theories and postulates via which researchers seek to understand and interpret the multidimensional individual and institutional interactions that lead to students' decision to stay or leave higher education without completing their studies. Belay Ababu et. al. (2018), Dyson and Renk (2006), and Van Rooij et. al. (2018) have all indicated that, as expected, students generally face challenges and mutifaceted demands when they start university. Crede' and Niehorster (2012) and Terrazas-Carrillo et. al. (2014) demonstrated that successful adjustment to university is the determinant of students' persistence in higher education. Baker & Siryk (1989), Dahmus et. al. (1992), Trevisan, Bass, Powell, and Eckerd (2017) have shown that academic, social, personal-emotional, goal commitment-institutional attachments are contributing factors to retention in higher education. Chiu et. al. (2016) Janke et. al (2017), Marrero (2016), Rodríguez et. al. (2017) and Woodfield, 2014 have linked students' pre-entry characteristics to adjustment to higher education. This provided insight for me to understand the problem of university adjustment and retention in UK universities that I described in section 1.3.

In the United Kingdom, as explained by Atherton (2018) and Vidal Rodeiro and Zanini (2015), university offers are usually made based on predicted A level grades, which have been shown to have a relatively high degree of inaccuracy. Atherton (2018), Everett and Papageorgiou (2011), and Wyness (2016) have highlighted the role that accuracy of predicted A level grades plays in the UCAS admission process. According to Mogaji (2016), the UCAS Clearing and UCAS Adjustments processes have been used by universities to seek to address the lack of 'fit' between students and universities caused by overpredicted and underpredicted A level grades respectively. Baxter and Hall (2000) faulted the UCAS Clearing process for admitting poorly qualified candidates who are often given little time to think through their final choice of

university. Macleod (2015) negatively viewed UCAS Adjustment as a process that puts excessive burden on students to find a match with an institution willing to accept them within few days. The challenges and stress of this has left an increasing number of students staying with their original admission offer for which they are overqualified due to exceeding the predicted grades. Adams (2018) and Sellgren (2018) reported that making of unconditional offers by universities to minimize the need for the use of predicted A level grades altogether in making offers to students, has been linked with institutional and course mismatch. Researchers such as Everett and Papageorgiou (2011), Vidal Rodeiro and Zanini (2015), and Wyness (2016), have identified course and institutional mismatch as challenges posed by inaccurately predicted A level grades on the admission process. Atherton (2018) suggested that the lack of 'fit' between a student and their course or university may be the one of the causes of low retention rates, among other factors.

As demonstrated in the aforementioned literature review, the research on accuracy of predicted A level grades illuminated important findings and pointed to some students being exposed to factors that put adjustment at risk. There is a possibility that poor alignment between predicted and actual A level grades may have a role to play in identifying students 'at risk'. However, at present I was unable to find any study which directly investigated the interplay between these two factors. Given such, further research is justified that could examine students' adjustments to higher education on the basis of the accuracy of their predicted A level grades, in order to address the documented problem of retention in the United Kingdom as discussed in sections 2.1, 2.2., and 2.3. Based on the theoretical framework of Tinto's (1993) Student Integration Theory, that a student's pre-entry attribute will influence their integration to higher education, I hypothesized that there will be in differences in academic, social, personal-emotional, goal commitment-institutional, and overall adjustments between university whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted.

Chapter 3: Research Methodology

This chapter is a description of the research methodology used in this research study. This includes the research design, the participants, the sampling method, the data collection instrument or questionnaire, and the measures that were used in this study. The purpose of this research study is to investigate students' adjustment to higher education on the basis of the accuracy of their predicted A level grades. Included in the concept of adjustment, for the purpose of this study, are the following factors: academic, social, personal-emotional, goal commitment-institutional and overall adjustments. This is viewed as an important contribution to the discourse on retention because the poor alignment between predicted and actual A level grades may have a role to play in identifying students 'at risk'.

3.1. Research Question and Hypotheses

What are the differences in adjustments between university students who have accurate A level grades predictions, and those who have inaccurate A level grades predictions, while statistically controlling for the differences in the year of study?

(a). What are the differences in academic adjustments between university students who have accurate A level grades predictions, and those who have inaccurate A level grades predictions, while statistically controlling for the differences in the year of study?

Null Hypothesis: There are no significant differences in academic adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in academic adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for differences in year of study.

(b). What are the differences in social adjustments between university students who have accurate A level grades predictions, and those who have inaccurate A level grades predictions, while statistically controlling for the differences in the year of study?

Null Hypothesis: There are no significant differences in social adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in social adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for differences in year of study.

(c). What are the differences in personal-emotional adjustments between university students who have accurate A level grades predictions and the students who have inaccurate A level grades predictions, while statistically controlling for the differences in year of study?

Null Hypothesis: There are no significant differences in personal-emotional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in personal-emotional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

(d). What are the differences in goal commitment-institutional adjustments between university students who have accurate A level predictions and those who do not have accurate A level predictions, while statistically controlling for the differences in year of study?

Null Hypothesis: There are no significant differences in goal commitment-institutional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in goal commitment-institutional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for differences in year of study;

(e).   What are the differences in overall adjustments between university students who have accurate A level predictions and those who do not have accurate A level predictions, while statistically controlling for the differences in year of study?

Null Hypothesis: There are no significant differences in overall adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study;

Alternative Hypothesis: There are significant differences in academic adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

3.1. Overview of Methodology.

Since the purpose of this study was to examine adjustment of students to higher education on the basis of the accuracy of their predicted A level grades, I had to examine the differences in adjustments between university students who had accurate A level grade predictions, and those who had inaccurate A level grade predictions, while statistically controlling for the differences in the year of study. This necessitated my use of a quantitative research methodology in this research study, as I had to presume a pre-existing reality between the variables of accuracy of predicted A level grades and that of adjustment. Specifically, a quasi-experimental comparative design was utilized to examine the differences between the two groups of university students, that is, those whose A level grades were accurately predicted and those whose A level grades were not accurately predicted. According to Creswell and Creswell (2017), quantitative research is based on the idea that there exist defined associations, relationships, and causes and effects between variables unlike in a qualitative research in which no such pre-existing reality exist.

A quantitative approach to this study was chosen over that of a qualitative methodology as this study involved the collection of numerical data and analysis using statistical tools to explain what differences exist in adjustments to higher education between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted.

As indicated by Brannen (2017), a quantitative research methodology is a positivist research stance for acquiring knowledge through the use of structured inquiry such as surveys and experiments. It involves the collection and collation of data that can be further analysed to explain a phenomenon. Creswell and Creswell (2017) explained that a quantitative research is deductive as it allows ideas regarding relationships between variables to be tested by nullifying or verifying stated theories or hypotheses. In this research study, statistical data was collected from questionnaire results in order to test for hypothesis and establish relationships between the dependent and independent variables. This further justified the use of a quantitative methodology for this study.

3.2. Research Design

A quasi-experimental quantitative research design method was utilized in this research study. Reichardt (2009) asserted that a quasi-experimental method is usually employed to investigate a hypothesis where the treatment cannot be controlled. Lucasey (2002) explained that the quasi-experiment is not a true experiment as there are no random selection and assignment to groups. In this research study, the independent variable is the accuracy of the predicted A level grades which yielded the two self-selecting non-random groups of university students, with accurately and inaccurately predicted A level grades, the dependent variables are the measure of university adjustments (that is, academic, social, personal-emotional, goal commitment-institutional and overall), and the covariate is the number of years the students have been in university. This justified the use of a quasi-experimental research method.

3.3. Participants

The target population of this research study are UK university students in year 1 or year 2, whose A level grades were predicted by their teachers as part of the UCAS university admission process. Initially, I

considered recruiting participants who were first and second-year students from the University of Manchester and the University of Liverpool due to the possibility of gaining access to a relatively large population of students. I assumed I might find it easier to be granted access by both universities as I am an alumnus of the University of Manchester and a doctoral candidate at the University of Liverpool. However, due to the challenge posed by access when I made initial inquiries at both universities, I decided to recruit only students who are alumni of a UK college, in which I am employed. I have discussed my position as a researcher and the research context in section 1.2. Access was granted by the college. This included access to the contact details of all alumni who graduated in the years 2017 and 2018, and the authorization to invite them to participate in this research. Therefore, the study population were the 147 college students who sat for their final A level examinations in the years 2017 and 2018, and were expected to be in first or second year of university at the time of data collection. This study population was chosen because, according to Elias, Noordin, and Mahyuddin (2010) and Fernandez (2015), the influence of pre-entry factors on adjustment to university are most significant in the first two years. In addition to this notion, the choice of alumni who have graduated in the years 2017 and 2018 as the research population, also allowed for a relatively more sizeable population compared to investigating alumni who graduated in only one academic year. There was a possibility that some of the alumni in this population may not have gone to higher education or may have left higher education before the conduction of this study. Such alumni were excluded when applying the inclusion and exclusion criteria to the sample. This is discussed further in section 3.5.

3.3.1. Determination of sample size. As noted by Sekaran and Bougie (2010), a sample is a subset of the research population. This implies that the sample is expected to be a statistical representation of the target population as much as possible. This affords the researcher the right of generalization, which in the context of this thesis, will be all alumni of our college. Chow, Shao, Wang, and Lokhnygina (2017) remarked that the sample size must be sufficient enough to achieve a statistically satisfactory result but also not too large as to lead unnecessary participant recruitment, which may amount to time wastage, unnecessary costs and ethical concerns. Chander (2017) claimed that in order for

the sample size to be optimum, its determination must not be arbitrary, but by the scientific method, probably implemented by a software, that takes into consideration the study design and significance. Various software packages have been developed to determine sample size. Various software packages have been developed to determine sample size, such as PS (Dupont & Plummer, 1997), STPLAN (Brown et. al., 2000), GPower (Faul, Erdfelder, Lang, & Buchner, 2007), PASS 2000 (Hintze, 2000), and *nQuery Advisor* (Elashoff, 2000). Each has certain features and unique sample size determination parameters, but the G Power software was chosen to determine the sample size for this research study because of its user-friendliness and suitability for a diverse eange of research structure and design.

Whitehead, Julious, Cooper, and Campbell (2016) explained that in order to determine the appropriate sample size using the G Power software, alpha (α), the beta (β), and the effect size (d) of the research population should be determined or reasonably estimated within the given framework of the research study design. These three parameters have to be reasonably estimated by the researcher when calculating the sample size using the G Power software. Whitehead et. al. (2016) also indicated that alpha is the chance or probability that the researcher will make a Type 1 error, which is, the error of rejecting the proposed null hypothesis, when it is indeed true. Field (2005) pointed out that, alpha is usually set to 0.05 as a standard in most quantitative research, which implies that there is a reasonably acceptable 1 in 20 chance that the researcher will reject the proposed null hypothesis, when it is actually true. Field (2005) and Whitehead at. al. (2016) described beta as the lowest acceptable probability for a Type 2 error, which is the chance that the researcher will not reject a false null hypothesis. Beta is used to evaluate the power of the statistical test, which is the chance of being able to detect any difference in the specified effect size, by subtracting it from one. Field (2005) maintained that the standard value of beta in most quantitative research is 0.2, which yields a power of 0.8, when subtracted from 1. Chander (2017) argued that in order to have an appreciable study impact, it is standard practice in most statistical studies to fix the values of alpha as 0.05 and power as 0.8 before the study. This was the justification for my choice of alpha as 0.05 and power as 0.8 when I ran the Gpower software in this research study.

