

Leaving is not Losing:
Influences on and Impacts of Career Decision Self-Efficacy in a
Selection of Third Level Students in Ireland

A dissertation submitted in fulfilment of the requirements of the Degree of Doctor of
Philosophy at Trinity College Dublin, The University of Dublin

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DECLARATION

I declare that this thesis has not been submitted as an exercise for a degree at this or any other university and it is entirely my own work. I agree to deposit this thesis in the University's open access institutional repository or allow the library to do so on my behalf, subject to Irish Copyright Legislation and Trinity College Library conditions of use and acknowledgement.

Clement H. Ryan

Date

DEDICATION

To my mother and (posthumously) father.

Without their individual parenting style this PhD would not have been possible.

ACKNOWLEDGEMENTS

I remember Hilary Clinton, former first lady of the United States, once said something along the lines of: it takes a village to rear a child. I cannot validate that but can say it takes a network to complete a PhD. The following acknowledgements are appropriate and representative of the network to which I refer.

Without the calm unflappable guidance of my supervisor, Dr. David Limond, this work would not have been completed. I experienced times of doubt and trepidation, usually after completing a section or chapter. Perhaps unique in the task of PhD supervision, David had a standard of providing feedback within two weeks. This he never failed to meet and quite regularly surpassed. It was this that gave me motivation to get back into things during these times. I eagerly read his corrections inspired by his ability to make words transform what might otherwise be considered a mundane piece into something interesting. His ability to make words dance like a ballerina across a stage was inspirational. There were times, perhaps unknown to himself and not the intention, his words made me laugh. His ability to make a point but with a mordant sense of humour gave me many moments of levity; these moments were instrumental in achieving this work. Furthermore, he managed me through the entire process in an efficient way, only ever issuing gentle reminders if I had gone off track but never in an admonishing way. I am grateful to him in no small way for helping with this thesis.

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ABSTRACT

College withdrawals are a widespread problem and Ireland is no exception. The associated challenges for the third level education provider, the family of the withdrawing student, and above all, the student him/herself, are clear. The damage to a student's confidence having an impact on future decision-making is arguably the most serious challenge. It is thought that career decision self-efficacy (CDSE) may be associated with college withdrawals. An understanding of the demographic predictors to this ought to be helpful. A first-year student population at Dublin Institute of Technology provided the basis for this study. Data were collected by way of a quantitative study using a survey. Analysis included, but was not limited to, descriptive analysis, regression analysis, Chi-square testing, principle component analysis, and Pearsons correlation analysis. This study found that age is a strong predictor of CDSE. Academic achievement is also a predictor. Socioeconomic background and ethnicity may, or may not, be predictors. Gender was not correlated with CDSE. It is possible that higher CDSE contributes to positive withdrawals, while lower CDSE may contribute to negative ones. It would appear that students with high CDSE make a career/educational choice primarily mediated by personality. Those with low CDSE might be at risk of external influences such as distance to college. Students who fail examination(s) may demonstrate lower levels of CDSE. These students are deserving of additional career-related interventions. Further CDSE-related research focusing on both second and third level students ought to prove helpful to those concerned with career decision-making. I suggest such research might be longitudinal and include qualitative methods of enquiry.

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COMMONLY USED ABBREVIATIONS

CAO	Central Applications Office
CDSE	Career Decision Self Efficacy
CSM	Career Self-Management
DIT	Dublin Institute of Technology
GPA	Grade Point Average
HEA	Higher Education Authority
IBEC	Irish Business Employers Confederation (the employers' representative body)
IoT	Institute of Technology
LC	Leaving Certificate (the Irish state's terminal school examination)
NCCA	National Council for Curriculum and Assessment
NFETLHE	National Forum for the Enhancement of Teaching and Learning in Higher Education
NFQ	National Framework of Qualifications
OECD	Organisation for Economic Co-operation and Development
SCCT	Social Cognitive Career Theory
STEM	Science, technology, engineering, and mathematics related courses
TGNC	Transgender and gender non-conforming people
UK	United Kingdom [of Great Britain and Northern Ireland] (comprising: England; Wales; Scotland; Northern Ireland)

1.1 Introduction

This chapter sets out the background to the study. It reflects and contains only materials and statistics gathered *before* completing the primary research. It does so to avoid confusion by seeming to put the ‘cart before the horse’ as it were. It includes a select summary of issues relevant to this study, describing the third level education landscape in Ireland at the beginning of the twenty-first century and, specifically, the situation concerning college withdrawals. It includes a summary of pertinent literature, the aim and objectives of the study, definition of terms, and a summary of the overall structure. I conclude the chapter by restating the central aim of the study.

1.2 Background to the Research

This study is rooted in my personal experience of making a career choice¹ in the final quarter of the twentieth century. At that time Ireland was experiencing a severe economic downturn. I was raised in a family many members of which were employed in An Garda Síochána (Ireland’s police force) but, unlike my siblings, this was not an option for me as I did not meet the minimum height requirement. The culture in my family was that employment in the public sector was preferable, primarily for the security such a position brought but also due to its offering a guaranteed pension. However, such were the economic woes of the time that jobs that in the public sector were not as plentiful as had been so hitherto. I was faced with entering third level education in an effort to secure employment in the private sector. On receipt of offers from the Central Application Office² (CAO) I was faced with a choice: attempt a degree in Business Studies at the National University of Ireland Maynooth, or a Higher National Diploma in Hotel Management at what was then the Regional Technical College, Athlone (subsequently Athlone Institute of Technology). I can still vividly recall the dilemma this brought and the fact that my choice was based on something as seemingly random as advice from a local publican while visiting his son one day that August. Though my choice proved to be the right one I recognise that taking such a happenstance approach to the decision might have proved otherwise.

I was involved in third level education for the 15 years prior to writing this work and each year I witnessed students dropping out of the educational courses they had chosen, quite often citing incorrect choice as the reason for doing so. This came to be of interest to me. I had always assumed that when those students first made their choices on completing their CAO applications they did so having engaged in a systematic process which resulted in a choice. I had always

¹ I use the term ‘career choice’ to mean the choice of college course (or major) as a first step along a career path. Other terms appear in the literature such as ‘vocation’ and/or ‘occupation’. For present purposes all three terms are used interchangeably to mean the same thing.

² The state’s clearing house for application to third level institutes.

imagined that, if questioned, the students would confidently justify one choice as preferable to another. But the question then arose, why was the dropout rate so high in third level institutions in Ireland particularly amongst first year students there?

At the beginning of the twenty-first century, according to Peter Cassells, the chairperson of the Expert Group on Future Funding of Higher Education, Ireland was unique in Europe having a large, growing and highly educated population of young people. *The Higher Education System Performance Report 2014-2016*, compiled and published by the Higher Education Authority (HEA), showed that 49% of 25 to 34 year-olds in Ireland had third level education, the highest proportion in Europe (HEA, 2015a), and well ahead of the Organisation for Economic Co-operation and Development (OECD) average of 39% (HEA, 2016). In Ireland, demand for higher education grew during an economic crisis in 2008-2013 resulting in 210,000 full and part-time students in Irish universities, colleges and Institutes of Technology (IoT) by the end of the period, representing an increase of 14% (Cassells, 2015). Furthermore, by 2013 the number of full-time new entrants³ to undergraduate higher education exceeded 41,400 annually, 7% higher than the beginning of the period. The benefits of third level education are well documented. Thus, in a report by the HEA, *What do Graduates Do?: The Class of 2014*, a correlation was found between education and salary, with it being specifically suggested that 51% of four year bachelor degree graduates earned over 25,000 euro, rising to 91% of doctoral graduates earning over this amount. Furthermore, 31% of doctoral graduates reported earning over €45,000 compared to only 4% of those with higher diplomas and 2% of four-year bachelor degree graduates (HEA, 2015b). However, Cassells warned that the Irish higher education system faced significant challenges. He suggested that Irish universities and IOTs needed to become more responsive to the changing nature of Ireland's economy and society in the medium and long terms. According to Cassells, this would mean giving more attention, and presumably funding, to improving the employability of graduates, while, and this may perhaps be even more important, providing high-quality, informed, career advice and support to students.

However, despite such warnings the HEA (2016) reported that by 2015/16 the state's contribution to third level education funding had dropped to 51% of all income received by the sector, down from 76% in 2008/09. This represented a decline from €1.4 billion in 2007/08 to €895 million in 2014/15 with a projected drop to 860,000,000 euro by 2015/16, all this against a backdrop of surging student numbers. One of the direct results of reduced funding was the withdrawal of grants for the function of career guidance counselling in secondary schools by the then Minister for Education, Ruairi Quinn, in the budget of 2012. Surely this was a retrograde step in the fight to reduce dropout rates?

³ A first year full-time undergraduate new entrant is defined as a student entering an undergraduate higher education course for the first time.

By the second decade of the twenty-first century first year students in Ireland studying in the IoT sector were up to three times more likely to drop out of their courses than those in universities. These students might go on to pursue different courses of study, but a report by the HEA in 2013, which looked at the academic years 2010/2011, offered evidence that too many had initially made the wrong choices. An average of 9% of first-year students on level eight programmes⁴ did not continue to the second year in those courses; this rose to an average of 22% in the IoTs (HEA, 2013). Non-progression was even higher amongst first-year students on level six and level seven programmes with rates averaging 25% and 26% respectively, and sometimes rising to 33% (HEA, 2013). Changing course choice, or dropping out of college altogether, is a traumatic and costly experience for students and their families, and an inefficient use of taxpayers' money. The Irish educational system of the twentieth and early twenty-first centuries was based on a quantitative system of course achievement. That is: the greater the number of points awarded for subjects accumulated in the terminal examination at second level, the greater the range of courses available to the student at third level. Students often made choices based on the points they had scored, perhaps at the expense of choosing courses/programmes to which they might have been rather better suited.

A 2016 HEA report entitled *A Study of Progression in Irish Higher Education: 2012/13 to 2013/14* found that the overall non-progression of 2012/13 full-time undergraduate new entrants stood at 16% (6,415 students) across all third level institutions (HEA, 2016). According to the report this compared favourably internationally. However, the headline figure concealed more worrying withdrawal rates. Analysis of the findings shows that withdrawal rates in the IoT sector were as high as 28% for level six and seven programmes, and 17% for level 8 programmes. On average, up to 23% of all new entrants in IoTs withdrew in the first year of study. In the university sector withdrawal rates stood at 11%. However, the withdrawal rate in third level colleges⁵ stood much lower, at 6%. These colleges can be described as occupation specific. In other words, they are colleges providing courses towards a specific occupation or career such as national school teaching, religious education or careers in art and design.

So called 'field-of-study mismatch' concerns situations where a person studies or acquires skills in one field but ends up working in another. An OECD study published in July 2015, discussed this at length (Montt, 2015). This is significant because the issue had received relatively little attention from an economic perspective by 2015. The study found that compared to other OECD countries Ireland had a higher than average level of occupation mismatch, with 42% of people working in

⁴ Level eight degrees (as set down by **the National Framework of Qualifications of Ireland [NFQ]** as part of a system of 10 levels [1-10]) are four year degrees in the Institute of Technology sector and three or four years in the university sector.

⁵ The five colleges included in this category in the report were: Mary Immaculate College; St. Patrick's College, Drumcondra; National College of Art and Design; St. Angela's College, Sligo, and the Mater Dei Institute of Education.

fields that did not match their qualifications, in excess of half of those being considered over-qualified for their jobs. Writing on behalf of the OECD, Montt observed that the causes of field-of-study mismatch are twofold. One is structural: employment prospects in different sectors rise and fall as demand for labour shifts. The other is cyclical: in times of recession higher unemployment results in higher levels of mismatch (Montt, 2015). Choosing the wrong course of study, and the resulting occupation mismatch, can have several negative consequences. Montt suggests that those who are mismatched earn less, are more susceptible to unemployment and experience lower levels of job satisfaction. Understanding the factors which contribute to career choice is important if useful interventions are to be made at appropriate junctures to assist people in making more successful choices.

During this part of the early twenty-first century non-progression rates continued to give cause for concern, particularly to students studying certain disciplines and at certain levels of award (HEA, 2016). International research emphasises the importance of having a better understanding of which students are more likely to withdraw in order to be better able to help each student maximise the use of his or her resources when making a career choice and support the development of retention strategies at third level generally (Lassibille & Gomez, 2008; Crosling & Heagney, 2009). In Ireland the HEA's *National Strategy for Higher Education to 2030* pointed out the negative consequences of non-progression, not just to communities and societies but for students themselves. It emphasised the importance of positive experiences on the part of first year students if each of them is to achieve his/her personal goals and the goals of higher education in general, and states that "failure to address challenges encountered by some students in their first year contributes to high drop-out and failure rates, with personal and system-wide implications" (HEA, 2011, p. 56). Furthermore, Gibbons et al. (2017) go so far as to suggest that one cost of high withdrawal rates lead to reputational damage for a *country* as a whole and may have an impact on its ability to attract foreign direct investment.