The next step is to estimate an appropriate effect size. Gignac and Szodorai (2016) expressed effect size as a measure of the deviation from the null hypothesis that is considered significant enough to warrant the attention of the researcher. This implies that any deviation or effect that is smaller than the stated effect size is ignored. Gignac and Szodorai (2016) also remarked that apart from the alpha and power specified for the study, the value of the proposed effect size can have a great impact on the determination of an appropriate sample size. They therefore conclude that caution should be taken when estimating the effect size. Cohen (1988, 1992) developed and justified his convention of small, medium, and large effect sizes on the basis of the statistical tool used for data analysis. Cohen (1988, 1992) arrived at the values of 0.10, 0.25, and 0.40 for small, medium, and large effect sizes when carrying out an ANCOVA test. However, Kim and Seo (2013) cautioned against over-relying on Cohen's values as his method assumed a constant sample size. Kim and Seo (2013) advocated that a researcher should propose effect sizes by considering theoretical context of the research and previously published related research. Werther, Delgado-Romero, Broder, and Bertrand (2008) reported large effect sizes when they used one-way ANOVA to find the differences in university adjustments between transfer and non-transfer university students at the University of Georgia, using data collected via the SACQ instrument. I used this as a point of reference for my study to choose a relatively large effect size of 0.5. Gignac and Szodorai (2016) remarked that a large effect size is an effect which is consistently big enough, that it can be visually observed. Adjustment and retention are supposed to be socially observable phenomena. This means that as far as this study is concerned, if the means of scores of the SACQ scales for the two independent groups of participants do not differ by at least 0.5 standard deviations, the difference is considered trivial, even if the difference is statistically significant. In the context of this research, I expect to see a considerable difference as estimated by the large effect size of 0.5 in how the two independent groups adjust to university before accepting the alternative hypothesis. Conversely, a large effect size of 0.5 may not be appropriate if the ANCOVA analysis resulted in the failure to reject the null hypothesis, as the test will not be able to detect any difference less than 0.5 deviations in the two groups.

G*Power software version 3.1.9.2 for Mac, was used to calculate the minimum sample size that represents the population. As previously justified in this section, alpha was taken as 0.05, power as 0.8, and effect size f as 0.5. The group size of 2 was used as the sample will be divided into two independent groups. The Gpower results yielded the needed minimum sample size of 34 for both groups, with minimum of 17 in each group (see Appendix B). Apart from the use of statistical software packages, which has gained recent popularity in determining appropriate sample size that justifies findings, there are other manual approaches in the literature for sample size estimation. Schreiber, Nora, Stage, Barlow, and King (2006) suggested that for each study variable, there should be at least 10 respondents. This was further supported by Hair, Black, Babin, Anderson, and Tatham (2010), who advocated five respondents for each variable as a barest minimum, but also advised that the most acceptable would be to have 10 samples for each variable. In another method, Roscoe (1975) advocated (as cited in Sekaran and Bougie, 2010) that sample size larger than 30 and less than 500 are appropriate, and the sample size should be several times (preferably 10 times or more) as large as the number of variables in multivariate study. In this research study, there are only two variables for each ANCOVA test. A minimum sample size of 34 therefore meets the suggestions in the aforementioned literature.

3.4. Instruments

According to Palinkas et. al (2015), data collection tools or instrument allow the researcher to obtain reliable information and data to achieve the research objectives. In the case of this study, I used the survey method as a means of data collection as this was dictated by the research methodology and design already discussed in sections 3.1 and 3.2. Patten (2016) remarked that a collection instrument is any resource, device or format (paper or digital), which can be used to obtain, record, or store information. According to Patten (2016), questionnaires which usually consists of prepared questions given to the respondents to answer, are often used as the data collection instrument for surveys. Questions can be in the form of an open-ended questionnaire that allows flexibility of responses from the participants or close-ended, which only allows them to choose between answer options. A close-ended questionnaire requires direct answers, for example, yes or no, right or wrong, or simply a response on a scale that ranges from minimum to maximum.

In this research study, the student adaptation to college questionnaire (SACQ) which was developed by Baker and Siryk (1989), as a closed ended questionnaire was used to collect data. As pointed out by Dahmus et. al. (1992), the SACQ is a 67-item questionnaire developed to measure how well students are adjusting to college or university. Soledad, Carolina, Adelina, Fernandez and Fernanda (2012) remarked that the SACQ which was developed and popularized in the United States, is one of the most important tools for quantifying university adjustment. Soledad et. al. (2012) also noted that, over the years, the SACQ has been adapted into various languages and educational contexts in different parts of the world. According to Mohamed (2012), some of the items of the SACQ have been adapted to the context of the UK educational system with the permission of the copyright holders (for example, the change of 'college' to 'university', dormitory' to 'halls of residence', and 'professor' to 'lecturer'). Due to copyright issues, the full SACQ is not included in the appendices, however the approved section can be found in Appendix D.

Baker & Siryk (1989) and Dahmus et. al. (1992) explained that there are four adjustment measurement indices or subscales: Academic (24 items), Social (20 items), Personal-Emotional (15 items) and Goal Commitment-Institutional (15 items). The Academic Adjustment index measures a student's success at being able to cope with their educational experience. The Social Adjustment index measures the levels of how far the student is able to cope with interpersonal-societal demands at university. The Personal-Emotional index measures the physical and psychological state of the student. The Goal Commitment index measures the student's ability to focus on what they want to achieve during their study. Scores are rated on a 9-point Likert scale that ranges from "Doesn't apply to me at all" to "Applies very closely to me". In this study, the questionnaire was administered to the population as predefined through purposive sampling which is described in section 3.5. Participants indicated on a 9-point scale ranging from 1 (applies very closely to me) to 9 (doesn't apply to me at all). There are defined items on the SACQ which correspond to each Adjustment Subscale (see section 3.7.1).

3.4.1. Reliability and validity of the SACQ. According to Trevino (2012), the reliability of a data instrument is the degree to which it either produces the same results or similar results within a

reasonable range, when repeatedly applied to the same subject or object. In this case, any discrepancy in the result must not be due to instrumental defects. This implies that the reliability of the questionnaire is represented by the ability to obtain identical results when similar questions are applied in relation to its phenomena. Also, Hair et al., (2010) explained that reliability is the degree to to which a variable or a set of variables consistently and coherently quantifies what it claims measures.

According to Pallant (2007), internal consistency is one of the major ways of calculating reliability. In this case, it is the extent to which the items that make up the instrumental scale are able to provide a reasonable measure of the attribute they were developed to quantify. In this study, the normal Cronbach's alpha was calculated and not the standardized one, because the set of items of the SACQ scale have the same units of measurement. The normal Cronbach alpha uses the correlation between items of the same units, while the standardized Cronbach's alpha is used when the set of items of the scale has different units of measurement with the reliability based on the standardized items uses the covariances between them. Bonett and Wright (2015) asserted that a Cronbach's alpha of 0.70 or higher is usually an acceptable level in social science research for reliability. According to Baker and Siryk (1989), reliability is established when the alpha coefficients are 0.83 to 0.90 for academic adjustment, 0.83 to 0.91 for social adjustment, 0.77 to 0.86 for personal-emotional adjustment, 0.85 to 0.91 for goal commitment-institutional adjustment, and 0.92 to 0.95 for the overall adjustment scale.

Validity aims to determine if the SACQ actually assesses what it intends to measure. In a previous study using the SACQ carried out by Dahmus et. al. (1992), validity had already been demonstrated by data indicating that the academic adjustment measured by the SACQ is significantly associated with student academic performance and GPA (0.17 to 0.53, $p < 0.01$), personal-emotional adjustment and contact made with university counselling services (-.23 to .34, $p < .01$), goal commitment institutional attachment and attrition (-.27 to -.41, $p < .01$), and social adjustment scale was found to be correlated with social activity checklist scores.

3.5. Sampling Procedure

I utilized purposive sampling, which according to Brick (2015), is an example of a non-probability sampling technique. Etikan, Musa, and Alkassim (2016) explained that purposive sampling is the selective choice of a research participant purely on the basis of the relevance of the qualities of the participants to the research study. Bernard (2002) summarises that, this is a sampling technique in which the researcher finds research respondents that are able to provide the needed information for what it is under study in the research. It is basically a sampling procedure that employs inclusion and exclusion criteria to determine what subjects or participants end up in the sample. I decided against the use of a random probability sampling technique because the target population must possess certain unique characteristics. Etikan et. al. (2016) argued that even though purposive non-probability sampling has been widely used in qualitative research where there is no intention to generalize the study, it has also been used in quantitative research, where the aim is not necessarily to arrive at a sample that directly estimates the population but to develop a model for generalized application.

The selection of the sample of research participants for this study was based on inclusion and exclusion criteria, which were vetted with the students' responses to a set of pre-questionnaire questions (see Appendix C). The study population from which the sample was drawn were UK university students who were alumni of a UK college. The sample of this study were the two predefined groups of participants, which included participants whose A level grades were accurately predicted and those whose A level grades were not accurately predicted. There was, therefore, self-selection of the students based on the group identity of the independent variable, justifying the use of purposive sampling. The following is the inclusion and exclusion criteria of the study.

Inclusion Criteria:

- Students who graduated from the UK college in the last two years prior to the study;
- Students who gained university admission into a UK university via the A level route;
- Students who sat three A levels prior to gaining the university admission; and

- Students in the first or second year of study in a UK university.

Exclusion criteria:

- Students who are enrolled in a non-UK university;

- Students who gained university admission via other non-A level routes;

- Students who received unconditional university offers;

- Students who sat for less or more than three A level subjects; and

- Students who are in other years in the university apart from year 1 or year 2.

Before the respondent answered the SACQ (see Appendix C), they had to respond to the following questions, which were used to vet the eligibility criteria before they ended up in the sample:

- Are you currently studying in a UK university? Yes or No;

- What is your current year of study at the university? Year 1, Year 2, or Other Years;

- How many A level subjects did you sit for? 1,2, 3 or others;

- If you secured admission via the A level route, were you accurately predicted by your teacher(s) for all the A level subjects. Yes or No. If at least one of your A level subjects was either overpredicted or underpredicted, please answer, No.

The responses provided to the last question were used to separate the sample into two independent groups. Apart from the accuracy of predicted A level grades, no effort was made to ensure equal representation in sample selection for gender, socio-economic background, ethnicity, disability, age, university attended, or any other distinguishing characteristic, as the study population was sampled purposively.

3.6. Data Collection

The 147 college alumni were emailed the participant information sheet (PIS) (see Appendix A) 5 days before the questionnaire was emailed to them. The questionnaire was made up of prequestionnaire questions that I created to vet the eligibility criteria (see appendix iii) and the SACQ (see appendix iv). Permission was

obtained from the Western Psychological Services (WPS) who are the copyright holders of the SACQ, to replicate the SACQ as a webform on the survey website https://www.mysurveylab.com. The link of the webform was then emailed to the students through the survey website software system. The collection of data via an online webform allowed for the participants to provide the responses at their own convenience, saving cost and time compared to administering the questionnaire in person. The students' responses were anonymous and they were deemed to have given implied consent if they submitted their responses. The responses were tracked through the survey website, collated, and vetted based on the responses of the participants to the eligibility criteria questions. In order to ensure there were no incomplete responses, from my administrator account of the survey website, I marked each item of the SACQ as a compulsory response before submission of the completed questionnaire can be allowed, except for the SACQ item 26, "I enjoy living in a university residence hall (please omit if you do not live in a university residence hall; any university housing should be regarded as a university residence hall)". This is because some of the students that end up in the sample may not be living in university residence halls as at the time of data collection.

I resent the links once every week for three weeks. There were 48 responses in all, representing a response rate of 32 percent. 5 responses did not meet the eligibility criteria as discussed in section 3.5. The eligible responses were separated into two groups (participants whose A level grades were accurately predicted and participants who were not). I found that 23 participants reported that they were over or underpredicted by at least one grade in at least one A level subject, while 20 participants reported that they were accurately predicted for all three A level subjects. According to Keppel and Wickens (2004), unequal sample sizes of groups can lead to inhomogeneity of variances, which is required before ANCOVA test can be used in data analysis. In order to ensure equal sample size and homogeneity of variance for both groups, I had to ignore the last 3 responses in the sample group of participants whose A level grades were inaccurately predicted. Therefore, I ended up with a sample size of 40 comprising of 20 participants the sample group of those whose A level grade were inaccurately predicted, and 20 participants in the sample group of students whose A level grades were accurately predicted. The final sample size of 40 exceeded the minimum required sample size of

34 that was calculated using the G power software. Gold (1990) did an exploratory study, which was published by the United States department of education, on the correlation of SACQ scores and students' GPA, using a sample of only 29 black first-year undergraduate students.

3.7. Data Preparation and Analysis

 3.7.1. Data preparation. As discussed in the data collection section, before submitting their responses, the students rated each of the items on the SACQ 9-point Likert scale ranging from 1 'doesn't apply to me at all' to 9 for 'applies very closely to me'. I downloaded all submissions from the backend of the survey website in excel format. The downloaded data was for the 67-item full SACQ scale. The items that make up each of the four subscales are shown in Appendix E. This was used to categorize the submissions into the four subscales and overall scale. The 67 statements or items on the full SACQ are worded positively and negatively. The following items express negative statements: 2 ,6,7, 10, 11, 12, 17, 20, 21, 22, 25, 28, 29, 31, 32, 34, 39, 41, 42, 48 51, 52, 56, 57, 58 59, 60, 61, which have to be reverse scored. SACQ items are supposed to be scored in the positive direction to adjustment, so that higher scores indicate better student's self-reported adaptation to university. In order to have the same consistent positive reference frame for responses to all items, I reversed the negative items, summed up the numeric values so as to obtain a total score and mean score for each subscale and full scale. Two participants whose A level grades were inaccurately predicted and one participant whose A level grades were accurately predicted missed the only optional question, probably because they did not live in a university residence hall or accommodation. I substituted these missing scores with the average score of the Social Adjustment subscale for each group. This approach was adopted by Stoklosa (2015) who reported some skipped responses when the SACQ instrument was administered online to undergraduate students, aged 18-25, at Wayne State University, United States. I created an excel database with columns for the sample group (x=0) whose A level grade were inaccurately predicted, and for the sample group (x=1) whose A level grades were accurately predicted, year of study (year 1 or year 2), and the total and average score for the four subscales and overall scale.

3.7.2. Data analysis. In order to investigate the differences in adjustments to university between participants whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, we have to determine if there are significant differences between the mean scores of the university adjustment indices as measured by the SACQ for the two sample groups. The one-way analysis of variance (ANOVA) was initially considered as the statistical tool of choice. Park (2009) indicated that ANOVA can be used to determine if there are differences between two independent groups. As previously discussed, the collected sample comprises of university students who are in first and second year of university study. The differences in adjustments to university as a result of the difference in year of study was not of primary interest in this research study, so the year of study had to be controlled as a covariate. The ANOVA does not allow for the control of a covariate, and therefore cannot be used for the data analysis. As a result, this research study utilized ANCOVA (Analysis of Covariance), which according to Gomm (2009), is a statistical tool used to examine the difference in the mean of the values of the dependent variable across categorical levels of the independent variable, while statistically controlling a third variable. Huitema (2005) also emphasized that the benefit of using ANCOVA over ANOVA is that it statistically controls the effects of the covariate variable that is not the focus of the study. The ANCOVA was carried out to examine the differences in the subscale and full scale SACQ adjustment indices between the group whose A level grades were accurately predicted and the group whose A level grades were inaccurately predicted. The software used was SPSS version 24 for Windows. The excel database for the four subscales and overall scale were imported to SPSS for analysis as explained in the next paragraph.

In order to answer the research question and subquestions, descriptive statistics was utilized to describe the average score, standard deviation of the responses for the four subscales and overall scale of the SACQ, Levene's test to confirm the homogeneity of variances, and ANCOVA to find out if there were significant differences between the academic adjustments of the two groups, while statistically controlling for the difference in year of study. The estimated marginal means for the two groups were also calculated, by

adjusting for the differences in the year of study (covariate), to demonstrate which of the sample groups had greater adjustments on the basis that the ANCOVA yielded significant results for the differences between the two groups. A one-tailed t-test was then carried out to substantiate the claims regarding which of the two groups exhibited higher academic, social, personal-emotional, goal commitment-institutional, and overall adjustments to university. A one-tailed test is usually used instead of a two-tailed test to validate a claim that already suggested that the mean score of one group is higher than the other.

3.8. Access Issues

Since the respondents are alumni from a UK college, who are now studying in various UK universities, I requested approval from the college to gain access to make use of the college data. Access was granted to use the alumni's contact details database. A major condition attached to the approval was that the responses of the students to the questionnaire will be anonymous. Although, it would have been great to use the record of the accuracy of predicted A level grades for each student that we hold on file in the college, along with their questionnaire submissions, I was unable to do this due to the imposed condition of anonymity attached to the approval for access. This ruled out the possibility of carrying out a mixed method research using interviews which will have provided more insight into the quantitative data. As a result of this anonymity condition that the approval was subject to, accuracy of predicted A level grades and year of study at the university were self-reported by the students and vetted based on their responses.

3.9. Ethical Considerations

In order to avoid any conflict of interest or coercion, the researcher did not have any physical contact with the respondents. The aim of the research was disclosed to students via the participant information sheet, so as to ensure, that they filled the online questionnaire in awareness of the objective of the study. As mentioned earlier, the students' responses were anonymous, which aimed to improve the accuracy and honesty of the responses/feedback and increasing the response rates. In addition, other ethical principles that the researcher considered include objectivity, honesty, carefulness, competence, and non-discrimination.

3.10. Chapter Summary

This chapter began with description of the research methodology and the design adopted in this study. The minimum sample size of 34 was estimated using the G power software. Data was collected from the sample using the 67-item SACQ for the academic, social, personal-emotional, goal commitment-institutional adjustment subscales and the overall scale. The final sample size of 40 was then separated into two groups of 20 participants each, based on responses to the last question on the pre-questionnaire. Descriptive and inferential statistics were then used in data analysis in order to answer the research questions. The next chapter will contain the results from the data analysis.

Chapter 4: Results

The purpose of this research is to explore adjustment to higher education, in view of retention, amongst UK university students who are alumni of a UK college, on the basis of the accuracy of their predicted A level grades. Adjustment will include: academic adjustment, social adjustment, personal-emotional adjustment, goal commitment-institutional adjustment and overall adjustment. The following research questions were investigated.

I asked, "What are the differences in adjustments between university students who had accurate A level predictions and the university students who did not have accurate A level predictions, while statistically controlling for the differences in year of study?" In this study, the dimensions of adjustments are: academic, social, personal-emotional, goal commitment-institutional and overall.

In order to answer this research question and the sub-questions, a one-way ANCOVA was performed, using accuracy of predicted A level grades as independent variable (X) and the mean scores of the Academic, Social, Personal-Emotional, Goal Commitment-Institutional Adjustment subscales as well as the Overall Adjustment scale as the dependent variables. A significance level of 0.05 was used.

4.1. Descriptive Statistics

The mean and standard deviation of the scores of the subscales and overall scales are presented in the following tables (Table 1, Table 2, Table 3, Table 4, & Table 5).

Table 1

Descriptive Statistics for Academic Adjustment

X	Mean	Standard deviation	N
0	4.7	0.9	20
1	6.8	1.2	20
Total	5.8	1.5	40

Table 2

Descriptive Statistics for Social Adjustment

X	Mean	Standard deviation	N
0	4.8	0.9	20
1	6.8	1.1	20
Total	5.8	1.4	40

Table 3

Descriptive Statistics for Personal-Emotional Adjustment

X	Mean	Standard deviation	N
0	5.0	0.9	20
1	6.7	1.7	20
Total	5.9	1.6	40

Table 4

Descriptive Statistics for Goal Commitment-Institutional Adjustment

X	Mean	Standard deviation	N
0	4.9	1.0	20
1	7.2	1.4	20
Total	6.0	1.7	40

Table 5

Descriptive Statistics for overall scale Student Adaptation to College Questionnaire

x	Mean	Standard deviation	N
0	4.8	0.9	20
1	6.9	1.3	20
Total	5.9	1.5	40

4.2. Levene's Tests

In ANCOVA analysis, the assumption is that the variances of the populations from which different samples were taken from are the same. The Levene's test was therefore carried out to assess the equality of the population variances for the scores of the Academic, Social, Personal-Emotional and Goal Commitment-Institutional Adjustment subscales and the Overall Adjustment scale, before proceeding to the ANCOVA analysis. The result of the Levene's tests shown in the following tables (Table 6, Table 7, Table 8, Table 9, & Table 10) proved the equality of the variances. Probability values (p-value) greater than 0.05 indicated that there were no differences between the variances in the population from which the two groups, x=0 (participants whose A level grades were inaccurately predicted) and x=1 (participants whose A level grades were accurately predicted), were drawn.

Table 6

Levene's Test of Homogeneity of Variances for Academic Adjustment

F	df1	df2	Probability
0.762	1	38	0.388 ns

Table 7 : Levene's Test of Equality of Error Variances for Social Adjustment

F	df1	df2	Probability
0.229	1	38	0.635ns

Table 8

Levene's Test of Equality of Error Variances for Personal-Emotional Adjustment

F	df1	df2	Probability
3.978	1	38	0.053ns

Table 9

Levene's Test of Equality of Error Variances for Goal Commitment-Institutional Adjustment

F	df1	df2	Probability
1.586	1	38	0.216ns

Table 10

Levene's Test of Equality of Error Variances for Overall Adjustment

F	df1	df2	Probability
1.636	1	38	0.209ns

4.3. ANCOVA

Results of the ANCOVA as shown in the following tables (Table 11, Table 12, Table 13, Table 14, & Table 15)) indicated that there were statistically significant differences between the scores of the academic, social, personal-emotional, goal commitment-insitutional and overall scales of participants whose A level grades were inaccurately predicted (x=0) and the participants whose A level grades were accurately predicted (x=1) after controlling for the differences in year of study. The effect of accuracy of predicted A level grades (independent variable 'X') on the five adjustment indices (dependent variable) after controlling for the differences in year of study was therefore significant. The covariate 'Year' was not significant ($p > 0.05$) indicating that the differences in the year of study did not have a significant effect on academic adjustment. Therefore, I rejected the null hypothesis for all five adjustment indices, implying that there were differences in adjustments (academic, social, personal-emotional, goal commitment-institutional, and overall) between the sample groups of students who had accurate A level predictions and those who had inaccurate A level predictions, while controlling for the differences in the year of study.

Table 11

Tests of Between-Subjects Effects for Academic Adjustment

Source	Type III Sum of Squares	df	Mean Square	F	Probability	Partial Eta Squared
Corrected Model	46.657	2	23.328	20.152	1.000E-5	0.521
Intercept	183.707	1	183.707	158.693	5.963E-15	0.811
Year	2.381	1	2.381	2.057	0.160	0.053
X	45.223	1	45.223	39.065	2.880E-7	0.514
Error	42.832	37	1.158			
Total	1419.667	40				
Corrected Total	89.489	39				

Table 12

Tests of Between-Subjects Effects for Social Adjustment

Source	Type III Sum of Squares	df	Mean Square	F	Probability	Partial Eta Squared
Corrected Model	41.550	2	20.775	20.544	9.974E-7	0.526
Intercept	168.492	1	168.492	166.622	2.848E-15	0.818
Year	0.645	1	0.645	0.573	0.430	0.017
X	41.327	1	41.327	40.869	1.849E-7	0.525
Error	37.415	37	1.011			
Total	1436.773	40				
Corrected Total	78.965	39				

Table 13

Tests of Between-Subjects Effects for Personal-Emotional Adjustment

Source	Type III Sum of Squares	df	Mean Square	F	Probability	Partial Eta Squared
Corrected Model	33.724	2	16.862	9.747	3.980E-3	0.345
Intercept	201.082	1	201.082	116.235	5.676E-13	0.759
Year	3.910	1	3.910	2.260 ns	0.141	0.058
X	30.858	1	30.858	17.838	1.500E-3	0.325
Error	64.009	37	1.730			
Total	1476.009	40				
Corrected Total	97.733	39				

Table 14

Tests of Between-Subjects Effects for Goal Commitment-Institutional

Source	Type III Sum of Squares	df	Mean Square	F	Probability	Partial Eta Squared
Corrected Model	56.431a	2	28.215	18.219	3.000E-5	0.496
Intercept	178.778	1	178.778	115.436	6.257E-13	0.757
Year	0.577	1	0.577	0.373	0.545	0.010
X	56.292	1	56.292	36.347	5.738E-7	0.496
Error	57.302	37	1.549			
Total	1568.973	40				
Corrected Total	113.733	39				

Table 15

Tests of Between-Subjects Effects for overall scale Student Adaptation to College Questionnaire

Source	Type III Sum of Squares	df	Mean Square	F	Probability	Partial Eta Squared
Corrected Model	42.480a	2	21.240	18.209	3.00E-5	0.496
Intercept	183.256	1	183.256	157.106	6.038E-15	0.809
Year	1.761	1	1.761	1.509 ns	0.227	0.039
X	41.489	1	41.489	35.569	7.026E-7	0.490
Error	43.159	37	1.166			
Total	1457.334	40				
Corrected Total	85.639	39				

4.4. Estimated Marginal Means

The estimated marginal means of the academic, social, personal-emotional, goal commitment-institutional, and overall adjustments of the two groupd were calculated. These values represent the adjusted means (the original means adjusted for the covariate). As shown in the following tables (Table 16, Table 17, Table 18, Table 19, & Table 20), the estimated marginal means of group x=1 (participants whose A level grades were accurately predicted) were higher than those in group x=0 (participants whose A level grades were inaccurately predicted).