Thus, by the middle of the second decade of the twenty-first century the successful retention and progression of students in higher education were issues at the forefront of Irish educational policymaking (HEA, 2016). This could be seen in a range of initiatives, including the attempted reform of the transition from second level to higher education; the National Plan for Equity of Access to Higher Education 2015–2019; the National Forum for the Enhancement of Teaching and Learning; the National Strategy for Higher Education to 2030, and the System Performance Framework 2014-2016. Furthermore, the concept of successful participation had become a fundamental premise of Ireland's National Framework of Qualifications (NFQ), which aims to ensure that "the learner [is] able to enter and successfully participate in a programme, or series of programmes, leading to an award, or series of awards, in pursuit of their learning objectives" (HEA, 2016, p. 5). To this end, ensuring that all students in higher education participated

successfully was a core aim of the National Forum for the Enhancement of Teaching and Learning. From the launch of the first annual study of its kind, *The Irish Survey for Student Engagement*, in 2013, significant data on first and final year students' views of their higher education experiences were collected in order to increase the evidence available. This study sought to contribute to the quantity/quality of empirical evidence with a view to addressing the continuing challenge of non-completion at third level institutions in Ireland generally and especially of first-year full-time undergraduates on level seven and eight courses.

1.3 The Literature

1.3.1 Decision-Making

This study is rooted in the discipline of decision-making, specifically career or occupational decision-making. In 1994 Hogarth claimed that the making of personal decisions has not had the scholarly attention it merits. He noted that decision-making is one of the most important recurrent human activities although people are generally unaware of *how* they make decisions, often failing to understand why they chose one alternative over another. He claimed that in making decisions people rarely show concern for the quality of their own decision-making. The study of decision-making is interdisciplinary (Matlin, 2009). It includes research in psychology, economics, political science, and sociology (LeBoeuf & Shafir, 2005), and touches on fields including statistics, philosophy, medicine, law, economics and management (Markman & Medin, 2002; Simonson et al., 2001; Tetlock & Mellers, 2002). Beach and Connolly (2005) say decision-making has been studied in many different disciplines, with each regarding the work as uniquely its own. Economists have constructed axiomatic models that describe market forces at work in particular situations and that prescribe appropriate actions. Management operations researchers follow a similar course, though their models tend to be limited to specific problems in specific enterprises, while applied statisticians have modelled decisions, either prescriptively (e.g. hypothesis testing), or descriptively (e.g. structural modelling). Some scholars have come to view decision-making “as a scientific discipline in its own right” (Hammond et al., 1980, p. 5), though Fodor (1983) suggests that decision-making, along with critical thinking, problem solving, and creative thinking, are forms of high order thought, resistant to theoretical understanding, thus suggesting that there never could be a science or discipline such as ‘decision-making studies’.

When some decisions are made, there are no established rules, and the decision maker may not even know if the correct decision has been made (Klein, 1997; Tversky & Fox, 1995). The need for a decision occurs when anomalous events occur. Such events may come about as a result of internal changes, changes taking place within a person (his/her wants), or external changes (life's demands), or as a result of an earlier decision *not* producing the desired results (Beach & Connolly, 2005). Hammond et al. (2002, p. vii) writing in their mass market, bestselling book *Smart Choices: A Practical Guide to Making Better Life Decisions*, state: “life is about choices, about

priorities, and one of the biggest ways that you can influence the quality of your life is by improving the quality of your decisions”. This claim is supported by Schwartz (2004, p. 3) when he writes, in *The Paradox of Choice: Why More is Less*, “there is no denying that choice improves the quality of our lives, enabling us to control our destinies and to come close to getting exactly what we want out of any situation”. Schwartz (2004) also proposes that *some* choice may be good, but *more* choice does not imply optimal or maximum utility. Clinging tenaciously to certain choices contributes to bad decisions, anxiety, stress, and dissatisfaction. I encounter this regularly with students who remain on courses of study despite knowing they had made incorrect career choices. Such students constantly complain of anxiety and stress and after graduation often change direction.

1.3.2 Career Decision-Making

It has been said that: “Making decisions is a pervasive aspect of human experience” (Mitchell & Krumboltz, 1984, p. 238). A person may make hundreds of decisions each day. Most of them will be trivial but others are not so trivial and can have lifelong consequences. For example, decisions such as should one marry or stay single, should one have two or three children, what college course should one choose and, consequently, what occupation should one pursue are all far from trivial. Gati suggests that “career decisions are among the most complex and significant decisions individuals make during their lifetime” (2013, p. 183). Factors influencing such important decisions can originate in *the environment of the decision-maker*, such as type of school attended, socioeconomic position of the family or general employment prospects. Other factors originate *within the decision-maker* such as personality type, fears and decision-making styles. Ordinarily, occupational or career decisions are made during the adolescent years.

1.3.3 Adolescent Career Decision-Making

Behavioural scientists and sociological theorists interested in the process of occupational decision-making and attainment have traditionally focused on adolescence. Mortimer et al. (2002) note that it is during this period a young person must make critically important decisions. Featherman (1980) observed that it is during adolescence that choices about whether to enter the labour force directly following second level schooling, or whether to proceed to a post-secondary institution and choose an area of study, that may eventually lead to a career choice, are made. Such research typically concentrates on career choice among those who propose to proceed to a post-secondary institution.

Adolescence is an important developmental stage in which many new characteristics are gained and when one develops one's identity, with "identity formation consisting of sexual, vocational and ideological dimensions" (Dogan & Kazak, 2010, p. 2556). According to Dogan and Kazak it is at this stage of development that decisions are made which will affect entire lives, with one of these decisions being the important matter of career choice. Occupation is a central part of identity. According to Erikson (1956) pressure to commit to an identity and a career builds up during the adolescent years. Often between the ages of 16 and 24 there is an identity crisis, in which the adolescent is forced to make decisions about which aspects of his/her identity to retain and which to suppress. The cause of this identity crisis is partly the need to choose one job or college course over another, that is, to choose a career or occupation (Argyle, 1989). According to Argyle (1989, p. 61) "occupational choice and identity formation take place together". The process of choosing an occupation goes on at the same time as the development of an identity, or stable self-image.

By the 2000s most adolescents in Ireland and comparative developed countries expected to attend, and graduate, from college thus allowing decisions about work to be postponed until they were well into their 20s (Kerckhoff, 2002), although typically the choice of a course of study or college major is an indication of a broad direction towards a career path. However, in the United States only a minority of high school students seriously seek information about possible careers, or engage in appropriate activities associated with career planning, even though almost all report occupational aspirations when asked. According to Schneider and Stevenson (1999) adolescents in the United States typically *appear* occupationally motivated, but are directionless. Their meta-analysis, which was based on a wealth of surveys, interviews and observational data, showed American adolescents lacked information, such as how much education was needed for the occupations they were considering (Mortimer et al., 2002). And so, at the end of the twenty and beginning of the twenty-first centuries the issue of career indecision and resulting college withdrawal came into focus in Ireland.

1.3.4 Factors Influencing Non-Progression/College Withdrawals

The factors contributing to non-progression are varied and complex. For example, personal considerations (such as age, gender, family background, living arrangements, finances and personality) have, for long been used to explain the differences between students who stay in higher education and those who do not (Eivers et al., 2002). At institutional level there has been much focus on the type of institution (see Mayhew et al., 2016), size of institution (see Feldman & Newcomb, 1969) and institutional selectivity. Tinto (1975) suggested that the perceived social status of an institution is an important factor in shaping its capacity for retaining students. This may, in part, be an explanation for the below average non-progression rates at Trinity College (HEA, 2013; 2016), founded in 1592 and long considered Ireland's most prestigious university. However, research undertaken since the 1990s has moved away from focusing on the individual

factors towards a more holistic and process-based approach to non-progression, taking into account the interaction of individual, societal and institutional factors. Much evidence shows that drop-out rates peak in first year, and the risk of withdrawal declines steadily as students progress through courses of study. For example, Porter (1990) and Smith and Naylor (2001) found that in the US and the UK, more than half of student attrition occurs in the first year of higher education.

Two dominant theories in research on non-progression are concerned with social integration and academic preparedness. The first theory is based on much of the early literature on retention and integration which stems from the work of Tinto (1975; 1987). Tinto (1975), through his Student Integration Model, showed the importance of positive social interactions for students in order to increase levels of institutional commitment. According to Tinto (1993, p. 96) “it is the interplay between the individual’s commitment to the goal of college completion and his [sic] commitment to the institution that determines whether or not the individual decides to drop out”. The other theory has its origins in the concept of academic preparedness. It is widely acknowledged that some students are better suited to higher education than others. Factors such as lack of information on course content often lead to students making poor course choices (Tinto, 1993). Many students entering higher education from secondary school may not have developed the skills needed to cope with the often unfamiliar demands of higher education (Crowley & Mahon, 2012). It has been found that the quality of a student’s academic performance in second level is positively related to achievement in higher education (Chapman, 1996; Hoskins et al., 1997) and the less well-prepared student is more likely to drop out (Astin et al., 1987). In some UK universities,⁶ Johnes and Taylor (1990) found that students with higher A-level performance were less likely to withdraw from higher education.

Likewise, research in Ireland has shown a significant relationship between points required for admission to courses (based on state examination results) and course completion at undergraduate level (Morgan et al., 2001; McCoy & Byrne, 2010). Recent longitudinal qualitative research undertaken by Crowley et al. (2012) illuminated the importance of institutions providing adequate supports that are specifically tailored to meet the needs of students at-risk of non-progression, as a result of academic disengagement. The National Forum for the Enhancement of Teaching and Learning in Higher Education (NFETLHE) has funded a series of focused research projects concentrating on transitions to higher education, students’ completion and retention rates, open education resources and open access, recognition of prior learning and research on higher education teaching and learning in Ireland. Findings from the qualitative research on student completion and non-retention by the NFETLHE (2015) identified five core themes which are most significant in

⁶ The UK consists of England, Wales, Scotland, and Northern Ireland. However, with the exception of some private schools, A-levels are not available in Scotland. Johnes and Taylor (1990) do not make this distinction in their research and so for present purposes I suggest ‘some’ universities in the UK as a more accurate description of their population.

terms of student non-completion. These themes related to course choice, personal issues, financial means, medical/health problems and family matters. The study called for a more holistic and positive interpretation of non-completion (recognising it can often be part of a student's broader career plan) and also emphasised the importance of collecting systematic and uniform information (for example, through a standardised exit form) on why students choose to leave higher education.

1.3.5 Self-Efficacy

The behavioural psychologist Albert Bandura, in an attempt to explain and predict behavioural change put forward a theoretical framework which proposed that self-efficacy is a cognitive mechanism mediating behaviour and behavioural change (1977; 1982). According to Bandura, it is the part of a person's internal self-system by which he/she regulates actions through internal standards and self-evaluative reactions to personal behaviour. He referred to this as "self-referent thought" (Bandura, 1986, p. 390). Bandura believed that self-efficacy plays a part in behaviour in the social, intellectual, and physical domains; in other words, most aspects of life. He suggested that nothing is more influential in a person's everyday life than personal efficacy. He was primarily concerned with self-knowledge (self-referent thought) and focused on a person's conceptions of his/her personal effectiveness, or efficacy. Bandura defined it as follows.

People's judgements of their capabilities to organise and execute courses of action required to attain designated types of performances [constitute self-efficacy]. It is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses (1986, p. 391).

Knowledge of a person's level of self-efficacy can assist in understanding how that person judges his/her capabilities and how self-perceptions of efficacy affect motivation and behaviour. Each of us is partly governed by judgments of capabilities, that is, what we think we can do under given circumstances may or may not inhibit what is actually attempted. Somebody's belief about his/her capabilities, along with thoughts and emotions experienced in taxing situations, will typically influence his/her behaviour. Galassi and Galassi (1984) suggested that anyone who possesses the necessary skills and is given adequate incentives, will find that the major determinant of whether he/she will cope, how much effort will be expended, and how long that behaviour will be sustained lies in his/her level of self-efficacy.

Thus, it becomes clear that self-efficacy beliefs refer to expectations about one's ability to initiate and successfully complete courses of action. Bandura hypothesised that perceived self-efficacy affects choice of activities, effort expended, and, in the face of obstacles and adverse experiences, the level of persistence applied (1977; 1982). Self-efficacy is concerned with judgments about how well a person can organise and execute courses of action required in situations that may contain

novel, unpredictable, and possibly stressful elements (Schunk, 1983). Career choice may be one of the activities to which Bandura and others refer.

A person who judges him/herself highly efficacious will exert greater effort and expect favourable outcomes; in the face of difficulties self-doubters will slacken the effort applied and expect only mediocre performances of themselves, resulting in failure. Those who are highly efficacious are inclined to attribute any such failure to insufficient *effort*; whereas those of comparable skills but lower perceived self-efficacy may attribute it to deficient *ability* (Bandura, 1986). As knowledge and competencies are achieved through sustained effort, low self-efficacy can lead to a person giving up easily which is personally limiting. In general, successes raise efficacy and failures lower it, although once a strong sense of efficacy is developed an occasional failure will not have a sustained negative effect (Schunk, 1989).