Table 16

Estimated Marginal Means for Academic Adjustment

x	Mean	Standard error	95% confidence interval	
			Lower bound	Upper bound
0	4.702	0.241	4.214	5.190
1	6.831	0.241	6.344	7.319

Table 17

Estimated Marginal Means for Social Adjustment

x	Mean	Standard error	95% confidence interval	
			Lower bound	Upper bound
0	4.808	0.225	4.353	5.264
1	6.844	0.225	6.388	7.300

Table 18

Estimated Marginal Means for Personal-Emotional Adjustment

X	Mean	Standard error	95% confidence interval	
			Lower bound	Upper bound
0	4.990[a]	0.294	4.394	5.587
1	6.750[a]	0.294	6.153	7.346

Table 19

Estimated Marginal Means for Goal Commitment-Institutional Adjustment

X	Mean	Standard error	95% confidence interval	
			Lower bound	Upper bound
0	4.844	0.278	4.280	5.408
1	7.220	0.278	6.655	7.784

Table 20

Estimated Marginal Means for Overall Adjustment

x	Mean	Standard error	95% confidence interval	
			Lower bound	Upper bound
0	4.836	0.242	4.347	5.326
1	6.876	0.242	6.386	7.365

4.5. One Tailed t-tests

There was still the need to carry out one-tailed t-tests in order to substantiate if the estimated marginal means of group x=1 are statistically higher than those of x=0 as reported in section 4.4. As shown in the following tables (Table 21, Table 22, Table 23, Table 24, and Table 25), the Levene's test results were not significant, thereby indicating equal variances for the two groups as I previously demonstrated in section 4.2. The results of the one tailed t-test analysis as depicted in Table 21, Table 22, Table 23, Table 24 , and Table 25 showed that there were significant differences in academic, social, personal-emotional, goal commitment-institutional, and overall adjustments, between participants whose A level grades were accurately predicted and those whose A level grades were not accurately predicted. Due to the results being that of a one-tailed t-test, specifically, this implied that participants who were accurately predicted have a greater level of academic, social, personal-emotional, goal commitment-institutional, and overall adjustments than participants who were inaccurately predicted.

Table 21

Independent Samples One Tailed t-test for Academic Adjustment

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (1-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.647	0.207	6.100	38	4.15E-7	2.10	0.345	1.406	2.802
Equal variances not assumed			6.100	35.6	5.35E-7	2.10	0.345	1.404	2.804

Table 22

Independent Samples One Tailed t- test for Social Adjustment

	Levene's Test for Equality of Variances		t-test for Equality of Means							
							Std. Error Differ-ence	95% Confidence Interval of the Difference		
	F	Sig.	t	df	Sig. (1-tailed)	Mean Differ-ence			Lower	Upper
Equal variances assumed	0.581	0.451	6.391	38	1.66E-7	2.02	0.316		1.382	2.663
Equal variances not assumed			6.391	36.9	1.89E-7	2.02	0.316		1.382	2.664

Table 23

Independent Samples One Tailed t- test for Personal-Emotional Adjustment

	Levene's Test for Equality of Variances		t-test for Equality of Means							
							Std. Error Differ-ence	95% Confidence Interval of the Difference		
	F	Sig.	t	df	Sig. (1-tailed)	Mean Differ-ence			Lower	Upper
Equal variances assumed	6.503	0.015	4.084	38	2.20E-4	1.727	0.423		0.871	2.583
Equal variances not assumed			4.084	29.3	3.13E-4	1.727	0.423		0.862	2.591

Table 24

Independent Samples One Tailed t- test for Goal Commitment-Institutional Adjustment

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (1-tailed)	Mean Differ-ence	Std. Error Differ-ence	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.809	0.187	6.056	38	4.78E-7	2.36	0.390	1.573	3.153
Equal variances not assumed			6.056	35.1	6.44E-7	2.36	0.390	1.571	3.155

Table 25

Independent Samples One Tailed t- test for Overall Adjustment

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (1-tailed)	Mean Differ-ence	Std. Error Differ-ence	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	2.716	0.108	5.869	38	8.61E-7	2.02	0.344	1.322	2.714
Equal variances not assumed			5.869	33.7	1.00E-6	2.02	0.344	1.319	2.714

4.6. Reliability of the Student Adaptation to College Questionnaire and its Subscales

The following table (Table 21) shows the Cronbach's alpha for the reliability test of the Student Adaptation to College Questionnaire (SACQ) and its subscales. Cronbach's alpha values were 0.974, 0.964, 0.962 and 0.966 for the subscales Academic Adjustment, Social Adjustment, Personal-Emotional Adjustment and Goal Commitment-Institutional Adjustment, respectively. The full-scale SACQ had a value of 0.990.

Table 26

Cronbach's alpha and numberof items of the student adaptation to college questionnaire (SACQ) and its subscales

Scale and subscales	Items	Cronbach's alpha
Academic Adjustment	3, 5, 6, 10, 13, 17, 19, 21, 23, 25, 27, 29, 32, 36, 39, 41, 43, 44, 50, 52, 54, 58, 62, 66	0.974
Social Adjustment	1, 4, 8, 9, 14, 16, 18, 22, 26, 30, 33, 37, 42, 46, 48, 51, 56, 57, 63, 65	0.964
Personal-Emotional Adjustment	2, 7, 11, 12, 20, 24, 28, 31, 35, 38, 40, 45, 49, 55, 64	0.962
Goal Commitment-Institutional Adjustments	1, 4, 15, 16, 26, 34, 36, 42, 47, 56, 57, 59, 60, 61, 65	0.966
Full scale SACQ	1-67	0.990

Chapter 5: Discussion

Tinto's (1993) Student Integration Theory, that pre-entry attributes, will influence the integration or adjustment of students to higher education, was used as a framework or basis to hypothesize that there will be differences in how university students will adjust to their institutional environment based on the accuracy of their predicted A level grades. The accuracy of predicted A level grades was confirmed as a legitimate pre-entry attribute by each of the five results of this study. The interpretations of the findings are presented below in regards to the results for each of the research questions.

5.1. What are the Differences in Academic Adjustment Between University Students who had Accurate A level Grade Predictions, and those who had Inaccurate A level Grade Predictions, while Statistically Controlling for the Differences in the Year of Study?

In section 4.1, it had been demonstrated that there were differences in academic adjustments between participants whose A level grades were accurately predicted and participants whose A level grades were inaccurately predicted. Participants whose A level grades were accurately predicted had a greater level of academic adjustment than those whose A level grades were inaccurately predicted. This shows that accuracy of predicted A level grade is a valid pre-entry attribute in UK higher education as it satisfies Tinto's (1993) description of a pre-entry attribute, as discussed in sections 2.1.3, 2.1.5, and 2.3.

Calaguas (2011) demonstrated that university academic achievement is a positive correlate of academic adjustment, arguing that students with higher academic performance are the ones that have better academic adjustment. Therefore, academic performance or achievement may be used interchangeably with academic adjustment for the rest of this discussion chapter. In view of this, the result of this study is consistent with other SACQ based studies conducted by Fernández, Araújo, Vacas, Almeida, and González (2017) and Wintre et. al. (2011), in which it was determined that the pre-entry attribute of entry grades, is a strong predictor of academic adjustments in higher education. The result of this study is also consistent with the findings of researchers such as Bush (2012), Ferrão and Almeida (2019), Olani (2009), Sulphey, Al-Kahtani, and Syed (2018), Vidal Rodeiro and Zanini (2015), and Yigermal (2017), who demonstrated that amidst all

other contending institutional factors, the pre-entry attribute of entry grades, was the strongest predictor of university academic performance. In agreement with this current study, these aforementioned researchers demonstrate the pivotal role of pre-entry attributes in determining students' academic adjustments.

There may be various reasons for this result under discussion in this section. First, as discussed in section 2.4.3, the major danger posed by inaccurately predicted A level grades is that of institutional mismatch during the admission process, despite the use of UCAS Clearing, UCAS Adjustments, and unconditional offers, in the UK admission process. Lopez and Jones (2017) established through an empirical study that the feeling of not being matched to the right course or institution amongst students is a predictor of poor academic adjustments. This sort of feeling may have resulted in the lower level academic adjustment recorded amongst those whose A level grades were inaccurately predicted compared to those whose A level grades were accurately predicted.

Secondly, according to Everett and Papageorgiou (2011), UCAS (2013), and Wyness (2016), irrespective of the type of school attended or student background, accuracy of predicted A level grades varies with A level attainment. Everett and Papageorgiou (2011), UCAS (2013), and Wyness (2016) demonstrated that students with higher final A level grades are more likely to be accurately predicted than those who end up with lower final A level grades. Also, as discussed in section 2.4.1, an inaccurately predicted A level grade is more likely to be an overprediction based on past UCAS data. Although I did not verify this in the study sample, however on the basis of the evidence provided in the aforementioned literature, a larger proportion of those whose A level grades were inaccurately predicted in this study sample, are more likely to be those with lower A level attainment, and who may have had to go through UCAS Clearing. These students with relatively lower academic performance at the A level examinations may struggle to cope with the academic demands in university. Baxter and Hatt (2000) have criticized the UCAS Clearing process for this reason. This may lead to poor academic adjustment, in agreement with the assertion by Boulter (2002) and Nonis and Wright (2003), that academic performance is a predictor of academic adjustment in higher education.

Thirdly, the use of unconditional offers has been linked to an increase in the degree of inaccuracy of predicted A level grades, especially overpredictons as discussed in section 2.4.3.3. It is therefore possible that students in the sample group whose A level grades were inaccurately predicted and had accepted unconditional university offers, are more likely to end with grades lower than their expected or targeted grades. They may then have started university without the needed academic preparation or competency that a very good A level performance would have afforded them. Astin (1999) found that academic adjustment and retention are associated with academic preparedness. This may have led to why they struggled to adjust academically.

Although investigations on pre-entry attributes and how they relate to academic adjustments in higher education have illuminated important findings in the literature as discussed in this section, the various research studies on which of the pre-entry attributes is the most significant in predicting academic adjustment have yielded contradictory results. For example, Vidal Rodeiro and Zanini (2015) and Olani (2009) asserted that entry grade or previous academic qualification is the most significant pre-entry attribute predicting university academic performance. However, Thiele et. al. (2016) disagreed, when they found out that students from state schools who gained lower A level qualifications, performed better at the university than those from independent schools. They therefore argued that entry grades may not be a true reflection of the academic potential that students bring into higher education. Chiu et. al. (2016) and Elkins et al. (2000), in their own studies affirm that parental educational level and family influence are the key parameters that predict academic success and engagement. Adamson and Clifford (2002) claimed that the influence of entry grades on academic achievement may have been overrated, and that self-motivation is an important attribute when predicting degree outcomes especially as students proceed towards graduation. These contradictions of what constitutes the most important pre-entry attribute, including the one identified in this study, or at least a set of pre-entry attributes that should be of major interest to higher education stakeholders, may be due to lack of research that simultaneously considers a large scale of pre-entry characteristics, and test the relative significance that each of them may have on academic adjustment to university. Although Van Zyl et. al. (2012) conducted a study in which they investigated the extent to which 33 pre-entry attributes predicted academic adjustment in a South

African university, they did not make any attempt to compare the relative significance of each of the attributes in the way they affected academic adjustment.