Reasonably accurate appraisal of personal efficacy is important in determining one's capabilities and is valuable in successful functioning. Misjudgements of personal efficacy in either direction have consequences. A person who overestimates his/her capabilities may undertake activities that are beyond his/her reach. As a result, that person may experience considerable difficulties and loss of credibility, suffering needless failures. Such failures may have a lasting detrimental impact. Conversely, a person who underestimates his/her capabilities may avoid some activities depriving him/herself of what might otherwise be a rewarding and enriching experience. Success, it is often said, begets success: The spiral goes up (I believe I can; I will; I do; I believe all the more). But it goes down as well: failure begets failure (I doubt I can; I do less than necessary; I fail; I have now no reason to believe in myself in future). If such a person does attempt these tasks he/she typically creates internal obstacles to effective performance by engaging in self-doubt (Bandura, 1986). There are many factors that may contribute to faulty appraisal of one's efficacy. Bandura wrote "self-efficacy will always be misjudged when personal factors distort self-appraisal processes" (1986, p. 398). In the case of routine activities a person evaluates his/her personal efficacy based on self-knowledge gained through reputation. After a short time there is no need to judge efficacy in order to complete the task. The challenge arises when new activities are required, prompting self-efficacy reappraisal. It is during this process that faulty self-appraisal occurs. Bandura suggested that this occurs "at the level of perception, during cognitive processing, or during recall of efficacy-relevant experiences" (1986, p. 398).

In the late 1970s and into the 1980s self-efficacy was studied in relation to a variety of clinical problems such as ophiophobia (snake phobia), social skills, and the ability to resist a return to smoking. Results have generally suggested that a person's self-efficacy expectations are useful in predicating behavioural change independently of the different treatment approaches used (Lent et al., 1984). Collins (1982) found that perceived self-efficacy predicted interest better than ability.

In qualifying this, Bandura (1986) suggested self-efficacy to be more predictive of future performance than more normal indicators, such as confidence. He also suggested that perceived self-efficacy influences, and is, in turn, influenced by, thought patterns, affective arousal, and choice behaviour as well as task performance. For example, a person who has a limited expectation of being able to accomplish a task may avoid it; while those who believe they are capable usually participate more eagerly. It is in this framework that career choice and performance can best be studied.

The first researchers to extend Bandura's theory to vocational behaviour were the psychologists Gail Hackett and Nancy Betz. According to Hackett and Betz (1981), self-efficacy expectations are primary cognitive determinants of whether or not a person will attempt a given behaviour and exert strong influence on the career decisions and achievement of both men and women.

1.3.6 Career Decision Self-Efficacy

Career decision self-efficacy is based on Bandura's (1977a; 1986) research on psychological conditions. This evolved from his social learning theory (Bandura, 1977b). As already stated, Bandura defined self-efficacy as the "belief in one's capabilities to organise and execute courses of action required to produce given attainments" (1997, p. 3). Hackett and Betz applied self-efficacy theory to career decision-making, focusing on anxiety experienced by women when studying mathematics/technical subjects. In doing so, they took a major theory from developmental and social psychology (Bandura, 1977a; 1977b) and applied it to counselling and vocational psychology, that of career choice and development (Betz & Hackett, 2006). Hackett and Betz (1981) initially developed a theoretical/conceptual paper and went on to test this with empirical research presented in the same year (Betz & Hackett, 1981). Their research has attracted many other vocational and counselling researchers, and by 2005 Hackett and Betz (1981) and Betz and Hackett (1981) had attracted several hundred citations each. Their work, and the work of others, has produced a major career theory, *social cognitive career theory*. This has subsequently been developed by Lent, Brown, and Hackett (1994; 2000) and Lent (2005). Although initially focusing on understanding women's career development, the theory is now used to understand career development in general, as well as that of specific groups; for example, people of colour, elderly persons, people with disabilities, and female offenders (Betz & Hackett, 2006).

Betz and Hackett (2006, p. 5) have stated that "the huge degree of research activity in this area can be attributed in part to the increasing availability of high quality measures", one of which (as developed by Taylor and Betz (1983) and Betz, Klein, and Taylor (1996)) is the Career Decision Self-Efficacy Scale (CDSE), an instrument developed to "define and operationalise the skills required in career decision-making" (Betz & Luzzo, 1996, p. 415), in other words: to measure a person's degree of belief that he/she can successfully complete tasks necessary to making career

decisions. This scale assesses the level of confidence that someone has about his/her ability to identify resources and constraining personal characteristics that may influence career choice. The instrument is divided into five subscales.

- 1 Self-appraisal (the extent to which a person accurately assesses his/her career-relevant abilities, values and interests).
- 2 Occupational information (level of knowledge a person has about university programmes, occupations and labour markets).
- 3 Goal selection (ability a person has to set priorities in order to manage successfully his/her professional advancement).
- 4 Planning (a person's ability to set plans for the future and identify possible career paths).
- 5 Problem solving (a person's ability to identify/develop alternative coping strategies and solve career choice problems when outcomes do materialise) (Taylor & Betz, 1983; Betz & Luzzo, 1996).

Betz and Hackett (2006) emphasise the importance of defining the domain of behaviour (e.g. career decision-making) before assessment. In developing the CDSE, Taylor and Betz chose the theory of career maturity as developed by John O Crites. This required taking Crites's (1978) five career choice competencies (self-appraisal, occupational information, goal selection, planning, and problem solving) as the definition of the domain and then producing items that *appeared* to reflect each of these competencies. Finally, traditional item analysis⁷ procedures were then used to select the best items for each subscale based on the confidence response continuum used by Bandura to define self-efficacy originally (Betz & Hackett, 2006). Betz and Luzzo (1996) reviewed literature using the CDESES scale and cited research attesting to its reliability, as well as content, criterion and construct validity (Reddan, 2016). Similarly, Prideaux and Creed (2001) indicated that the measure is a well-developed construct with sound psychometric properties. Subsequently Betz, Klein & Taylor (1996) shortened the CDESES to a 25-question scale (CDESES-SF).

1.4 Aim and Objectives of this Research

By 2015 efforts were being made to address the issue of non-progression rates in Ireland. For example, the then Minister for Education, Jan O Sullivan, writing in the foreword to *Supporting a Better Transition from Second Level to Higher Education: Implementation and Next Steps* suggested one such measure (HEA, 2015c). This required that universities and IoTs allow entry to broad-based courses, preventing students from having to decide too early which specialism(s)

⁷ In psychometrics, item analysis refers to statistical methods used for selecting items for inclusion in a psychological test. A variety of statistical procedures are applied to the responses to the candidate items in order to eliminate unsatisfactory items.

might suit them. According to O Sullivan this could assist in addressing the issue. At the same time, researchers at the National University of Ireland, Maynooth were in the process of developing a data-mining algorithm that was intended to predict if a student would drop out of third level education. The algorithm took into account the complex interactions between behavioural, academic and demographic variables such as social media usage, academic capabilities and age when making its assessment. According to Keith Quille, the research leader, “this allows interventions to be put in place to reduce the number of students who are at risk of dropping out” (Byrne, 2015). However, I came to suspect that the answer to the problem of non-progression rates lay in CDSE and this led me to develop the following questions.

1. What factors influenced young people when making a career choice in Ireland at the beginning of the twenty-first century?
2. What factors contributed to college withdrawal rates amongst undergraduate first-year students in Ireland and did those who withdrew have lower levels of CDSE?

These questions led to or provided two more.

1. What demographic factors contributed to CDSE amongst undergraduate first-year college students in Ireland at the beginning of the twenty-first century?
2. Were those with lower CDSE more influenced by external considerations when making career choices (e.g. parents or career guidance counsellors) at the expense of internal or cognitive factors?

Thus, the answering of the questions, as depicted in figure 1.1, required an investigation of the levels of CDSE amongst first-year full-time undergraduate students studying at Dublin Institute of Technology (DIT)⁸ who proposed to withdraw from their courses of study. According to the theory those who withdraw from college should have lower levels of career decision self-efficacy than those who complete. In order to conduct this research a control study was necessary to establish base levels of CDSE across first year students studying at DIT. I then completed a comparative study measuring the CDSE levels of those withdrawing. Ultimately, according to the theory, those who persist and overcome barriers (examination failure) should register heightened levels of career decision self-efficacy. I investigated this by completing a study of those students who failed one or more modules but returned to re-take the examination(s) in an effort to progress. I understood the data using the social sciences software package SPSS and the statistical software package R.

⁸ Dublin Institute of Technology came into being on 19 July 1992 and ceased to exist as an IoT on 31 December 2018. The next day, 1 January 2019, DIT became a part of Technological University, Dublin. This study was conducted while the institute was DIT. To avoid confusion, I consistently refer to it as such.

The instrument used for the research was first developed by Professor Nancy Betz of Ohio State University working with colleagues Klein and Taylor (Betz, Klein & Taylor, 1996) and initially consisted of a 50-question psychological measurement tool, though this was later revised to become a 25-question instrument. After investigation of both instruments and communications with Betz (the shorter version had become commercialised) I decided that the 50-question instrument would be more suited to answering the questions outlined above. Using this career decision self-efficacy scale I set out to establish CDSE levels amongst first year students studying at Dublin Institute of Technology in the belief that the identification of low levels of career decision self-efficacy can assist staff in making interventions and possibly help reduce withdrawal or drop-out rates in third level institutions in Ireland.

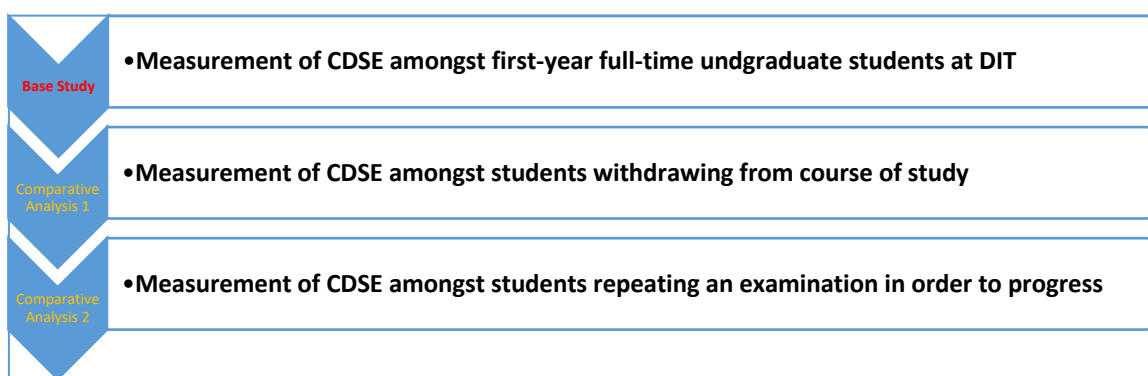


Figure 1.1 - Research component parts

1.5 Terms

For the purpose of this study the following terms were used in the ways set out below.

Ireland: The 26 counties of the Republic of Ireland.

College: Third level educational institutes in Ireland funded by the (HEA). These include seven universities, 14 IoTs, and eight other colleges (Marino Institute of Education; Mary Immaculate College, Limerick; Saint Patrick's College, Drumcondra; Mater Dei Institute of Education; National College of Art and Design; Saint Angela's college of Education, Sligo; Dun Laoghaire Institute of Art, Design and Technology, and the Royal College of Surgeons of Ireland).

Course: A course, or programme, of study at one of the third level education institutes in Ireland.

Career Choice: Broadly speaking, the term career covers the choices a person makes concerning employment throughout the lifespan, to include course of study at college. In this study career choice is used to mean college course choice as the initial step towards a career path.

Third Level Education: Post-secondary education.

Leaving Certificate: The state's terminal/qualifying examination for application to third level institutes.

Academic Achievement: Points scored on the Leaving Certificate with a maximum score of 600 points being possible.

Student: A person enrolled as a first-year full-time undergraduate student on level seven and eight courses who is 18 years or over, though some first-year students in third level institutes in Ireland may be under 18. Students under 18 were not included in this study as to have done so would have required written parental permission.

Withdrawal: A student who formally withdraws (completes the associated paperwork) from his/her first course choice at third level.

Dropout: A student who fails to complete his/her course choice, leaving the third level institute without formal notification to relevant authorities.

Career Decision Self-efficacy: A student's judgements of his/her abilities to perform career-related behaviours or tasks in career choice, development and adjustment processes.

1.6 Structure of the Remainder of this Thesis

Chapter two consists of a detailed review of relevant literature on decision-making, occupational decision-making, adolescent occupational decision-making, non-progression in third level education, self-efficacy and career decision self-efficacy. The knowledge gained from the literature assisted me in developing a more precise question guiding the direction of the study.

Chapter three sets out the approach to the research and methods used to answer the questions posed. The philosophical basis for the study is set out here and this provides the foundation for what follows. I used quantitative (survey) methods to collect data and the computer packages SPSS and R for analysis of and assistance with interpretation of data collected.

Chapter four presents the findings of the study in raw form. The CDSE formed the nucleus of the data collection but this instrument was supplemented with a range of questions collecting data from respondents on demographics, academic performance, factors influencing career choice, factors influencing college withdrawal, and other pertinent information needed to answer the central research questions.

Chapter five outlines an analysis of the findings specifically for the four research questions.

Chapter six sets out conclusions and recommendations.

1.7 Conclusion

The aim of this study was to explore the possibility that career decision self-efficacy may be associated with college withdrawal rates amongst first-year undergraduates in Ireland. In other words, students who withdrawal from their courses of study during the first year of college may have lower levels of CDSE than their peers who stay engaged or those who overcome a barrier such as examination failure. In order to do this, I developed four objectives, designed a

quantitative study and collected data using a questionnaire/survey. Overall, the study can be thought of being represented by figure 1.2 below.

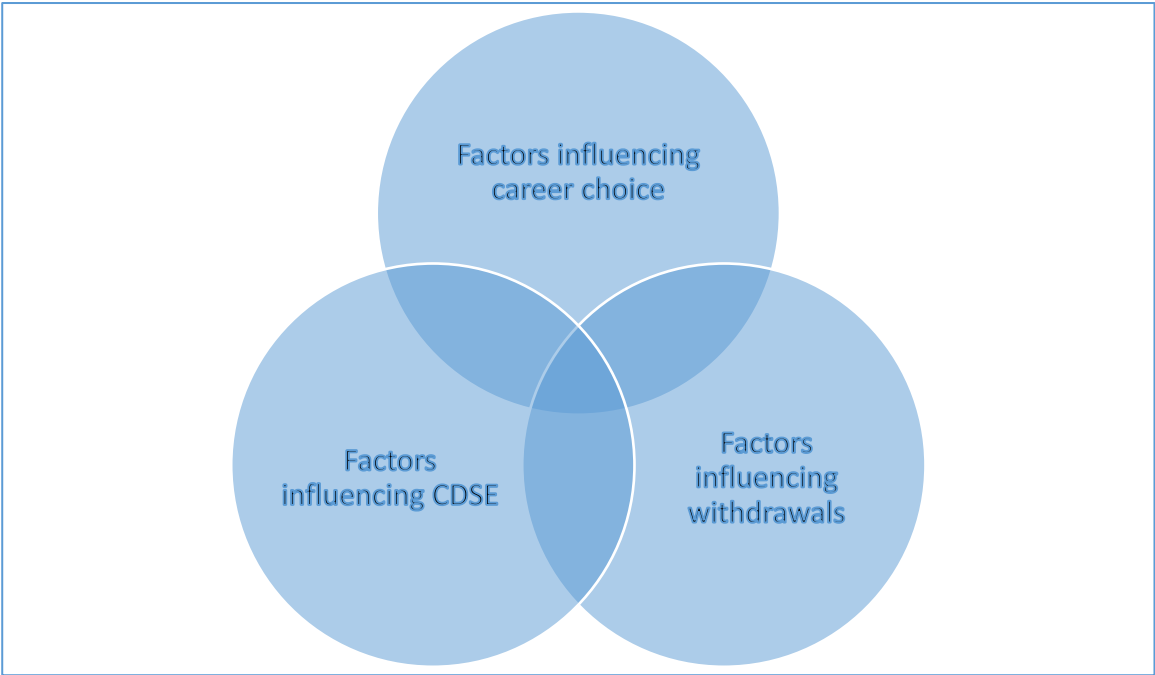


Figure 1.2 – Study overview

2.1 Introduction

This chapter concerns the possibility of a connection between college withdrawals and career decision-making self-efficacy. It starts with decision-making generally and progresses to career decision-making (adolescence). Literature pertaining to internal and external factors influencing the career decision are included at this point in the chapter. This leads to the nucleus of the study: college withdrawals, self-efficacy and but more specifically career decision self-efficacy (CDSE).⁹

2.2 Careers

As this study concerns the discipline of career decision-making, a review of the term *career* ought to prove helpful. Brown (2012, p. 14) points out that: “Just as ‘work’ and ‘job’ are often used interchangeably, so are the terms ‘position’, ‘job’, ‘occupation’, and ‘career’” (Brown, 2012, p. 14). The meaning of the term career is evolving and developing in line with developments in a supposedly postmodern world. In the middle of the twentieth century people generally used the word career to mean some form of paid work they entered after leaving education and in which they stayed for a considerable length of time, often the duration of their working lives. Work often started with some form of apprenticeship or traineeship, generally on low pay to start with, but with some structured progression built in to allow people to move up the ranks in their chosen organisations (Barnes et al., 2011). This bureaucratic conceptualisation of career, set out by Barnes et al. and many other researchers, has become associated with a view of organisations as hierarchical, dominated by specialisation and internal labour markets providing corporate ladders for people to climb (Collins, 1996).

During the 1970s and 1980s the structure of labour markets in the northern or western world (roughly: Europe, North America, some parts of Africa and Asia and Australasia) began to change as many manufacturing industries struggled to compete in global markets. Organisations stopped investing in training and providing apprenticeships. Savickas (1993) describes a move from a twentieth-century ‘career ethic’ based on large bureaucratic organisations, where the worker found success by moving up someone else’s ladder, to a twenty-first century ‘development ethic’, where success comes through cooperation and contribution in a postmodern society in which individuals are more able to shape their own lives, while Arthur et al. (1999) point to a move from a ‘strong’ situation that prevailed when large bureaucracies and companies were dominant, to a ‘weak’ situation where work is much more flexible.

⁹ Early writings on career self-efficacy used the term career decision-making self-efficacy. However, due to copyrighting issues this term subsequently became career decision self-efficacy.

Without the opportunities provided through structured apprenticeships circumstances changed for young people, with many opting for further or higher education leading to prolonged transitions to uncertain destinations where employment was much less predictable (Roberts, 1997). A shift from manufacturing based jobs to jobs within the services sector occurred, though careers within the services sector were, and are, often poorly paid with relatively few opportunities for advancement (Roberts, 2005). Barnes et al. suggest “as many more people study at university level, questions arise as to the nature of work that these students gain, as fewer enter what could be termed graduate jobs in an ever-more competitive market” (2011, p. 10).

2.2.1 What is a Career?

Originally conceptualised by the occupational psychologist Donald E. Super in 1957 as the developmental sequence of full-time positions held over the course of a person’s working life, the definition of career “has been increasingly expanded to include the non-work related areas and roles of human life” (Osipow & Fitzgerald, 1996, p. 50). In 1959 the occupational sociologist Carroll L. Shartle proposed definitions for the many terms associated with the world of work. These terms have become widely accepted and have been endorsed by the National Career Development Association in the United States as follows (Shartle, 1959, p. 23).

- *Position – a group of tasks performed by one person.*
- *Job – a group of similar positions in a single plant, business establishment or other organisation.*
- *Occupation – a group of similar jobs found in several establishments.*
- *Career – this covers a sequence of positions, jobs, or occupations that one person engages in during his working life.*
- *Vocation – synonymous with occupation, vocation is more likely to be used by the worker than by his employer.*

Shartle indicated that career involves stages, including preparation, participation, and withdrawal from one’s occupation. Though a broad understanding of all stages is necessary to understand career choice and development.

In 1976 Super suggested intellectual communication required a common language. Hence, in 1982 Susan Sears, writing in the *Vocational Guidance Quarterly*, suggested “examination of the career development literature can leave a reader confused”. She went on to say: “the confusion stems from the varied and often diverse meanings attached to identical terms” and also added that, as a consequence, “failure to define key terms or use of different definitions for the same term... [had created] barriers to communication” (Sears, 1982, p. 137). Concern about the proliferation of definitions of career guidance terms, and an awareness of the need for a common language,

prompted the National Vocational Guidance Association in the United States to support the development of a glossary of career guidance terms. Definitions in this glossary include the following (Sears, 1982, p. 139).

- *Job – a group of similar, paid, positions requiring some similar attributes in a single organisation.*
- *Occupation – a group of similar jobs found in various organisations.*
- *Career - the totality of work one does in his/her lifetime.*

Super, writing in 1984, proposed that the full meaning of the term career “takes into account the constellation of roles that constitute a career, viewing study, work, home and family, community service, and leisure activities as interacting and interdependent” (p. 32).

And there the matter might have rested had a belief not grown up that contemporary life had become ‘postmodern’ (a notoriously vague term, but one certainly connected with uncertainty and ambiguity). Hall and Mirvas (1996) suggest that in a postmodern world the definition of career needs to reflect a more current role of flexibility required of contemporary workers. They put forward the term “protean career” (a reference to the shape-changing sea god of Greek mythology). This “encompasses any kind of flexible, idiosyncratic career course, with peaks and valleys, left turns, moves from one line of work to another and so forth. Rather than focusing outward on some ideal generalised career path, the protean career is unique to each person – a sort of career fingerprint” (1996, p. 21). That view of future work environments suggests that some workers in the twenty-first century will make multiple career choices.

By 2000 Reardon et al. could define career as “time extended working out of a purposeful life pattern through work undertaken by the person” (2000, p. 6). Here career refers to the activities and positions involved in vocations, occupations, and jobs, as well as to related activities associated with an individual’s lifetime of work. Reardon et al. (2000, p. 7) qualified this by saying: “work is an activity that produces something of value for oneself or others” (2000, p. 7).

According to Kirkpatrick et al. (2002) a career is a strong determinant of a person’s status in his/her community, influencing earnings/wealth, and style of life. A career is both an option and a responsibility in modern, democratic societies where people generally have far more freedom in choosing their work-lives than was typical in the past. This developmental task is not always a clear or easy one, nor does it always end well and any decision may affect the broader welfare of career decision-makers, their extended families, and even their broader communities (Gottfredson, 2002).

Universal agreement as to the words to be used to describe various aspects of career and career choice has not yet been reached. For example, some counsellors and psychologists (e.g., Holland, 1997) have retained the word ‘vocation’ and use it synonymously with the words ‘job’ and ‘occupation’. However, many other career counsellors and psychologists reject the term ‘vocation’ as it is associated with the idea that people are ‘called’, sometimes by God, to their occupations instead of being active participants in choosing these jobs. This latter group have adopted the term ‘career choice’ to denote the process of selecting a career as Brown puts it, while others again have retained the term vocation but married it with choice to create the compound ‘vocational choice’ (Brown, 2012). “The definitions of position, job, and occupation are relatively straightforward and are widely accepted, but there is some controversy over the meaning of career” (2012, p. 14). In order to emphasise this point Brown quotes four definitions from the 1970s to 1990s (2012, p. 14):

- *Career = work + leisure* (McDaniels, 1989).
- *The course of events which constitutes a life; the sequence of occupations and other life roles which combine to express one’s commitment to work in his or her total pattern of self-development* (Super, 1976).
- *Careers are unique to each person and created by what one chooses or does not choose. They are dynamic and unfold through life. They include not only occupations but prevocational and post-vocational concerns as well as integration of work with other roles: family, community, leisure* (Herr & Cramer, 1996).
- *A sequence of positions that one holds during a lifetime of which occupation is only one* (Hansen, 1997).

Analysis of the definitions provided by Brown gives a sense of the problem involved in defining career. For example, the definitions of Super, and Herr and Cramer are based on a holistic lifestyle concept of career and reflect their belief that all life-roles are interrelated. That offered by McDaniels is more circumscribed in that it limits career to two roles (work and leisure) which he sees as inseparable. Osipow and Fitzgerald acknowledge the important of non-work roles for understanding most people’s lives but argue that there is still merit in restricting the concept of career “to the domain of vocational psychology, that is, the study of vocational behaviour” (1996, p. 51), in other words, the evolving sequences of a person’s work experiences over time. One might be tempted to sum up the state of play by saying ‘pay your money and take your choice’, though this could seem somewhat flippant (but perhaps correct nonetheless).

2.2.2 The Future of Careers

Mulgan (1997) points out that the new economy places greater emphasis on exchange and transformation, and as such, has shifted the centre of gravity of societies away from those occupations which favour continuity, onto occupations which favour change, unpredictability, spontaneity, innovation and creativity. Increasingly these skills supposedly allow workers to become mobile in the global market. The obverse of such change in occupations and careers is that those who were in unskilled/semi-skilled manufacturing jobs find themselves redundant. Story (2000) suggests that change is so prevalent and rapid that the whole notion of a career with progression up a hierarchy is outdated and that in postmodern society flexible workers are needed. Barnes et al. (2011, p. 10) suggest “such workers can transform their skills and knowledge from one contract to the next as new business is generated in response to consumer demand”.

As is evident, the term ‘career’ is evolving to a more general term denoting a pathway through life, rather than paid work or a job. As a result of such changes, some contemporary definitions of career are evolving. These include one by The National Career Development Association (NCDA) which defines career (development) as “the total constellation of psychological, sociological, educational, physical, economic, and chance factors that combine to influence the nature and significance of work in the total lifespan of any given individual” (NCDA, 2008, p. 2). Perhaps one of the most comprehensive and encompassing definitions of career is that of Barnes et al. (2011, p. 11) where career is composed of five ‘pillars’:

- Inclusion – everyone has a career, it is part of their life as a whole.
- Participation – engaging with society and contributing to the well-being of others through the work that they can do.
- Lifelong progression – making progress in learning and work throughout their lives.
- Self-constructed identity – building and managing a positive identity and future for themselves.
- Well-being – pursuing career happiness through the achievement of meaningful work.

Despite academic definitions for the term ‘career’, and its evolution, many young people still view career as something that “continues to relate closely to what they will do after they leave school or full-time education” (Barnes et al., 2011, p. 11). For adolescents there is a strong relationship between career and money. At such an early age the economic dimension of a career is paramount in a person’s mind as money represents the means to a comfortable and enjoyable life. At this stage of development he/she is far removed from the ‘pathway’ through life that contemporary definitions of career envisage. Later in life many of these adolescents may begin to realise that other dimensions of career are important, such as the importance of how they feel about what they

are doing, feeling valued in the workplace and society, as well as their overall well-being and future happiness (Barnes et al., 2011).

Furthermore, the term career does not hold the same meaning for all members of society. Anthony Watts, when president of the National Institute of Careers Education and Counselling in Great Britain, proposed that “career is a derivation of the late industrial era associated with the breakdown of traditional mechanisms of role allocation within social classes that ceased to be sufficient to cope with the pace of economic and industrial change” (Watts, 1999, p. 1). He continued “the traditional concept of career is exclusively middle class concerned with progression up an ordered hierarchy within an organisation or profession”. Gothard et al. (2001, p. 96) suggest the traditional view of organisational and occupational structures does not bear close examination for the majority of citizens, and propose “the middle class have careers, the rest of us just have jobs”, while Felderman (2002) points out that many poor and blue-collar workers may view their environments as constrained with limited potential for finding work, where work is viewed as a necessity to provide for family. For them career is at best a vague term with little or no meaning.