5.2. What are the Differences in Social Adjustment Between University Students who had Accurate A level Grade Predictions, and those who had Inaccurate A level Grade Predictions, while Statistically Controlling for the Differences in the Year of Study?

In section 4.2, , it had been demonstrated that there were differences in social adjustments between participants whose A level grades were accurately predicted and participants whose A level grades were inaccurately predicted. Participants whose A level grades were accurately predicted had a greater level of social adjustment than those whose A level grades were inaccurately predicted. This shows that accuracy of predicted A level grade is a valid pre-entry attribute in UK higher education as it satisfies Tinto's (1993) description of a pre-entry attribute, as discussed in sections 2.1.3, 2.1.5, and 2.3. Although, I did not find any research directly linking prior schooling or previous educational experience with social adjustment at university, a good number of researchers have investigated the interplay between various other student characteristics and social adjustment to higher education. As explained in sections 2.4.3.1 and 2.4.3.2, candidates whose A level grades were inaccurately predicted, may have to either go through UCAS Clearing, if overpredicted, or UCAS Adjustment, if underpredicted. Candidates in such circumstances may have little time to make adequate university preparations. Telegraph Reporters (2019) indicated that, although some UK universities claim to guarantee university accommodation for applicants who have to go through Clearing, most students who secure university places quite late, struggle to find suitable university of halls of residence. In some cases, students may have to compromise and secure accommodation through private landlords or other privately owned student halls, which in some cases may be farther from the centre of university social life. Holton (2016) reported that university halls of residence are the hub of social activities which helps to forge social cohesion among students. Although, student accommodation type was not the focus of my study during the data collection, it may however be of interest that the two candidates who skipped the optional question regarding their experience at university halls of residence, were those who reported that their A level

grades were inaccurately predicted. The findings of this current study are then consistent with those of Ali, Ahmad, and Khan (2018), Al-Qaisy (2010), Christie, Munro, and Wager (2005), Enochs and Roland (2006), Ogini and Ofodile (2014), and Wintre and Yaffe (2000), who demonstrated that there were differences in social adjustments among university students depending on the accommodation type, and concluded that students who live in university halls of residence exhibit better social adjustment than those who live off campus. Therefore, applicants whose A level grades were inaccurately predicted, are more likely to live off campus, and are expected to have a lower level of social adjustment, as demonstrated in the results of this study.

There may also be another reason for this outcome in section 4.2. In the UK university admission process, students whose A level grades were accurately predicted have the benefit of attending the university and studying the course for which they already accepted a place several months earlier as discussed in section 2.2.5.1. Though I did not verify this for the students in the study sample, attending pre-entry induction programmes and other personal visits to the university may have provided the students whose A level grades were accurately predicted the opportunity to forge links and social affiliations with institutional environment, staff, and other students they met on a campus before the start of the academic year. This may have given them a social head start. Students whose A level grades are inaccurately predicted may most likely go through UCAS Clearing or UCAS Adjustment with the students under pressure to make a quick decision of what and where they want to study (see sections 2.4.3.1 and 2.4.3.2). As a result, they may have had less time to mentally prepare and socially integrate into the institutional system at the start of the academic year. Parker et al. (2004) pointed out that first-year students are confronted with new personal and interpersonal challenges that include the need to establish new relationships, develop study skills and modify existing relationships with parents and their families. Having little time to do this, due to the brevity of the UCAS Clearing and UCAS Adjustment process, may have further aggravated this existing social challenge for candidates whose A level grades were inaccurately predicted. It is important to point out this explanation may not apply to candidates who accepted unconditional university offers and ended up with grades lower than their targeted grades. This is because in

spite of their grades being over predicted, they've already had a university place confirmed for more than 6 months in some cases before they start the academic year. They may have had time to socially bond with staff and other students on campus. They may have also benefited from any pre-induction integration programme before the September resumption. They may be better prepared within an atmosphere of certainty as opposed to the uncertainty students going through later choices may be in.

Also, researchers such as Chen, Rubin, and Li (1997) and Yengimolki, Kalantarkousheh, and Malekitabar (2015) have discussed academic adjustment as a determinat of social adjustment. It may be possible that the students whose A level grades were accurately predicted had a greater level of social adjustment compared to those whose A level grades were inaccurately predicted, because they had a greater level of academic adjustment than those whose A level grades were inaccurately predicted. This is also a distinct possibility, explaining why students whose A level grades were accurately predicted demonstrated higher social adjustment than those whose A level grades were not accurately predicted.

5.3 What are the Differences in Personal-Emotional Adjustment Between University Students who had Accurate A level Grade Predictions, and those who had Inaccurate A level Grade Predictions, while Statistically Controlling for the Differences in the Year of Study?

In section 4.3, it had been demonstrated that there were differences in personal-emotional adjustments between participants whose A level grades were accurately predicted and participants whose A level grades were inaccurately predicted. Participants whose A level grades were accurately predicted had a greater level of personal-emotional adjustment than those whose A level grades were inaccurately predicted. This shows that accuracy of predicted A level grade is a valid pre-entry attribute in UK higher education as it satisfies Tinto's (1993) description of a pre-entry attribute, as discussed in sections 2.1.3, 2.1.5, and 2.3. Kusumaningsih (2016) found that students whose abilities were negatively evaluated prior to university had weaker personal-emotional adjustment while at university. Students whose A level grades were underpredicted may not just see this as an evaluation of their academic strength but as an indictment on their overall ability. Although, they exceeded their predicted grades, their perception of this adverse judgement on

their competency, may well be carried on into university, and may have had damaging consequences to their self-esteem and self-efficacy. This is corroborated by Veldman, Meeussen, and Van Laar (2019), who asserted that students with lower views of their identity often adjust poorly to higher education. It is important to note however, that underprediction may be due to the positive reaction of some students to the relatively low grades they were predicted by their teachers. Such students may have worked really hard to achieve a higher grade than predicted to prove their teachers wrong.

On the other hand, candidates whose A level grades were overpredicted, are most likely to have had their minds set on a particular course and university based on the conditional offers they received during the UCAS application period. As discussed in section 2.4.3.1 of this thesis, a sudden loss of this offer place on A level results day due to not meeting their targeted grades, may necessitate a change of course and institution through Clearing. This may have damaged the hopes they've had held for some months regarding university with negative psychological and emotional consequences, as they enter into university. This may have led to the lower personal-emotional adjustments to university recorded amongst the participants whose A level grades were inaccurately predicted in this study.

Another point to note, is that, as previously explained in sections 2.4.31 and 2.4.3.2, students whose A level grades were overpredicted and underpredicted are more likely to have less time to mentally prepare for university if they decide to go through UCAS Clearing and UCAS Adjustment respectively. This may lead to undue stress due which may negatively impact their emotional wellbeing. Engelberg and Sjoberg (2004) asserted that a student's emotionally wellbeing is linked to how well they adjust to university. According to Credé and Niehorster (2012), and Wintre and Yaffe (2000), students who are not well prepared to meet university demands show poor emotional adjustment to higher education. Therefore, applicants whose A level grades were inaccurately predicted, are more likely to be under undue emotional tension and stress on entry to university, and are expected to have a lower level of personal-emotional adjustment, as demonstrated in the results of this study.

5.4. What are the Differences in the Goal Commitment-Institutional Adjustment Between University Students who had Accurate A level Grade Predictions, and those who had Inaccurate A level Grade Predictions, while Statistically Controlling for the Differences in the Year of Study?

In section 4.4, , it had been demonstrated that there were differences in goal commitment-institutional adjustments between participants whose A level grades were accurately predicted and participants whose A level grades were inaccurately predicted. Participants whose A level grades were accurately predicted had a greater level of goal commitment-institutional adjustment than those whose A level grades were inaccurately predicted. This shows that accuracy of predicted A level grade is a valid pre-entry attribute in UK higher education as it satisfies Tinto's (1993) description of a pre-entry attribute, as discussed in sections 2.1.3, 2.1.5, and 2.3. This is consistent with other studies which validated Tinto's (1993) proposition in regards to pre-entry attributes and goal commitment-institutional adjustments to university. For example, Yassine (2017), demonstrated that the pre-entry attribute of high school qualification gained by students, affects their goal commitment-institutional adjustment. Also, Johnson-Lutz, Sessoms-Penny, Schneider, and Underdahl (2015) concluded that the type of high school attended, as a pre-entry attribute, influences students' commitment to graduation and the institution.

There may be various reasons for the result of this study. I previously discussed in section 2.4.3.1 and 2.4.3.2, possible scenarios where university applicants whose A level grades were overpredicted or underpredicted may miss out on university places that aligns with their ability, interest, and future career plans. On one hand, if they are determined and strongly committed to their course of interest and university choice, as noted by Ahluwalia (2018), they may decide to take a gap year, and reapply the following year, as far as it guarantees them such a place. If they were overpredicted, they may retake their A levels in the hopes of doing better the following year, rather than go through the Clearing process. If they were underpredicted, and were unable to go through UCAS Adjustment for whatever reason, they may decide to be out of education for one year, so as to reapply the following year. On the other hand, such candidates may decide to go through UCAS Clearing if they were overpredicted, though they are still passionate about and committed to the university

place that was withdrawn. This may weaken their resolve and initial motivation to pursue a course that is not of interest to them or at a university they are not enthusiastic about. If they were underpredicted, they may decide to stay with the original university offer due to the numerous challenges posed by the UCAS Adjustment process as discussed in section 2.4.3.2. If this happens, they may not be motivated at the start of their university course knowing fully well they were overqualified for their current study which may have taken them off their initial career path. As asserted by Strom and Savage (2014), demotivated students will have challenges in setting goals and staying committed to the university. This may be because, on entering university, they may still be looking at the option of changing their course and university in some cases, so as to study what is of interest to them, or just to stay on their intended career path. Therefore, students whose A level grades were inaccurately predicted, are more likely to have lower goal commitment-institutional adjustment, as demonstrated in the results of this study.

5.5. What are the Differences in Overall Adjustments Between University Students who had Accurate A level Grade Predictions, and those who had Inaccurate A level Grade Predictions, while Statistically Controlling for the Differences in the Year of Study?

In section 4.5, it had been demonstrated that there were differences in overall adjustments between participants whose A level grades were accurately predicted and participants whose A level grades were inaccurately predicted. Participants whose A level grades were accurately predicted had a greater level of overall adjustments than those whose A level grades were inaccurately predicted. This shows that accuracy of predicted A level grade is a valid pre-entry attribute in UK higher education as it satisfies Tinto's (1993) description of a pre-entry attribute, as discussed in sections 2.1.3, 2.1.5, and 2.3. This is consistent with other studies which validated Tinto's (1993) proposition in regards to pre-entry attributes and overall adjustments to university. For example, Fernández et. al. (2017) who also used the SACQ instrument to measure adjustments just like this current study, concluded that students' entry characteristics (pre-entry attributes) such as family background, pre-university qualification and gender, predicted overall adjustments to university, after conducting a study with 300 first year students in a Spanish university as participants.

Similarly, other researchers such as Janke et. al. (2017), Marrero (2016), Rodríguez et. al. (2017), Stratton et. al. (2007), and Woodfield (2014), have all conducted studies that have shown that university pre-entry attributes can lead to differences in adjustment of students to higher education, in agreement with the outcome of this study.

I had already discussed in sections 5.1, 5.2, 5.3 and 5.4, that students whose A level grades were accurately predicted, had higher academic, social, personal-emotional, and goal commitment-institutional adjustments than students whose A level grades were inaccurately predicted. As indicated by Baker and Siryk (1984, 1989), academic, social, personal-emotional, and goal commitment-institutional adjustments are subsets of overall adjustment. It is therefore expected, as indicated in the result of this study, that students whose A level grades were accurately predicted would have higher overall adjustment to university than those whose A level grades were inaccurately predicted.