2.3 Decision-Making

The study of decision-making is interdisciplinary (Matlin, 2009). It includes research in psychology, economics, political science, and sociology (LeBoeuf & Shafir, 2005), and can take in matters such as statistics, philosophy, medicine, law, economics and management (Markman & Medin, 2002; Simonson et al., 2001; Tetlock & Mellers, 2002). Decision-making has been studied in many different disciplines, with each regarding it as uniquely its own (Beach & Connolly, 2005). By the late twentieth century some scholars viewed “decision-making as a scientific discipline in its own right” (Hammond et al., 1980, p. 5). William Starbuck, then professor in residence at the University of Oregon’s Charles H. Lundquist College of Business, suggested in 2006: “Decision implies the end of deliberation and the beginning of action” (quoted in: Buchanan & O Connell, 2006, p. 33). Eysenck and Keane (2010) document decision making as the selection of one of a number of presented options or possibilities, with the decision having personal consequences and attributing decision making to a part of thinking along with problem solving, judgement, deductive reasoning, and inductive reasoning. Eysenck and Keane (2010) identify five higher-level cognitive processes involved in thinking: problem solving; decision making; judgement; deductive reasoning, and inductive reasoning. They propose that “decision making and deductive reasoning are closely related; with all of these cognitive processes taking place within the same areas of the brain but originating within the basal ganglia” (Eysenck and Keane, 2010, p. 475).

Decision-making is about trying to create events and shape one's future (Drummond, 1993). Decisions which concern everyday life are not necessarily guided by such established rules, and the decision maker may not even know if the correct decision has been made (Tversky & Fox, 1995; Klein, 1997). The need for a decision occurs when anomalous events occur, with such events being the result of internal personal changes within a person (wants), or coming from external considerations (demands), or resulting from an earlier decision not producing the desired results (Beach & Connolly, 2005). An example of this might be when a student makes a decision to opt for one course of study but, subsequently, realises that the choice has been incorrect for reasons such as change of mind (internal changes) or, there being no work available in the field (external changes).

Hogarth (1994) has indicated that the act of *personal* decision-making has attracted little scientific study, and has not had the attention it merits. He proposed that decision-making is one of the most important of recurrent human activities although people are generally unaware of how they make decisions; often fail to understand why they chose one alternative over another, and rarely show concern for the quality of the decision. Hammond et al. writing in their bestselling book *Smart Choices: A Practical Guide to Making Better Life Decisions* state, "life is about choices, about priorities, and one of the biggest ways that you can influence the quality of your life is by improving the quality of your decisions" (2002, p. vii). This claim is supported by Schwartz when he writes in *The Paradox of Choice: Why More is Less*, "there is no denying that choice improves the quality of our lives, enabling us to control our destinies and to come close to getting exactly what we want out of any situation" (2004, p. 3). Swartz (2004) also proposes that *some* choice may be good, but *more* choice does not imply optimal or maximum utility. He has suggested that if a person clings tenaciously to choices available without making a choice, such indecision may contribute to bad decisions, anxiety, stress, and dissatisfaction. Presumably, career indecision may affect a student in similar ways. There is much evidence that emotional factors, especially anxiety, play an important role in decision making and on the concept of loss aversion, and leads individuals to become more loss averse, which helps clarify why most individuals are more sensitive to losses than to gains (Eysenck & Keane, 2010). Perhaps a correlation can be drawn between this research and the incidence of change-of-mind applications to the CAO system after the trial Leaving Certificate examinations mid-way through students' final term of study. However, one should not conclude that emotions always impair decision making with Eysenck & Kane (2010) referencing research whereby stock investors who experienced more intense feelings had superior decision-making performance than those with less intense feelings.

However, Etzioni (2001), proposed that decision-making models, which required comprehensive knowledge of every aspect of a problem, are no longer sufficient to explain how decisions were commonly made by the early twenty-first century. Such an out-dated approach (it might be said) does not meet the needs of a world with too much information and too little time for consideration. As the world in which we exist apparently increases in complexity people are increasingly called on to make important decisions in unfamiliar circumstances. But doing this had led to an increase in technological tools to help decision makers make more reasoned choices (e.g. SPSS a software package used in this study). Yet, even allowing for rapid changes in the technological, economic and social environments of (post-) modernism what may be needed in the twenty-first century are conceptual skills, that is, the ability to process information and make judgments.

By the early twenty-first century, with the exception of a few theories on decision-making, most theories of choice used a cognitive psychological model (Bechara et al., 2000). Cognitive psychology treats the mind as an information-processing system, unlike behaviourism which treats it as a mechanical switchboard (Treisman, 2003). Matlin (2009) claims the field of cognitive psychology developed enormously in the approximately 60 years from c. 1950 to 2010. Early research on topics such as short-term memory, knowledge representation, and language comprehension, gradually giving way to such topics as suppression, metamemory and bilingualism. Cognitive psychology could thus be viewed as a mature discipline by the end of the twentieth century.

Generally, decision-making may be considered as identifying the objectives to be reached for the purpose of meeting a need, gathering the necessary data, generating and evaluating alternatives and then choosing the one most appropriate to the situation (Gucray, 2005). The decision-making process can be depicted as a set of steps or stages. According to these models, decision-making consists of tasks or functions performed in order, beginning with problem identification and concluding with post-implementation evaluation. Such models emphasise the nature of decision-making (Smith, 2008). Smith maintains that only a few steps in the decision-making process have been studied in depth and proposes that the research that was carried out is choice-centric though some exceptions exist – with work on decision framing (Kahneman & Tversky, 2000), and research on objective setting and generation of alternatives (Keller & Ho, 1988; Keeney, 1992).

Thus, as suggested above, “making decisions is a pervasive aspect of human experience” (Mitchell & Krumboltz, 1984, p. 238). A person may make hundreds of decisions each day, most of them trivial. Others, however, are not so trivial and have lifelong consequences. For example, decisions such as should one marry or stay single really matter. Should one have, say, two or three children? Or, a question/decision related to this study: what college course should one choose and, consequently, what occupation should one pursue? Concerning career decisions, Gati suggests that

“career decisions are among the most complex and significant decisions individuals make during their lifetime” (2013, p. 183).

2.3.1 Adolescent Decision-Making - Career

Behavioural scientists and sociological theorists interested in the process of occupational decision-making and attainment, have traditionally focused on adolescence. Featherman (1980) observed that it is during adolescence that choices about whether to enter the labour force directly following second level schooling, or whether to proceed to a post-secondary institution and choose an area of study, that would eventually lead to a career choice, are made. Mortimer et al. (2002) note, it is during this period that a young person must make critically important decisions. Career development is an essential task among adolescents which typically begins between 14 and 16 and continues throughout life (Stringer, Kerpelman & Skorikov, 2012). This research will focus on career choice among those who propose to proceed to a post-secondary institution.

Adolescence is an important developmental stage in which many new characteristics are gained and where the individual develops his/her identity, with “identity formation consisting of sexual, vocational and ideological dimensions” (Dogan & Kazak, 2010, p. 2556). According to Dogan and Kazak it is at this stage of development that adolescents make decisions which will affect their entire lives, with one of these decisions the important decision of career choice. Within their research Dogan and Kazak note that the adolescent years are characterised as a time of crisis, and acknowledge the difficulty this presents as it is during this period the adolescent chooses a career path, hence the necessary intervention of career counselling. During adolescence the career counselling process includes: identifying any decision[s] that might be easily made and any potentially difficult decision[s] (Brown & Rector, 2008); identifying information processing capabilities (Pitz & Harren, 1980), and the individual adolescent’s actual career goals (Sauermann, 2005).

In 'primitive' societies children learn to work at an early age, primarily based on the work of their parents. The work that their parents do is simple and clearly visible. The children are taught to help with this work early in life. In more advanced societies there is much more division of labour. Children may not see their parents at work and have little idea of what this work entails. In *this* environment children may play at being teachers, doctors, police officers or priests, as these are the roles most visible to them (Argyle, 1989). Many children later go into occupations similar to those of their parents. Roe (1964) found that doctors' children very often become doctors, and children of police officers very often join the police force. Roe also proposes that childhood experiences affect occupational choice, claiming that those who become social scientists or social workers more often had more strained relations with their parents than engineers, physical scientists or biologists.

According to Argyle (1989) after the fantasy stage of wanting to be, say, a train driver or a pop star, there is a period of tentative choice which occurs between the ages of 11 and 16. During these years occupational preferences are based first on interests, but later on awareness of capabilities and values. Ginzberg et al. (1951) propose that from the age of 17 onwards there is a more realistic stage of occupational development, during which actual career decisions have to be made, such as what examinations to take and which courses of training to choose.

Occupation is a central part of identity. According to Erikson (1956) pressure to commit to an identity and a career builds up during the adolescent years. Often between the ages of 16 and 24 there is an identity crisis, where the adolescent is forced to make decisions about which pieces of identity to retain and which to suppress. The cause of this identity crisis is partly the need to choose one job or college course over another, that is, to choose a career or occupation (Argyle, 1989). According to Argyle (1989, p. 61) "occupational choice and identity formation take place together". The process of choosing an occupation goes on at the same time as the development of an identity, or stable self-image. During student life it is possible to try out a number of roles and identities without commitment such as being an actor, entertainer or revolutionary. Marcia (1966) identified four stages of identity development among American students, based on two main spheres – occupation and ideology. The four stages are as follows (Marcia, 1966, p. 552).

1. Identity achievement – a decision has been made after a period of uncertainty or crisis.
2. Moratorium – a stage of indecision or crisis.
3. Foreclosure – a decision has been made, based on parental guidance, without a period of indecision.
4. Identity diffusion – no decision has been made, and there has been no attempt to make one.

During a moratorium period an adolescent tries out various kinds of work, possibly at home, school, or in part-time jobs (Argyle, 1989). It is during this period that adolescents become aware of their own capabilities and for what they are best suited, and of the possibilities available (Ginzberg et al., 1951; Super, 1957). Argyle (1989) proposes adolescents are attracted to occupations which they see as similar or complementary to their self-image, or as requiring skills that they believe they possess. However, as adolescents grow older they develop greater understanding of different jobs and their own abilities, though Ginzberg (1951) warns that some choices made are irreversible in that some early decisions taken may make some later choices impossible.

Erikson (1968) suggested that an adolescent's primary developmental task during those years is to establish a coherent sense of personal identity through role experimentation, with the occupational choice being a major part of such exploration. Super (1980) acknowledges exploration, self-efficacy, vocational identity, and decision-making difficulties as central aspects in adolescents' career development. Self-efficacy is defined as the belief in one's own ability to successfully undertake actions in order to make an occupational decision (Betz & Hackett, 2006). It has been studied in relation to adolescent development through Social Cognitive Career Theory (SCCT) where it is examined, on the one hand, as the extent to which adolescents anticipate success in certain fields of study or work, and on the other hand, in relation to career choice itself (Lent, Brown & Hackett, 2002). According to Rogers and Creed (2011, p. 163), "self-efficacy is believed to promote favourable outcome expectations in the career development of adolescents. In addition, both self-efficacy and outcome expectations reinforce and foster their career interests and goals".

Clausen (1991, p. 806) refers to decision-making in adolescence as "planful competence", where planful competence amounts to the "thoughtful, assertive, and self-controlled processes that underlie choices and the pursuit of life goals". According to Patton and Creed (2007) planful career exploration is a means for gathering appropriate knowledge about the self and the world of work. Clausen (1991) proposes that more planful adolescents make better choices about school, work, and family than less planful adolescents, and as a result make choices that more accurately fit their interests, values, and talents with opportunities in their social environment. Shanahan and Alder (2001) suggest the effects of adolescents' planfulness on education and occupational achievement vary by historical experiences, that is, their choices are constrained or enabled by their social and economic circumstances.

Erikson (1968, p. 156) writes that the “psychosocial moratorium”, with moratorium meaning a delay in meeting some of the commitments required in adolescence (career choice), is a time of exploring alternative vocational identities and finding a suitable niche, without being burdened by the responsibilities of adulthood. This period of the early life course has become considerably extended in the United States, and increasingly, in Europe and elsewhere in the world. Many influential theories of vocational development situate key elements of the process of occupational choice in the second decade of life with the individual expected to, by the early to mid-20s, to have become established in work and have attained a viable occupational identity while in the later teen years (Ginzberg, Ginsberg, Axelrad & Herman, 1951; Osipow, 1968; Super, Starishevsky, Matlin & Jordaan, 1963). It is during this extended period that adolescents pursue a strategy of “optimising qualifications” which allows the young person to meet the ever increasing needs of today’s work environment (Reitzle & Vondracek, 2000, p. 5). Mortimer et al. (2002) suggest choices about school, work, and family are made in the context of institutions, organisations, and structured labour markets, but highlight the impact national culture may have on these structures, for example in the United States there are no structured pathways from school to work, unlike in Germany where an apprentice system exists.

By the early twenty-first century most adolescents expected to attend/graduate from college thus allowing decisions about work to be postponed until they are well into their 20s (Kerckhoff, 2002), though presumably the choice of a course/college major is an indication of a broad direction towards a career path. However, in the United States for example, only a minority of high school students seriously consider potential career paths by seeking information, or by engaging in appropriate activities associated with career planning, even though almost all report occupational aspirations when asked. According to Schneider and Stevenson (1999) adolescents in the United States appear occupationally motivated but are directionless. Their analysis, which was based on a wealth of surveys, interviews and observational data, shows American adolescents lack information, such as how much education is needed for the occupations they are considering (Schneider & Stevenson, 1999).

Mortimer et al. (2002) claim that adolescents are provided few resources with which to think about their vocational identities and future occupational careers, and note that guidance counsellors are rarely referred to as positive and constructive influencers in the decision-making process. However, those who did engage with career guidance counselling and had a positive experience appeared to be more vocationally stable later in life. In their research they observed two “themes” in vocational decision-making of adolescents.

1. The first theme is “delay”. Mortimer et al. (2002, p. 460) discovered that many young people did not achieve all their high school expectations, including occupational expectations, in the adolescent years, and those who did achieve their goals expressed surprise and good fortune, noting that many of their friends did not have similar experiences. Some young people expressed regret but adjusted, while others considered the delay a helpful period during which other experiences were gained. Those interviewed for the study were not characterised by fatalism, resignation, or even notable distress, due to the delay theme.
2. The second theme they document is “postponement”, which often appears as “temporising until something happens” (Mortimer et al., 2002, p. 461.). Some adolescents are aware of their lack of direction but prefer to live day-to-day and hope that clarity will happen. Within this group of adolescents clarity and direction may occur following a relatively discreet event that leads to a change from indecision or lack of commitment to achieving identity status; while others experience a trajectory of decision-making, a slow process of growing awareness that a particular occupation is preferred; with others seemingly content to work across several fields in temporary mode.

Mortimer et al. (2002) suggest that this is likely to happen in either very wealthy, or very poor, economies. While in the former case, adolescents may be optimising their chances by acquiring new experiences and contacts, and in the latter case, they avoid commitment due to a depressed labour market. In any event, little is known about the conditions that give rise to postponement, reactions to it, or its long term implications.

Mortimer et al. (2002) suggest that as new research on adolescence emerges new theories associated with adolescent development may emerge, and old theories may need to be accentuated. They propose that adolescence is changing dramatically due to social, economic, cultural and other circumstances, and consequently they must be conceptualised in new ways by life course sociology and developmental psychology.

2.4 Factors Influencing Decision-Making - Career (Career Choice)

The factors influencing adolescent career choice have been well documented in the literature. These factors can be divided into two categories: factors in the *external* environment in which he/she exists, and factors *internal* to each decision-maker personally (figure 2.1).

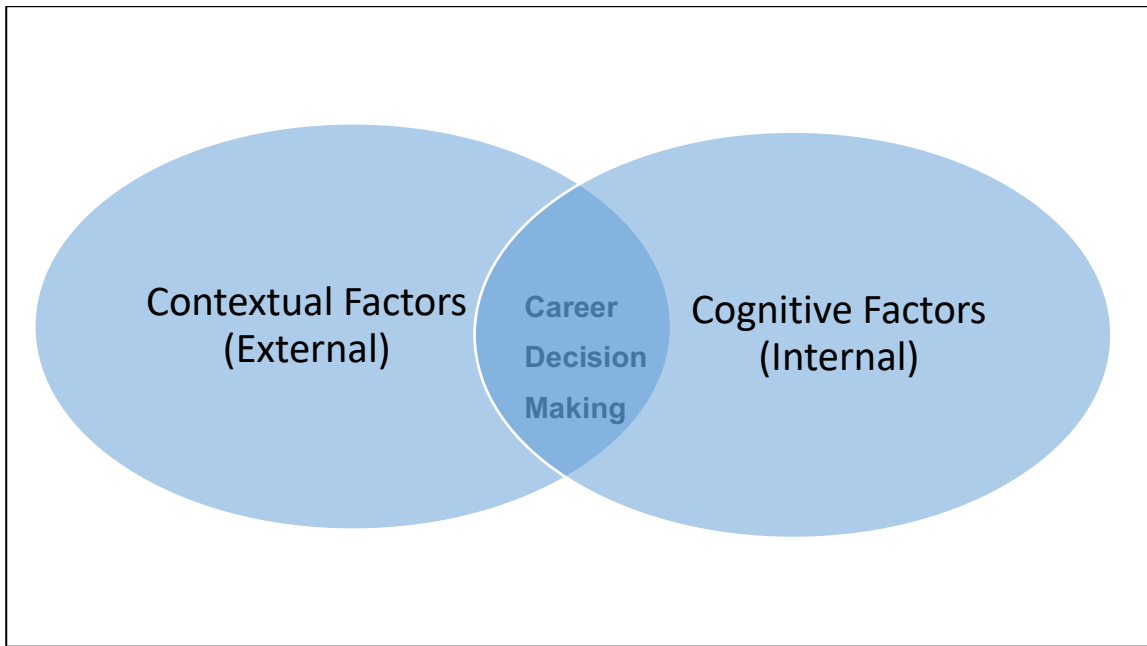


Figure 2.1 - Factors influencing career decision-making

External factors are those over which the adolescent has no power or control and which cannot be changed. Internal factors are unique to each person and are rooted in *personality* (table 2.1). However, it may be possible to change these as one develops cognitively. All these come together and influence career or occupational choice. In the early teen years internal factors become predominant influencers for occupational preferences, with these factors either aiding or impeding career choice (Helwig, 2001).

Factors Influencing Career Choice	
External	Internal
Family	Personality
Gender	Locus of control
Socioeconomic background and minority opportunities	Self-efficacy
Race, ethnicity and cultural values	Self-concept
Stereotyping	Self-esteem
The business cycle	Emotions
	Intuition
	Heuristics and overconfidence

Table 2.1 - List of external and internal factors influencing career choice

2.4.1 External Factors

The external considerations influencing career choice are those over which the adolescent has no control. They exist in the environment he/she occupies and are more often than not shaped by parents/social position. Ordinarily these factors are largely immutable; that is, the adolescent cannot easily change or alter them. They are many and varied (for example, the type of school attended, the socioeconomic position of the family, or the stage in the economic/business cycle) while Mortimer et al. (2002) have suggested choices about school, work, and family are always/usually made within the context of institutions, organisations, and structured labour markets. They point out the impact national cultures may have on these structures. For example, in the United States there are no structured pathways from school to work, unlike Germany where an apprenticeship system exists. Furthermore, in the early twenty-first century some aspects of youth culture and the media stood accused of having misrepresented careers by reinforcing stereotypes, glamorising certain occupations and suggesting on so-called 'reality TV' programmes that career success can be instant. Also, peer group pressure can deter some young people from engaging in career planning and envisaging themselves in certain occupations (Foskett et al., 2003). Sociologists who focus their research on such issues suggest that external factors can be divided into two categories: *ascribed* factors which the person possesses since birth (social origins; ethnicity, and gender), and *non-ascribed* (place of residence; schooling; general developmental opportunities, and availability of counselling). It is my contention that the non-ascribed factors are structured by the ascribed and so here I focus primarily on the latter.

2.4.1.1 The Influence of Family

The American clinical psychologist Anne Roe (1956) building on psychoanalytic theory (first laid down by Sigmund Freud in the late nineteenth century) suggested that the manner in which an adolescent had been reared could have an impact on occupational selection. Roe classified child rearing practices into three categories.

1. Emotional concentration on the child, ranging from over-protection to being over-demanding.
2. Emotional rejection, meaning neglect and avoidance of the child.
3. Acceptance of the child in a casual manner with loving non-interference.

Roe proposed a connection between the attitude of the parents towards the child and eventual career choice. Building on Roe's work Bordin et al. (1963) established a link between infant developmental and occupational choice. They proposed that a child's psychological needs are determined in the first six years of his/her life, although some later modifications may occur. These needs determined the occupation(s) type eventually chosen.

Connel et al. suggest “families are thought to shape the educational careers of their young members in a wide range of ways: the extent to which parents care about schooling; the manner in which family members relate to each other (methods of discipline); their material provisions (quiet place to study), and their internal structure (the state of the parents’ marriage)” (1982, pp.185-186). As in so many other aspects of development, families play important roles in offering emotional support to adolescents and socialising them to do the best they can, academically and in general (Heaven, 2001). Cooper and Perkinson (2007) emphasise that parents can have a strong influence on their children’s career choices with some children following in the footsteps of a parent and even those who do not typically choosing occupations acceptable to parental values, expectations and social status.

The nature of family influence is sometimes influenced by the cultural and social-class background of the family. For example, in the USA black adolescents in single-mother families regularly have to cope with factors such as large family size, father’s absence, crowded living conditions, and mother’s relatively low educational level (Scheinfeld, 1983). In Australia, Poole (1983) found that higher social status families were likely to have children who remained at school for longer and obtained high status jobs following successful third level education. Poole discovered that an adolescent with a father in a professional occupation was much more likely to strive for university education (63.9 percent) than one whose father was in a white (43.4 percent) or blue-collar job (32.1 percent). Poole’s research also suggested that there were striking differences between the aspirations of adolescents, as confirmed by an African study carried out by Cherian (1991) in which it emerged that adolescents had higher academic achievements if they came from backgrounds where the parents had higher status occupations, higher educational levels, and greater incomes and levels of socioeconomic status.

Higher levels of academic performance by adolescents can be attributed to a range of factors, for example parenting styles experienced in childhood. Steinberg et al. (1989) suggested an authoritative parenting style, where parents are warm and supportive, generates psychosocial maturity in adolescents. Psychosocial maturity is characterised by several features, one of which is a positive attitude to studying. Masselam et al. (1990) attribute increased academic performance to family cohesion. Here, cohesion refers to the quality of the emotional bonds the family displays. Adolescents making better academic progress typically characterised their families as being significantly more cohesive than adolescents who were not making such progress. Many other studies indicate that authoritative parenting is associated with academic achievement and can be a predictor of higher social competence, while authoritarian and permissive styles may contribute to under achievement (for example: Cohen & Rice, 1997).

2.4.1.2 Gender

It has long been observed that there are male-dominated and female-dominated occupations. For example, traditionally midwifery is an occupation dominated by women while the job of firefighter was male dominated. Gottfredson and Holland (1975) proposed male adolescents were more likely to aspire to moderately prestigious occupations, while female adolescents were more likely to aspire to those that were either high or low prestige. Savickas (1985) found adolescent females were more committed to their career goals, more likely to explore their career options, and had better-defined vocational identities. Winefield et al. (1988) have suggested that a female who proceeds to university will have higher self-esteem and more often a greater internal locus of control than one who does not. These females are more likely to have fathers who encouraged university education and the achievement of success. Though their observations are dated, it might prove fruitful to test this hypothesis in the Ireland of the early twenty-first century in an attempt to illuminate the apparent divide developing between the academic performances of female students over male.

Davey and Stoppard (1993) reported one third of female US high-school students *expected* to have occupations that were more traditionally female than their *desired* occupations. Other studies have shown that girls are more likely to restrict the range of potential occupations they consider at an earlier age than boys, and adjust their educational and occupational expectations downwards over time (Hanson, 1994). An example of this might be two young Irish people known to me. One, on entering second level education wanted to be a doctor. She had the ability and her end-of-cycle results bore this out. However, for whatever reason(s), as she progressed through secondary school her ambitions decreased to the point where she convinced herself that all she would be able for was a general science-related course of study/career. However, the other was the opposite, starting off secondary school expressing an interest in general science but ending up hoping to achieve a medical career. Alas, his abilities did not allow for this and he had to settle for what he might deem a lesser course of study. Gottfredson and Lapan (1997) proposed that a person's perception of the importance of gender role socialisation could influence his/her career choice. Adolescents' socio-cultural learning experiences shape their perceptions of what roles and behaviours are gender-appropriate and are commonly associated with the tasks and duties of a particular occupation. The adolescent, through gender stereotyping, may be attracted to an occupation that he/she sees as appropriate, depending on gender self-concept.

Trent et al. (1996) found that parents can have different influences on their male and female children. The best predictors for boys were paternal perceptions of their abilities, while girls were influenced by maternal perceptions. In testing Holland's RIASEC model of occupational choice Lent et al. (2006) found there were differences in interests and competence perceptions across gender. Females scored higher on the social scale (associated with being helpful and sociable),

while males scored higher on measure of realism (associated with being mechanical and practical) and the investigative scale (being curious and scientific). Skorikov and Vondracek (2007) suggest that, coupled with social class, gender-role expectations can restrict vocational preferences and limit the range of career options explored, or even considered, by adolescents.

2.4.1.3 Socioeconomic Background and Minority Opportunities

Here the term minority is used not in a numerical sense, but refers to restricted economic and educational opportunities. The societal context in which the adolescent is reared is important in occupational development. Roe, in the much cited book *The Psychology of Occupations* (1956), theorised that early childhood environments predisposed children to enter certain occupational groups. For example, it is not uncommon for sons to follow fathers into family businesses and children of doctors/lawyers/police officers to enter these occupations. Gottfredson (1981) suggests that children begin, early in their lives, to circumscribe their career options based on the information they get from their environments. Opportunities afforded to those with higher socioeconomic status brings greater access to the resources needed to finance education and guidance counselling, provide special learning experiences (such as international field trips or attending the staging of plays relevant to the curriculum), and offer exposure to role models that have high prestige occupations. Conversely, socioeconomic status can result in bias and structural barriers that negatively affect the aspirations and expectations of those from lower socioeconomic backgrounds (Friesen, 1986).