The information regarding the A level grades of the alumni held by the college, from which the sample were drawn from, may also help to provide further insights into the result of this thesis. For example, for the cohorts under study, on average over the two-year A level college academic period, only 39 students were accurately predicted for all three A level subjects, representing 26.5% of the population. In the population, 10 students representing 7% of the alumni, and 98 students representing 66.5 % of the alumni, were underpredicted and overpredicted by at least one grade respectively. A cursory look at this information reveals that a much larger percentage were inaccurately predicted compared to those who were not. Also, that very few cases of underprediction took place within the two-year period. These data are consistent with what is expected based on the numerical analysis carried out by Wyness (2016) on a national scale for A level examinations held in 2013-2015 as discussed in section 2.4.1. Although the reported data by Everett and Papageorgiou (2011) reported a very close percentage margin between accurately and inaccurately predicted A level grades, this may be because the data they worked with was that of 2009 A level examinations. It seems that since 2009, there has been an upward trend of inaccurately predicted A level grade. It should be noted

that unlike in my study where I considered accuracy of predicted A level grades on a student basis, Everett and Papageorgiou (2011) and Wyness (2016) reported their data by looking at the accuracy of each predicted A level grade. However, the comparison between their data and that of this study can still be made, as they reported percentages. The college did not hold complete data regarding the number and percentage of students among this cohort who had to go through UCAS Clearing, UCAS Adjustments, and who had left higher education. However, there were two cases of students whose A level grades were overpredicted, that we have on record that may help to make sense of the result of this study. As expected, they both went through Clearing to secure university places. One of the students left university after few months. The student came back to the college, explaining he had to retake the A level exams the following year, so as to improve his grades to study his desired course at his preferred university. The other student completely left higher education altogether to pursue a career on an apprenticeship programme. This particular student already made it known that they were not really happy with the university place they had to accept through Clearing on A level results day, as that was not really their career pathway. Although we do not have accurate information regarding experiences of other students who have gone through Clearing and Adjustment, the experiences of these two students is consistent with what is expected based on the result of this study.

5.6. Discussion on the Non-Significance of the Covariate

Each of the five results in chapter 4 indicated that the covariate "Year" was not significant in regards to the dimensions of adjustment: academic, social, personal-emotional, goal commitment-institutional, and overall. This means the differences in the year of study did not influence the adjustments of the participants when comparing students whose A level grades were accurately predicted and those whose A level grades were not accurately predicted. This finding in my study contradicts the claim of some researchers in this regard. For example, Schwartz and Washington (2002) claimed that pre-entry attributes are only strong predictors of retention in first-year students, with their influences reduced significantly as students' progress to later year and integrate with the institution. Wilson-Strydom (2015) also supported the claim of Schwartz

and Washington (2002), explaining that first-year students are the most at risk in regards to adjustment and retention.

There may be various reasons for this contradiction. First, it may be that my sample size though sufficient enough to demonstrate significant differences in adjustments due to differences in accuracy of A level grade predictions, was not large enough to detect a significance of the covariate on adjustments, when comparing the two groups. According to Whitehead et. al. (2016), in statistical analysis, inadequate sample size may lead to false conclusions of non-significance (Whitehead at. al. (2016). A larger sample size may resolve this speculation. Secondly, I collected the data just few weeks into the university academic year. The effect of a second-year university study may not have been pronounced at this stage. Possibly, collecting data across three years of university study may have helped to truly verify if differences in year of study would have made a difference to adjustments. Thirdly, this may be down to the accuracy of predicted A level grades making a difference to adjustments and retention in a way that differs to other pre-entry attributes. For example, Malcolm (2015) argued that some factors such as student debt and family expectations have been known to have considerable impact on retention as the students proceed to the subsequent years of academic study. This is expected as student debts are only payable when they start earning up to a certain amount after graduation, and not when they are in university. Most students may also be anxious about the notion of going back home to deal with family expectations after graduation especially if they are not yet able to economically survive alone. In some cases, the detrimental effects of such factors may intensify as the student gets close to graduation. Along the same line, as discussed in section 5.4, students whose A level grades were inaccurately predicted may have more doubts in regards to career choice and future goals compared to those whose A level grades were accurately predicted. Their concerns in this regard may persist even as they get closer to graduation, with the need to secure a job or follow a career path. This may have accounted for why the results of this study showed that there were no differences in adjustments of the participants on the basis of the differences in year of study when comparing students whose A level grades were accurately predicted and those whose A level grades were not accurately predicted.

5.7. Discussion on the Reliability of the SACQ Overall Scale and Subscale for this Study

The reliability of the SACQ Overall scale, Academic Adjustment, Social Adjustment, Personal-Emotional Adjustment, and Goal Commitment-Institutional Adjustment subscales for this study as assessed by Cronbach's alpha values were 0.991, 0.978, 0.970, 0.949 and 0.973, respectively. Hinto, McMurray, and Brownlow (2014) indicated that as a rule of thumb that applies in most situations is that alpha values of 0.9 and greater, 0.70 to 0.90, 0.50 to 0.70, and 0.50 and below, shows excellent, high, moderate, and low reliability, respectively. So, in this study, the SACQ overall scale and subscales measurements have excellent reliability since all the obtained Cronbach alphas ranged from 0.949 to 0.991.

Values of Cronbach alpha close to the ones obtained in this study have been reported in the literature. Muhamad, Ramli, and Amat (2015) reported overall internal consistency (Cronbach's alpha) of 0.97 in the Clinical Competency Evaluation Instrument. Fitzgerald et al. (2007) calculated a relatively high level of internal consistency with a Cronbach's alpha of 0.98 in the Clinical Internship Evaluation Tool, while Roach et al. (2012) found a very high level of internal consistency in the Physical Therapist Clinical Performance Instrument, producing a Cronbach alpha of 0.99.

Sennett, Finchilescu, Gibson, and Strauss (2003) reported Cronbach alphas ranging from 0.81 to 0.92 for the full-scale SACQ and four subscales. Sennett et. al. (2003) indicated that these values are consistent with alpha coefficients derived from the normative data, demonstrating internal reliability. While, Beyers and Goossens (2002), reported that for data collected from 368 freshmen students in psychology from a large university (total enrolment 25,000), in the Dutch-speaking part of Belgium, that the different subscales of the SACQ and the full- scale score indicated good internal consistency (Cronbach's alpha > .80), specifically 0.84, 0.84, 0.81, 0.80, and 0.92 for academic adjustment (23 items), social adjustment (18 items), personal-emotional adjustment (15 items), goal commitment-institutional adjustment (14 items), and overall adjustment (54 items) respectively. More recently, O'Donnell et al. (2018) in a study with a total of 301 students who

participated in data collection at a large Western university in the United States, reported that the reliability of the overall SACQ scale was greater than 0.9, which is consistent with this study.

5.8. Summary of Discussion

Tinto (1993) identified pre-entry attributes as any characteristic that students possess before they enter into university, which has influence on their initial integration or adjustment to the institution, and is a determinant of their eventual persistence or discontinuation (see sections 2.1.3, 2.1.5, and 2.3). The results of this thesis as discussed in sections 5.1, 5.2, 5.3, 5.4 and 5.5 shows that there are differences in adjustments (academic social, personal-emotional, goal commitment-institutional, and overall) between students whose A level grades were accurately predicted and students whose A level grades were inaccurately predicted. This therefore provides the evidence that accuracy of predicted A level grades in accordance with Tinto's (1993) postulation, can be characterized as a legitimate pre-entry attribute in UK higher education, which hitherto has not been recognized as such, as evidenced in the lack of literature. This then implies that inaccurate A level prediction is a risk factor for discontinuation. Therefore, attention needs to be paid to this risk factor in an effort to improve retention. Fernández et. al. (2017) claimed that the use of the SACQ instrument is yet to gain popularity in Europe of which the UK is a part, compared to North America where it was created. However, the findings of this study in view of the obtained reliability values of the SACQ scale and subscale which is within the acceptable range obtained in similar North American studies as discussed in section 5.6, may provide further justification for the applicability and relevance of the SACQ instrument within the UK context.

Chapter 6: Conclusions, Limitations, and Recommendations

During the course of chapter six, I will present an entire summary of the study, which incorporates the main points of the introduction, past and present literature found on the topic, and the methodologies used to validate the hypothesis of the topic, by examining the academic, social, personal-emotional, goal commitment-institutional and overall adjustments among university students on the basis of the accuracy of their college A level predicted grades, while controlling the difference in year of study. I will then discuss the limitations and include a set of recommendations, which may be of interest to future researchers and policymakers in the field of student retention in higher education. Lastly, I will make a concluding statement at the end of the thesis.

6.1. Summary of Study

According to Cotton, Nash, and Kneale (2017), retention is increasingly becoming an issue of concern in UK higher education as available data showed a decline in university retention rates over the years. Munro & Pooley (2009) indicated that the period of transiting into higher education is the most challenging for most students. Pena-Fernandez, Randles, Young, Potiwat, and Bhambra (2018) explained that there are a wide range of factors that are responsible for the challenges that university students face. They remarked that these have an effect on student adjustment, progression and retention in UK higher education. Sanders et al. (2016) concluded that challenges or delays in the adjustment process could adversely affect the retention process and success of students in higher education. Tinto (1993) postulated that pre-entry attributes or characteristics of students will largely influence their commitment and adjustment to their institutional environment, and ultimately determine their decision to persist or discontinue. Various research studies have been conducted on the differences in adjustments to higher education and retention of students based on the students' university pre-entry attributes. In this research study, accuracy of predicted A level grades, was hypothesized as a pre-entry attribute, on adjustment to higher education amongst alumni of a UK college.

A comparative study methodology was adopted in this research study, based on a quasi-experimental design, to study the differences in adjustments to university between students whose A level grades were accurately predicted and students whose A level grades were inaccurately predicted. Five research questions

and their respective hypotheses (null and alternative ones) were proposed based on Tinto's (1993) postulation that there will be dfferences in students' adjustment to higher education and retention based on their university pre-entry attributes. The research population taken for this purpose were the 147 students who graduated from a UK college over the past two years and were studying in a United Kingdom university. The sampling method was non-probability purposive sampling based on a set of inclusive and exclusive criteria. The sample size of 40 met the minimum sample size requirement of 34 as determined by the G power software. The independent variables were the two groups of students with accurately predicted A level grades and inaccurately predicted A level grades. The data collected were analysed using ANCOVA to evaluate whether the means of the four university adjustment subscales and overall adjustment scale (dependent variables) are equal between the two group of students, namely, those whose A level grades were accurately predicted and those whose A level grades were not accurately predicted, while statistically controlling for the differences in the year of study. Reliability was judged on the basis of the internal consistency of the data collected on the SACQ which was determined by calculating Cronbach's alpha.

6.2. Summary of Findings

The following research question, sub questions and hypotheses were investigated :-

What are the differences in adjustments between university students who have accurate A level grades predictions, and those who have inaccurate A level grades predictions, while statistically controlling for the differences in the year of study?

(a). What are the differences in academic adjustments between university students who have accurate A level grades predictions, and those who have inaccurate A level grades predictions, while statistically controlling for the differences in the year of study?

Null Hypothesis: There are no significant differences in academic adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in academic adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for differences in year of study.

(b). What are the differences in social adjustments between university students who have accurate A level grades predictions, and those who have inaccurate A level grades predictions, while statistically controlling for the differences in the year of study?

Null Hypothesis: There are no significant differences in social adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in social adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for differences in year of study.

(c). What are the differences in personal-emotional adjustments between university students who have accurate A level grades predictions and the students who have inaccurate A level grades predictions, while statistically controlling for the differences in year of study?

Null Hypothesis: There are no significant differences in personal-emotional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in personal-emotional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

(d). What are the differences in goal commitment-institutional adjustments between university students who have accurate A level predictions and those who do not have accurate A level predictions, while statistically controlling for the differences in year of study?

Null Hypothesis: There are no significant differences in goal commitment-institutional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

Alternative Hypothesis: There are significant differences in goal commitment-institutional adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for differences in year of study;

(e). What are the differences in overall adjustments between university students who have accurate A level predictions and those who do not have accurate A level predictions, while statistically controlling for the differences in year of study?

Null Hypothesis: There are no significant differences in overall adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study;

Alternative Hypothesis: There are significant differences in academic adjustments between university students whose A level grades were accurately predicted and those whose A level grades were inaccurately predicted, while statistically controlling for the differences in year of study.