The influence of socioeconomic status on career choice plays some role, either directly or indirectly, in determining educational aspirations (Furlong & Cartmel, 1995). For example, poor nutrition, substandard prenatal care, and fewer intellectual resources (all features of life associated with the lowest socioeconomic status) are likely to have negative effects on cognitive development (Neisser et al., 1996). Schoon and Parsons (2002) reported that children from lower socioeconomic backgrounds performed less well in school and had lower educational aspirations than children from higher socioeconomic backgrounds. Rojewski (2007) also established positive correlations between socioeconomic status and occupational aspirations. Adolescents from groups with higher socioeconomic status aspire to, expect and attain more education and more prestigious occupations than those from lower class backgrounds.

By the early twenty-first century television was one of several important sources of occupational information. In the mid and late twentieth century, and thereafter for adolescents from disadvantaged backgrounds (who may have fewer opportunities to observe working role models), television was often especially influential. However, this may prove problematic as television often transmits inaccurate, stereotypic images of how people behave and communicate in various occupations (Signorielli & Kahlenberg, 2001).

There is some evidence that career advisors tend to assess the occupational aspirations of minority and ethnic-minority young people less favourably than those of their white peers with similar qualifications, and are more likely to regard such aspirations as unrealistic. Counsellors may be inclined to engage in what has been called protective channelling: directing members of these groups away from attempting to pursue better occupations because they suspect the minority ethnic teenager will be rejected (Cross et al., 1990).

In summary, socioeconomic background can be seen as a continuum, with, at one end, advantaged adolescents having the resources and educational opportunities to achievement their ambitions, and, at the other, those with few alternatives who are unable to exercise agency. This is due to external constraints that are beyond their control in a society that distributes resources and opportunity unequally.

2.4.1.4 Race, Ethnicity and Cultural Values

The terms race and ethnicity are interrelated and sometimes used interchangeably. Race refers to a biological classification based on physical characteristics (including skin pigmentation), while ethnicity refers to shared social and cultural heritage (including language and customs) passed down through succeeding generations, but with no genetic basis. The roles of race and ethnicity in occupational aspirations and expectations have often been viewed as being indirect, with socioeconomic status being more directly influential (Super, 1990). However, Super proposed that of race and ethnicity, race is the more influential in determining one's status, income and career opportunities. Much research exists to suggest race is closely linked to discrimination in a way that limits career advancement and the choices available to adolescents (Super, 1983). Lent et al. (1994) proposed that race, coupled with socioeconomic status, affects career choice options primarily through having an impact on learning opportunities, giving rise to particular types of self-efficacy beliefs and outcome expectations. Among other factors Fitzgerald and Betz (1994) point to racial stereotypes and racial harassment as factors that can inhibit, moderate, or frustrate career choice and development.

Cultural values are likely to have an influence on career choice (Agarwala, 2008), where *culture* is an important determinant of how people think and behave; while *values* are broad tendencies to prefer certain states of affairs over others. Hofstede (1980) first measured the individualism-collectivism dimension found in different cultures as an important factor influencing career choice. Individualistic cultures (those of western countries such as the United Kingdom, United States and Australia) show a tendency for people to consider only their own interests, view themselves as independent of organisations, and place a higher value on self-reliance and individual action. Collectivist cultures (typically eastern countries such as Japan, China, Taiwan, and India) have more of an inclination to view their members as interdependent and part of a larger group. In his

study of large multi-national companies, with operations across many cultures, he found that management roles were filled by people from countries where individualism was high, but subordinate roles were more likely to be filled by people from countries/cultures where collectivism dominated. However, the position may not have been as clear cut by the beginning of the twenty-first century, with so-called globalisation having allowed more mobility for the socioeconomic elites of all cultures, including those of the 'collectivist east'.

2.4.1.5 Stereotyping

Stereotyping is a "well-known short-hand error connected with the tendency to label people with traits or qualities that typically belong to a reference group" (Furnham, 2006, p. 264). For example, one may consider a Jewish person to be shrewd at business, or an African to be musical, or an Irish person to drink excessively. Stereotyping is essentially the perception that most, if not all, members of some category share various attributes. For example, where careers are concerned, many people might say: "all people in marketing are shallow, optimistic extraverts, while people in finance are grey bean-counters with no sense of fun" (Furnham, 2006, p. 513). Osipow and Fitzgerald (1996) proposed that accountants are often careful and conservative people, partly because their work requires them to be and partly because careful, conservative people are attracted to accountancy because of the occupational stereotyping. Biased perception arises when people rely on a stereotyped image and ignore critical information concerning someone. Tversky and Kahneman, in their collaborative research in the field of behavioural and psychological decision theory, discovered that they had identical ideas about the future professions of several toddlers whom they knew. They could identify the argumentative three year-old lawyer, the nerdy professor, the empathetic and mildly intrusive psychotherapist. It became clear to them that their intuitions were governed by the "resemblance of each child to the cultural stereotype of a profession" (Kahneman, 2011, p. 6). They documented their use of the following test.

Please assume that Steve was selected at random from a representative sample. Steve is very shy and withdrawn, invariably helpful but with little interest in people or in the world of reality. A meek and tidy soul, he has a need for order and structure, and a passion for detail (Kahneman, 2011, p. 7).

They found that the resemblance of Steve's personality to that of a stereotypical librarian struck everyone on whom they conducted the test. Furthermore, the observation that equally relevant statistical considerations are almost always ignored was made. They point out that there are more than 20 male farmers for each male librarian in the United States, meaning that Steve is statistically more likely to be found on a tractor than in a library. But in their research they found that participants ignored the relevant statistical facts and relied exclusively on resemblance. They suggest that people use resemblance as a simplifying heuristic, or rule of thumb, to make a judgment. However the reliance of the heuristic caused predictable biases (systematic errors) in

their predictions (Kahneman, 2011). Third parties, such as parents and career guidance counsellors, influence adolescents in their career choice. Might the resemblance heuristic, or stereotyping, play a part in this? And if so, might this be a contributing factor for some adolescents in making wrong career choices?

It appears there is a connection between what has been called self-fulfilling prophecy and stereotyping: when a person's expectation about another causes the latter to act in ways that confirm the expectation there has been a self-fulfilling prophecy (Darley & Fazio, 1980; Merton, 1948). People sometimes fail to recognise the effect, or influence, they have on others (Smith & Mackie, 2007). Teachers, and presumably career guidance counsellors, may also fail to recognise the influence they have on adolescent career choices. Studies pioneered by Robert Rosenthal and his colleagues found that students identified as high achievers at the beginning of the school year did indeed perform better in the classroom (Rosenthal, 1985; Rosenthal & Jacobson, 1968). Teachers' high expectations for these students were somehow translated into actual achievements, possibly due to teachers giving these students more attention and more challenging assignments (Cooper & Good, 1983).

2.4.1.6 Business Cycle

Human capital theory, as originally formulated by Becker (1964) and Ben-Porath (1967), predicts that business cycles affect educational choices by changing the opportunity cost of education. In other words, students will choose to enter higher education and successfully graduate if the expected benefits exceed the expected costs. The benefits are increase in lifetime income, and avoidance of regular/prolonged periods of unemployment. The costs consist of the earnings foregone while in college, the direct costs (e.g. tuition fees, transport and materials); the effort required to obtain the qualification, and the risk of failure. Thus, human capital theory suggests that investment in post-compulsory education is countercyclical due to the effect on students' opportunity costs. There is a substantial body of literature to support this (see for example: Card & Lemieux, 2001; Black et al., 2005 & Clark, 2011). That is, students are more likely to enrol in third level education in an economic downturn, and conversely less likely to do so in times of economic expansion. However, this literature comes predominantly from the USA and UK and these hypotheses have rarely, if ever, been tested for Ireland.

In summary, there are several factors influencing the adolescent in his/her choice of a career. Some of these are overt, such as family and socioeconomic position while others may be considered covert, such as stereotyping and self-fulfilling prophecy. However, it is imperative that the adolescent decision maker be aware of them all in order to apply appropriate adjusting strategies in order to neutralise these, especially those considered covert.

2.4.2 Internal Factors

There is also a large body of literature that examines the link between career choice, on the one hand, and personality correlates on the other (Heaven, 1990). In the early teen years (around 14) internal factors, such as vocational interests and personal needs, become predominant in shaping adolescents' occupational preferences (Helwig, 2001). The characteristics (outlined below) of the person concerned can aid or impede decision-making (table 2.1).

2.4.2.1 Personality

Understanding personality is important for understanding decisions people make about their future occupations/careers. Allport defines personality as “the dynamic organisation within the individual of those psychosocial systems (traits, habits, motives, personal constructs, self-concepts) that determine his [sic] unique adjustments to his environment” (1937, p. 12). According to Guthrie personality consists of “those habits and habit systems that are stable and resistant to change” (1944, p. 241). Cattell defines it as “that which permits a prediction of what a person will do in a given situation” (1965, p. 10), though Adler refers to it as “that set of non-physical and non-intellectual psychological qualities which make a person distinct from other people” (1996, p. 419). Marie Jahoda, the noted Austrian-British social psychologist of the twentieth century, has described a healthy personality as one that actively masters its environment, shows a unity, and makes one perceive the world in relation to oneself (1958). Jahoda's definition raises the question of what an unhealthy personality is but that is not the focus here. This study only focuses on those considered to be healthy in their personalities. Ultimately, no one formulation above may be complete and there are elements of truth in them all so we can say we have a working understanding of the term/concept.

Career psychology has long assumed that personality is a critical component of effective career choice and success. Holland suggests that “the choice of a vocation is an expression of personality” (1973, p. 6). Smart showed vocational-type development of the personality “is a function of a long series of life-history experiences that extend from individuals' family backgrounds through their experiences in education” (1982, p. 280), while Eysenck and Eysenck wrote “it appears that performance for different kinds of occupation and occupational success are both determined to some extent by personality” (1985, p. 329).

Personality shapes the goals that direct decisions and shapes the content of decision-making via selective attention to salient information and situational influences (Soane & Nicholson, 2008). According to Soane and Nicholson, personality can be a predictor of behaviour, and this presumably includes career choice, with personality directly influencing individual goals and preferences. Some research suggests that workplace relationships and productivity are related to personality characteristics (Hammond, 2001).

People approach decisions in different ways. In broad terms, the major differences can be grouped into three categories.

1. *Cognitive abilities such as ability to learn, and retrieve information, spatial and verbal abilities.*
2. *Personality features such as disposition and temperament.*
3. *Attitudes* (Roberston, 1996, p. 124).

According to Roberston occupational psychologists agree that, as far as personnel selection is concerned, in order to match the personality and the job effectively, cognitive ability and personality are the most important considerations.¹⁰

Raymond Cattell proposed that intelligence could be divided into fluid and crystallised forms (Cattell, 1971). Cattell's analogy is to water – fluid water can take any shape, whereas ice crystals are rigid. Fluid intelligence is effectively the power of reasoning and the ability to process information. It includes the ability to perceive relationships, deal with unfamiliar problems and gain new types of knowledge. Fluid intelligence is the kind we might expect to see displayed in counsellors, therapists and social workers. Crystallised intelligence consists of acquired skills and specific knowledge gained from experience. Crystallised intelligence is, therefore, the kind we might expect to see displayed by an accountant, lawyer, lecturer, mechanic or salesperson. Fluid intelligence peaks before a person reaches 20, remaining constant thereafter except for some decline in later years. By contrast, crystallised intelligence continues to increase as long as the person remains active. Making a connection between intelligence and performance Ree and Carretta wrote:

[o]ccupational performance begins with learning the knowledge and skills required for the job and continues into on-the-job performance and beyond. We and other investigators have demonstrated that intelligence predicts training performance, job performance, lifetime productivity, and finally, early mortality (1999, p. 179).

Drasgow adds that “there is a large and compelling literature showing that intelligence is a good predictor of both job performance and training proficiency at work, particularly in complex jobs” (2003, p. 126).

¹⁰ Cognitive abilities are often referred to as “general intelligence...[which can be] seen as a fundamental attribute associated with a person's capacity to process, store and retrieve information, capacity to learn in formal settings, and includes spatial, numerical and verbal abilities” (Roberston, 1996, p. 125).

Much work has been done in an attempt to understand personality through the study of personality types and traits and, in turn, the matching of these with occupations. The idea that specific personality traits differentiate people in one occupation from those in another has stimulated considerable research. Known as the trait-factor approach, the rationale for adapting it is that, “because of the inherent differences in the roles that occupations require people to play, the ideal personal characteristics of members of various occupational groups vary” (Osipow & Fitzgerald, 1996, p. 191). However, this approach acknowledges that most people are not fully formed when they enter an occupation. Exposure to the characteristic activities and climate of any occupation will exert an initial influence on somebody’s behaviour and personality. This is commonplace, as I know from experience. For example, in the hospitality business a new young receptionist might be technically skilled at the job but be somewhat shy and introverted. After some months of day-to-day interaction with guests the receptionist often develops an extroverted disposition and is outgoing and engaging.