For all five sub questions, the null hypotheses were rejected as the ANCOVA indicated that the effect of accuracy of predicted A level grades on academic adjustment (dependent variable) after controlling for the year of study was significant. The estimated marginal means for group $x=1$ (participants whose A level grades were accurately predicted) were significantly higher than those in group $x=0$ (participants whose A level grades were inaccurately predicted). This implied that participants whose A level grades were accurately

predicted have greater academic, social, personal-emotional, goal commitment-institutional and overall adjustments than participants whose A level grades were inaccurately predicted, while controlling for the differences in the year of study.

The Cronbach's alphas were determined as the reliability test of the Student Adaptation to College Questionnaire (SACQ) and its subscales. Cronbach's alpha values were 0.974, 0.964, 0.962 and 0.966 for the subscales Academic Adjustment, Social Adjustment, Personal-Emotional Adjustment and Goal Commitment-Institutional Adjustment, respectively. The full-scale SACQ had a value of 0 .990.

6.3. Limitations of the Study

The sampling procedure used in this research was purposive sampling. According to Etikan et. al. (2016), non-purposive sampling by its very nature has limited generalizability of its findings, as the selection process of the participants is not random and may not be representative of the whole population. In this study, even though the population are alumni of a UK A level college which may not be representative of alumni of all UK schools offering the A level programme, they were studying in a broad variety of UK universities at the time of the study which will make the findings of this study of broad interest.

Due to the issues faced with access to UK universities from which I may have had a larger population to draw from, the population from which the sample was drawn were alumni of a UK college. As a result, the sample size of the study was only 40 from this population, at a response rate of approximately 30%. This is relatively small sample size compared to similar studies. If I have decided to detect an effect size as low as 0.25, with a power of 0.8, a minimum larger sample size of 128 will have been required based on the calculation of the G Power software. However, the sample size of 40 participants already yielded significant results for rejecting the null hypotheses and accepting the alternative hypotheses for all five research questions as explained in the results section. This means for the sample size of 40 used in this research study, there is no possibility of committing a type 2 error, by falsely accepting the null hypothesis when in fact an alternative

hypothesis is true. Therefore, the result obtained in this study may not have been different even if a larger sample size was used.

The collected quantitative data were self-reported by the students. I did not verify the reported accuracy of predicted A level grades. However, this was to ensure the anonymity of the questionnaire submissions which is supposed to elicit honest responses from the participants. Also, I did not collect data on which of the inaccurately predicted A level grades were an overprediction or underprediction. This would have been helpful as it would have broadened the scope of my discussion. I was however able to speculate using evidence from the literature to discuss the various aspects in chapter 5.

Adopting the Student Adaptation to College Questionnaire (SACQ) as the mode of data collection via online web form failed to effectively capture body language, facial expressions and emotional reactions of the participants. Also, participants may not interpret the questions correctly before selecting the options on the questionnaire. Another issue is that eighteen items of the SACQ were negatively worded. Elias (2014) warned against using negatively worded items as it may lead to confusion when interpreted by participants. It is possible that some respondents may have misunderstood some of the negatively worded items. An online questionnaire data collection method like the SACQ, however, is a time and cost-effective approach for the participants and the researcher. The participants have 24-hour access to submitting their responses without any need to book an appointment with the researcher. The participants may also tend to be more relaxed in their responses as compared to when they have the researcher directly interviewing them. This may reduce bias either due to the need of the participant to please the interviewer or due to some form of friction between both parties.

6.4. Recommendations for Future Research

This current study may be regarded as a pilot study given the sample size. In a future research, the study should be repeated across a larger cohort, with wider access to higher education institutions, to carry out such study. Also, research needs to be conducted to separately explore the differences in adjustments to

university based on overpredicted and underpredicted A level grades, so as to avoid one of the limitations of this present study. There should also be an investigation of the relative importance of accuracy of predicted A level grades amongst other pre-entry attributes that have been reported to lead to differences in adjustments to higher education in the UK. This could be a larger comparative study with various identifying pre-entry characteristics, including accuracy of predicted A level grades. The outcome of such a research will help institutions to target limited intervention resources to students who may be at the 'most risk' of discontinuing higher education.

This study should also be carried out as a qualitative or mixed study so that participants can provide in-depth details and their own perceptions of how the accuracy of their predicted A level grades may have influenced how the adjusted to university. This study can also be carried with larger sample size of students spanning from first year of study till the graduation year to test if the differences in year of study will make a difference to adjustments, when comparing students whose A level grades were accurately predicted and those whose A level grades were not accurately predicted. The outcome of such a study may help researchers to appreciate if the implications of accuracy of predicted A level grades is short-lived or far reaching beyond the first year of study in regards to adjustment and retention.

6.5. Implications and Recommendations for Practice

In view of the outcome of this study, I therefore make the following recommendations for practice in universities, A level schools and colleges, and amongst UK higher education policy makers.

6.5.1. Recommendations for practice in universities. As described in section 5.7, incorrectly predicted A level grade is a risk factor for discontinuation. UK universities should therefore use admission data to identify affected students so as to provide necessary interventions as described in section 2.2.4. Muller et. al. (2017) advocated for the use of university entry data during the first few weeks of university admission to identify students who may be most at risk so as to implement any warning systems to encourage students' persistence. The intervention targeted at such students should include specialized orientation programmes,

counselling sessions, course satisfaction seminars, personal tutors, workshops, support groups, and life skills development sessions, so as to improve adjustment to university and subsequently, retention.

The challenges posed by the A level prediction system to the admission process have been discussed in sections 2.4.3.1, 2.4.3.2 and 2.4.3.3. Schwartz (2004) and Wong and Layrencic (2016) have implicated poor admission practices as one of the causes of lower retention rate. As discussed in section 2.4.2, although there are recent reforms to make universities less dependent on A level predictions, this had not necessarily led to more robust admission practices. In view of this, universities should adopt a more comprehensive and innovative admission process to fairly judge the competency, academic potential and capacity of applicants before making offers to them.

6.5.2. Recommendations for practice in schools and sixth form colleges. Van Rooij et. al. (2018) suggested that in order for students to be matched to university courses based on their interests and capacities, there has to be collaborative efforts between high schools and universities. Though this research study was conducted from a higher education perspective, there should be collaboration between A level schools and UK universities to effectively deal with the the mismatch between the students and the institution due to inaccurately predicted A level grades. In my professional practice in my institution, we are often faced with the pressure from parents and guardians to provide A level predictions as high as possible to guarantee that students will receive their desired university offers. Also, according to Garner (2016), A level school teachers have been accused of boosting A level grade predictions so that their students can receive offers from top universities. There has also been reported situations where some schools have admitted to inflating predicted A level grades of their students on purpose so that students can secure better university places. If such students end up with overpredicted A level grades, the outcome of this study indicates that such practices may be counterproductive for the students when they enter higher education in regards to adjustment and retention. I therefore recommend that teachers and programme co-ordinators in A level schools and colleges, including my institution, should seek to improve ways to provide honest and fair A level predictions that truly reflects their students' academic

potential, despite the pressure to do otherwise. UCAS (2019a) enumerated a list of guidelines to enable teachers to be as accurate as possible when predicting A level grades.

      6.5.3. Recommendations for UK higher education policy makers. The outcome of this study may have implications for widening participation. Wyness (2016) conducted an empirical study that demonstrated that state school students are more likely to have their A level grades over-predicted. Also, UCAS (2016) claimed that university applicants from ethnic minority groups such as black, asian, and other mixed ethnic groups are more likely to miss their target grades than those from the mainstream white ethnic group. Wyness (2016) explained that despite these students missing their targeted grades, some may still be accepted into top tier universities. As advocated by researchers such as Boliver (2013) and Reay (2016), this may be a good development for widening participation in universities, as it promotes social mobility. However, as I have demonstrated in the results of this study, inaccurately predicted A level grade is a risk factor for discontinuation. These students may exhibit poorer academic, social, personal-emotional, goal commitment, and overall adjustments to university and are at risk of early departure from higher education. This is in agreement with Schwarz (2004) who found that UK institutions, who have flexible admission processes that accommodate student from diverse backgrounds generally have higher rates of students' withdrawal. Keohane and Petrie (2017) have also expressed concerns that widening participation has been linked to lower retention rates. The outcome of this study may be of interest to higher education stakeholders as it highlights possible unintended negative consequences of the widening participation agenda in UK higher education especially with the use of inaccurately predicted A level grades to give opportunities to students from lower socioeconomic backgrounds.

      Is there an alternative to the current A level prediction system? According to Atherton (2018), the University College Union in the UK has suggested a switch to a post-qualification admissions system, so as to ensure that universities make admission offers based on final A level grades. Atherton (2018) claimed that out of a group of 30 selected countries, which includes the United States, France, and Japan, only Wales,

Northern Ireland and England make university offers based on the prequalification system of predicted grades. The post-qualification admissions systems in other countries have helped them to avoid the university admission mismatch that is currently being experienced in UK universities, due to the inaccuracy of predicted A level grades. Previously, Eastwood and Thirunamachandran (2011) in a UCAS report, argued that despite the challenges of the current pre-qualification system, a post-qualification admission process would complicate the admission process. Eastwood and Thirunamachandran (2011), went on to say that there is already UCAS clearing and UCAS Adjustment in place for students to secure university places if their A level grades were inaccurately predicted. As discussed in sections 2.4.3 and 5, inaccurately predicted A level grades have post-admission implications in regards to students' adjustment to university and retention. The outcome of this study may be seen as a contribution to the current discussion on the need to consider a post-qualification system, as an alternative admission system, notwithstanding the accompanying challenges that have been speculated regarding its adoption.

6.6. Concluding Statement.

According to James (2010) and Keohane and Petrie (2017), understanding factors which are associated with student adjustment to university and retention is crucial, particularly given the on-going expansion in UK higher education, that has been driven by the widening participation agenda and government educational policies. As already demonstrated in chapter two of this thesis, various factors that influence students' early departure from university have been discussed in the literature, with an increasing scope for more to be identified. There is a general awareness that inaccuracy predicted A level grades presents challenges during the admission process and has been implicated in institutional mismatch. However, in this thesis, I asserted that accuracy of predicted A level grade is a legitimate pre-entry attribute in regards to adjustments (academic, social, personal-emotional, goal commitment-institutional, and overall adjustments) of students to UK higher education, and that inaccurately predicted A level grade is a risk factor for discontinuation. Therefore, paying attention to this risk factor could help with retention.

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APPENDICES

APPENDIX A: PARTICIPANT INFORMATION SHEET

UNIVERSITY OF
LIVERPOOL

Participant Information Sheet

1. **Title of Study**

Predicted A Level Grades and Adjustment to Higher Education amongst Alumni of a UK College

2. **Version number and date**

Version No. 3 Date: 20 February 2015

3. **Invitation Paragraph**

You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. You may seek advice to better understand before you participate. Please take time to read the following information carefully.

4. **What is the purpose of the study?**

The purpose of this comparative quasi-experimental design is to examine academic, social, personal-emotional, goal commitment-institutional and overall adjustments among university students on the basis of accuracy of their college A level predicted grades. A quasi-experimental design is similar to that of an experimental design without the need to randomly assign

5. **Why have I been chosen to take part?**

The researcher is inviting you to fill the questionnaire because you are a first or second year university students who graduated from an A level college in the past four years. You also sat at least three A level subjects and were predicted A level grades at the end of your first year in college when you were making your UCAS application to university. There are close to 147 other people who have also been invited to be part of this study.

6. **Do I have to take part?**

It is up to you to decide whether or not to take part. If you decide not to take part, you will not be disadvantaged in any way. If you do decide to take part, you will be given this information sheet to keep. If you decide to take part, you are still free to withdraw at any time and without giving a reason. If you submit the accompanying questionnaire, you are deemed to have given implied consent.

7.   What will happen if I take part?

You will be asked to complete the student adaptation to college questionnaire (SACQ) online via a webpage. The SACQ allows you to complete the 67-item self-report inventory that assesses overall adjustment to college, as well as adjustment in four specific areas: academic adjustment; personal-emotional adjustment; social adjustment and; goal commitment (to the institution). Scores are rated on a 9-point Likert scale that range from "Doesn't apply to me at all" to "Applies very closely to me. It should take you roughly 20 minutes to complete the questionnaire and it has to be completed only once.

8.   Expenses and / or payments

Participants will not receive compensation. There would however be a short thank you message when the questionnaire is completed online

9.   Are there any risks in taking part?

There is a potential possibility that since you are being asked to self-report on the SACQ scale, you might have to think about your current academic, emotional, social and goal commitment issues which might be discomforting for you. However, since you are responding by checking a scale, such discomforts are expected to be minimal if at all. If you however experience any discomfort, please contact me immediately.

10.   Are there any benefits in taking part?

This may help the research participants to retrospectively question the way they are responding to challenges in college as a form of critical reflection. This may provide a basis for them to better understand their situation, possible underlying causes and how to manage such effectively

11.   What if I am unhappy or if there is a problem?

If you are unhappy, or if there is a problem, please feel free to let us know by contacting myself, Peter Adewole- peter.adewole@online.liverpool.ac.uk, or phone number 0776081257 and we will try to help. You can also contact my primary supervisor, Greg Hickman-greg.hickman@online.liverpool.ac.uk. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact

the chair of the Liverpool Online Research Ethics Committee at liverpoolethics@liverpool-online.com. When contacting the Chair, please provide details of the name or description of the study (so that it can be identified), the researcher(s) involved, and the details of the complaint you wish to make.

12.   Will my participation be kept confidential?

The data which will be collected through the Student Adaptation to College Questionnaire (SACQ) will be anonymized. It will be specifically used for this project. In case of any need to further this research in the future, the data may still be used. I and other parties involved in my research supervision may have access to the data. Also, all information collected about you will be kept strictly confidential (subject to legal limitations). Information will be stored in encrypted folders electronically on a laptop with installed antivirus. It will be stored up to 5 years before it is electronically trashed.

13.   What will happen to the results of the study?

The results of the study will be available in my University of Liverpool online EdD dissertation. All participants will be anonymized. Access to the dissertation might be possible by contacting the university.

14.   What will happen if I want to stop taking part?

You can withdraw at any time, without explanation. Results up to the period of withdrawal may be used, if you are happy for this to be done. Otherwise you may request that they are destroyed and no further use is made of them. Results may only be withdrawn prior to anonymization.

15.   Who can I contact if I have further questions?

<u>Researcher:</u>
Name: Peter Adewole
Email: Peter.adewole@online.liverpool.ac.uk
Phone: +447760812579

<u>My primary supervisor:</u>
Name: Greg Hickman
Email : greg.hickman@online.liverpool.ac.uk

APPENDIX B: G POWER SIMULATION
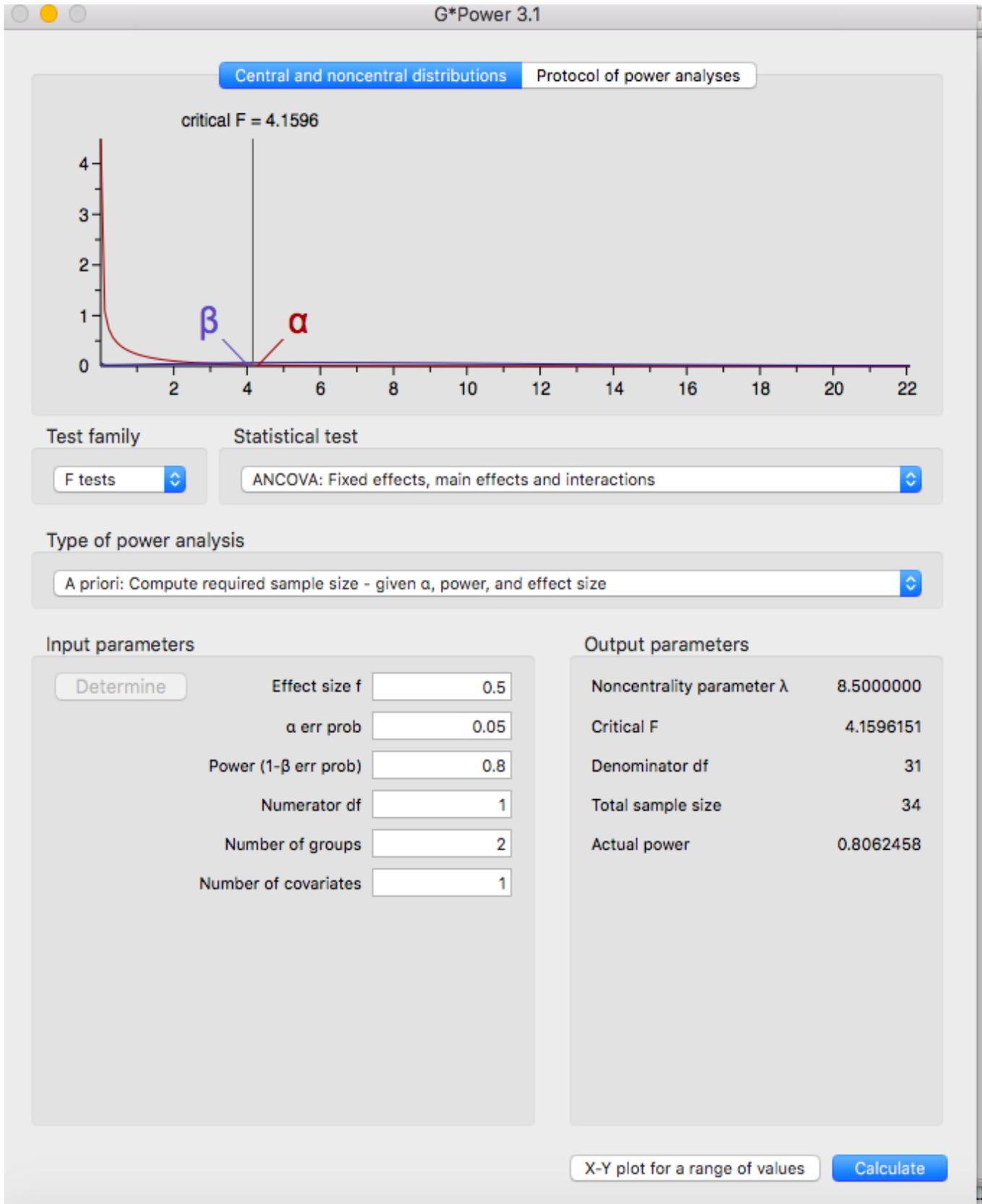
APPENDIX C: PRELIMINARY SURVEY QUESTIONS/PREQUESTIONNAIRE

Preliminary Survey Questions/Prequestionnaire
(i). Are you currently studying in a UK university?
i.   Yes
ii.   No
(ii). What is your current year of study in the university?
i.   Year 1
ii.   Year 2
iii.   Other
(iii). How many A level subjects did you sit for?
i.   1
ii.   2
iii.   3
iv.   Others;
(iv). If you secured admission via the A level route, were you accurately predicted by your teacher(s) on all your three A level subjects (If at least one of your A level subjects was either over predicted or under predicted, please answer No).
i.   Yes
ii.   No

APPENDIX D: STUDENT ADAPTATION TO COLLEGE QUESTIONNAIRE (SACQ)

The 67 items included in this survey are statements that describe university experiences. Read each one and decide how well it applies to you at the present time (within the last few days). For each item, record the appropriate number in the space next to that item.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Doesn't apply to me at all   Applies very closely to me

Statements	1	2	3	4	5	6	7	8	9
I feel that I fit in well as part of the university environment.									
I have been feeling tense or nervous lately.									
I have been keeping up to date on my academic work.									
I am meeting as many people, and making as many friends as I would like at university.									
I know why I'm in university and what I want out of it.									
I am finding academic work at university difficult.									
Lately I have been feeling blue and moody a lot.									
I am very involved with social activities in university.									
I am adjusting well to university.									
I have not been functioning well during examinations.									
I have felt tired much of the time lately.									
Being on my own, taking responsibility for myself, has not been easy.									

APPENDIX E: SUBSCALES ON THE STUDENT ADAPTATION TO COLLEGE QUESTIONNAIRE

Scale and subscales	Items
Academic Adjustment	3, 5, 6, 10, 13, 17, 19, 21, 23, 25, 27, 29, 32, 36, 39, 41, 43, 44, 50, 52, 54, 58, 62, 66
Social Adjustment	1, 4, 8, 9, 14, 16, 18, 22, 26, 30, 33, 37, 42, 46, 48, 51, 56, 57, 63, 65
Personal-Emotional Adjustment	2, 7, 11, 12, 20, 24, 28, 31, 35, 38, 40, 45, 49, 55, 64
Goal Commitment-Institutional Adjustments	1, 4, 15, 16, 26, 34, 36, 42, 47, 56, 57, 59, 60, 61, 65
Overall Adjustment	**1-67**

Note. Reprinted from "College Student Adjustment: Examination of Personal and Environmental Characteristics", by Stoklosa, A. M. ,2015, p.47. Copyright (c) 1989 by Western Psychological Services.

APPENDIX F: UK UCAS UNIVERSITY ADMISSION SCHEDULE

School Year	Term	Age	Event	Deadlines
12	Summer	16-17	All universities will hold Open Days in June and in September for people about to apply through UCAS. Most of those attending will be Year 12 students who are about to complete their UCAS applications.	
13	Autumn	17-18	Students receive predicted grades from schools.	
13	Autumn	17-18	Students apply for up to five courses (no order of preference) based on their predicted grades. They must also include a personal statement with their application. Again, open days happen here - often after students have applied to university.	January application deadline for entry that year. September 2017 deadline for Oxbridge courses.
13	Spring	17-18	Students receive offers conditional on academic success. They must choose a first choice and insurance course. Students with no offers may enter "Extra", allowing another choice.	Decisions from universities received in May. June deadline to commit to choices. "Extra" opens between the 25th of February and 4th of July.
13	Summer	17-18	Students sit A-level exams which will determine entry.	
13	Summer	17-18	A-level results are published. Both student and university are committed to first/insurance choice conditional on results. Students who missed their predicted grades may still be accepted. Students should apply for finance.	August: A-level results day.
13	Summer	17-18	Those without a place go into clearing; those who exceeded their target grades may go into adjustment.	Clearing opens early July.
	Autumn	18-19	Attend course of choice.	

APPENDIX G: ETHICAL APPROVAL

Dear Peter Adewole,

I am pleased to inform you that the EdD. Virtual Programme Research Ethics Committee (VPREC) has approved your application for ethical approval for your study. Details and conditions of the approval can be found below.

Sub-Committee: EdD. Virtual Programme Research Ethics Committee (VPREC)

Review type: Expedited

PI:

School: School of Histories, Languages and Cultures

Title: Predicted A level Grades and Adjustment to Higher Education amongst alumni of a UK College.

First Reviewer: Dr. Marco Ferreira

Second Reviewer: Dr. Dimitrios Vlachopoulos

Other members of the Committee   Dr. Lucilla Crosta, Morag Gray, and Greg Hickman.

Date of Approval: 16th July 2018

The application was APPROVED subject to the following conditions:

Conditions

| 1 | Mandatory | M: All serious adverse events must be reported to the VPREC within 24 hours of their occurrence, via the EdD Thesis Primary Supervisor. |

This approval applies for the duration of the research. If it is proposed to extend the duration of the study as specified in the application form, the Sub-Committee should be notified. If it is proposed to make an amendment to the research, you should notify the Sub-Committee by following the Notice of Amendment procedure outlined at :

http://www.liv.ac.uk/media/livacuk/researchethics/notice%20of%20amendment.doc.

Where your research includes elements that are not conducted in the UK, approval to proceed is further conditional upon a thorough risk assessment of the site and local permission to carry out the research, including, where such a body exists, local research ethics committee approval. No documentation of local permission is required (a) if the researcher will simply be asking organizations to distribute research invitations on the researcher's behalf, or (b) if the researcher is using only public means to identify/contact participants. When medical, educational, or business records are analysed or used to identify potential research participants, the site needs to explicitly approve access to data for research purposes (even if the researcher normally has access to that data to perform his or her job).

Please note that the approval to proceed depends also on research proposal approval.

Kind regards,

Lucilla Crosta

Chair, EdD. VPREC