There are many theoretical frameworks for the matching of personality and traits with career paths. They are too numerous to mention but works by Raymond Cattell, Hans Eysenck, Donald Super, John Holland, Paul Costa and Robert McCrae are the most widely referred to in this field. After a life-long programme of research on personality Hans Eysenck suggested that it involved three fundamental and unrelated traits: extroversion/introversion, neuroticism and psychoticism and it may be more useful to concentrate on this overview of the subject than to become bogged down in debating the merits of rival frameworks in detail. Each can be measured and described on a continuum, they are all biologically based and any one can have many behavioural implications. Research on extroversion suggests that it is substantially inherited, is explained by cortical arousal and reward sensitivity. Extroverts tend to succeed in high-pressure jobs that involve considerable interaction with strangers. They handle overload and stress well, have strong feelings of self-efficacy and a good sense of well-being. On the other hand, neuroticism is associated with vulnerability to stress, being sensitive to punishment and threat avoidance. Neurotics have highly selective biases in cognitive processes with considerable awareness of danger, are cautious at decision-making, have a general tendency towards negative self-concept and are often depressed, with pessimistic outlooks (Eysenck, 1967).

Eysenck, in a survey of 1,504 businessmen, found “managers were more extroverted and less neurotic than the population norms, and that those in sales and personnel management were the most extroverted, while people in research and development were the least extroverted” (1967, p. 249). He also proposed that introverts were more suited to boring, or less stimulating work than extroverts. Morgenstern et al., in a study of workers experiencing distractions and disruptions, suggested that “introverts function less efficiently in the presence of distractions, while extroverts show improvement” (1974, p. 220). In a 1978 study of managers (who were predominantly white)

across a range of industries in South Africa, Blunt suggested that introverted managers tended to choose positions involving relatively routine duties such as finance, production or technical jobs; while extroverted managers were more likely to select jobs in sales, marketing or transport. In a study of workers engaged in stimulating and non-stimulating work across a diverse range of industries Kim found extroverts to be bored by monotonous tasks and hence that they tended to do them poorly (Kim, 1980).

The psychologist John L Holland (1973; 1985; 1987; 1997) in his research on personality and career choice developed the Holland Occupational Themes. In developing the Realistic; Investigative; Artistic; Social; Enterprising, and Conventional model, Holland proposed that it is possible to characterise people by their resemblance to each of six vocational personality types which are a product of characteristic interactions among a variety of cultural and personal influences. He claimed that these influences come from two different sources that are in a constant interplay and can influence behaviour. One source is the set of characteristics children are born with (sex and basic personality traits). The other source comprises contextual factors, such as the environment in which one is reared (family, schools, etc.), but especially relates to the family (occupational history, education and attitudes of parents, grandparents, etc.). He suggests that each vocational personality type displays certain traits and is suited to a particular occupational field. Holland's research suggests that personalities seek out and flourish in career environments that they fit, and jobs and career environments are classifiable by the personalities that flourish in them.

Others working on identifying personality types/traits include the American researchers Costa and McCrae, widely considered in the field to be the direct heirs of the Cattellian and Eysenckian traditions. They settled on five dimensions of personality (neuroticism; extroversion; openness to experience; agreeableness; conscientiousness) often called the Five-Factor Approach, or the Five-Factor Model. Costa et al. have suggested that "particular personality traits are likely to develop interests in those vocations that permit the expression of their preferred ways of thinking, feeling and acting" (1995, p. 127). They propose that, of the big-five traits, three are particularly relevant to vocational interests, namely: extroversion; openness, and agreeableness. They believe neurotics are "likely to be unhappy in whatever jobs they have with a different job unlikely to solve problems that are rooted in the individual's basic emotional make-up" (1995, p. 130), and that the traits of extroversion and conscientiousness are important, particularly if a job involves contact with people. What is clear from the literature generally is that "some personality dimensions are good predictors of job proficiency" (Furnham, 2006, p. 180), with neuroticism more often than not a useful predictor of failure (Furnham, 2006). Research linking personality and career decision self-efficacy has primarily focused on the Five-Factor Model (e.g. Hartman & Betz, 2007; Bullock-Yowell, 2011; Hsieh & Huang, 2014). Such studies all view personality as a precursor to CDSE and according to Hsieh and Huang, this is insufficiently researched. Such research has already

shown that CDSE can be predicted by a variety of personality constructs such as the Five-Factor Model of personality (Hartman & Betz, 2007), a healthy personality (Borgen & Betz, 2008), 'proactive' personality (Hsieh & Huang, 2014), and character strengths (Vela et al., 2018). Ample evidence of the relationship between personality and CDSE exists.

But personality may not tell the entire story; there are other variables which can influence occupational decision-making. These include: locus of control; self-efficacy; self-concept and self-esteem. As well as emotions, intuition, heuristics, and overconfidence. All of these are predictors of career choice and career success.

2.4.2.2 Locus of Control

Locus of control, a term coined by Rotter (1966) is key to the capacity to make decisions about one's life. Locus of control is an extension of the more commonly used term autonomy, where autonomy means self-direction and control of one's actions (Gothard, 1985). Anyone who feels in charge and sees him/herself as the agent of his/her own destiny is said to have a strong internal locus of control. It has been claimed that those who are internally controlled score more highly academically (Heaven, 2001); are more self-confident; enter occupations requiring leadership qualities and managerial skills; are more task-orientated and, generally proposer in challenging and uncertain environments (Boone et al., 2004). Those who feel they have little control over their destinies are described as having strong external locus of control. They believe chance, luck, powerful individuals or institutions are factors which play large roles in their lives. Such people are more socio-emotionally orientated, follow rather than lead, and both prefer and prosper in more structured environments. Lease (2004) suggested a strong external locus of control is associated with career decision-making difficulties. In practical terms pursuit of money might be considered to be associated with strong external locus of control while having high levels of job satisfaction and sense of self-worth can be considered a sign of internal locus of control.

2.4.2.3 Self-Efficacy

Bandura (1986) describes self-efficacy as a person's assessment of, or belief in, his/her ability to carry out actions in order to reach career goals. Holland (1985; 1997), instead of using the term self-efficacy talks of *competency perceptions*, which is the self-assessment of one's skills or abilities. Self-efficacy affects the level of performance goals the adolescent sets for him/herself, so that greater self-efficacy leads to more ambitious goals. It involves self-belief acquired and modified through four sources of information or experiences (personal performance accomplishments; vicarious learning; social persuasion; psychological and effective states). Personal accomplishment is the most powerful source of self-efficacy (Lent et al., 2002). Lent et al. suggest adolescents who underestimate their levels of efficacy tend to give up more easily, set lower performance goals, suffer from debilitating performance anxiety, and avoid challenges, even

when they are capable of meeting these challenges. But understanding the source of self-efficacy is also important in gaining an understanding of its impact on behaviour, such as making a choice of career. These sources include: previous successes; vicarious learning and modelling; levels of anxiety and encouragement and support from others (Bandura, 1997; Kidd, 2006). As this became the focus of my research, I return to self-efficacy, and more specifically career decision self-efficacy, later in the chapter.

2.4.2.4 Self-Concept

Self-concept develops throughout life, particularly in adolescents as each strives to find an identity and place in the world (Coleman & Hendry, 1999). One's self-concept is a multidimensional or many sided construct and involves evaluations of such things as academic and physical abilities (e.g. when comparing him/herself to others an adolescent may view him/herself as weak at mathematics, but a fast runner) as well as one's relationships with others (Heaven, 2001). Once formed (from influences in the interpersonal worlds that children inhabit when parents and role models are particularly important) it functions to control, guide, and evaluate behaviour (Savickas, 2002). For adolescents self-concept is closely linked to sense of identity and has many dimensions, with thoughts about careers only one strand of these. Those with vague self-concepts have difficulty picturing themselves in occupational roles and underachievement may occur. Gottfredson (2002) distinguished between the social self and the psychological self. Both social self (gender, social class, intelligence) and psychological self (personality, values) can influence occupational choice in their different ways. Barnes et al. (2011) suggest that it can describe how an individual views him/herself generally, with this view or picture having an impact on career choice. In career guidance it is quite common for adolescents to dismiss consideration of particular occupations as they think themselves incapable of performing the tasks associated with a job, even though cognitive ability and personality assessment tests indicate otherwise. I once met a person who had completed his Leaving Certificate in 2015 and scored the maximum points (600), clearly demonstrating high academic ability. This person, the son of a farmer, could have chosen any occupation, for example veterinary science (an occupation related to farming) but choose to pursue a career as a farmer and not to attend third level college. When I asked why he did not consider veterinary science he replied "There is no way I could see myself as a vet, I would not have the abilities". This may indicate poor or inaccurate self-concept.

2.4.2.5 Self-Esteem

Self-esteem describes the value that the adolescent places on him/herself and that person's feelings of personal worth. Low self-esteem can be linked to depression and anxiety (Rosenberg, 1965), which can have an impact on occupational choice. Korman (1966) found that adolescents with high levels of self-esteem were more likely to act on their self-concepts through occupational choice than those with low self-esteem. In subsequent studies (Korman, 1967; 1969) it was found

that such decisions were related to perception of the difficulty of an occupation and, as a result, self-esteem could serve to moderate occupational choice, e.g. highly self-esteeming adolescents are more likely to seek fulfilling occupations than those with low levels. In research with Australian high-school students career exploration (a necessary component of successful career choice) was correlated with optimism and high levels of self-esteem (Patton et al., 2004). Career indecision is associated with distress and poor well-being; including lower self-esteem, anxiety, and less satisfaction with life (Creed et al., 2005). Like self-concept, self-esteem has many facets. For example, a person may have a high level of self-esteem (say, in sport) and low levels in other areas (perhaps academic work). As with other personality constructs (e.g. locus of control), successful experiences can enhance an adolescent's self-esteem.

2.4.2.6 Emotions

Much of the research on the relationships between decision-making and emotions comes from the field of neuro-economics, in which economic decision-making is understood in the framework of cognitive neuroscience (Eysenck & Keane, 2010). One of the first theorists to emphasise the importance of understanding the link between decision-making and emotion was Robert Zajonc (Newell et al., 2007). Zajonc (1980) argued that "affective reactions to stimuli may precede cognitive reactions and thus require no cognitive appraisal, in other words, preferences need no inferences" (Zajonc, 1980, p. 151). Zajonc goes on to argue that people sometimes delude themselves into thinking that they make rational decisions, when in fact their choices are determined by no more than simple likes or dislikes, writing "we choose the jobs and houses we find attractive, and then just justify these choices by various reasons" (1980, p. 155). Isen et al. (1987) proposed that decisions are influenced by *mood* and suggests that these become more creative when the decision maker is in a good mood.

According to Beach and Connolly, prior to the 1990s research into decision-making focused on the cognitive activity of thinking, with nearly all such research looking at decision-making as the product of logical thought. Decision researchers they say knew about "emotionality but generally treated it as a distraction from the main event" (Beach & Connolly, 2001, p. 98). Emotions were seen as a source of irrationality, and therefore, as something that had to be kept under control so a person could think straight.

There came a realisation on the part of researchers that decision-making is far more complex than either prescriptive theory or normative models had hitherto suggested, and even more complex than represented in heuristics and biases research, or by prospect theory. But anyone who buys a car, or chooses a college or job, appreciates how much emotion is involved. Research into emotions in decision-making began to reflect the view that emotions are not disruptive and is seen as playing a central role in the decision-making process (Beach & Connolly, 2001). Such a shift in decision

research came about, partially, as a result of research by Damasio (1994; 1995) who found that patients with injuries to one part of the brain (the ventromedial sector), were incapable of feeling certain emotions. Damasio found some patients could think perfectly well, with normal learning, memory, language and attention abilities, but their emotional impairments made them poor decision makers, unable to decide advantageously on matters pertaining to their own lives. There came a realisation that people were not selective, sequential, limited-capacity information processors, devoid of emotions (Hogarth, 1994). “People have emotions, and can attach *meaning* [original emphasis] to information, with such meaning often the cue to understanding how the human thought processes work” (1994, p. 7).

According to Kermer et al. (2006) emotions often fulfil a valuable function when one is faced with a decision, but can lead the decision maker to be excessively and unrealistically averse to loss. Their research discovered that people overestimate the intensity and duration of their negative emotional reactions to loss. This they referred to as “impact bias” (Kermer et al., 2006, p. 651). Impact bias can be associated with emotions felt towards the loss of a job, and presumably the loss of a career choice, or perhaps failure to get the desired course of study through the Central Applications Office (CAO).¹¹

Hogarth (1994) has proposed that emotional factors, such as anxiety, can cause decision makers to block out relevant arguments, overemphasise others in favour of preferred alternatives, fail to search for new alternatives, and even psychologically prepare themselves for negative consequences of their decisions. Perhaps this might explain why adolescents making career choices often fail to take advice from those advising them (career counsellors, parents, etc.). Might their emotions actively block out arguments proposed in favour of a recommended career choice, while they overemphasise preferred arguments in favour of their own choices, even if negative outcomes are possible? Such choices, made in a climate of uncertainty, require understanding of cognitive and emotional determinants (Janis & Mann, 1977). Some years ago I encountered a second level student who was engaged in the process of career choice. This young girl was academically capable and demonstrated all the necessary qualities to be a primary school teacher (she spoke fluent Irish, had a kind and caring approach to children and enjoyed guiding others successfully to complete tasks). All the psychometric tests she completed indicated such an occupation would suit her personality. Her parents and career guidance counsellor encouraged her to at least investigate if not pursue this career. However, the student was completely closed to the idea, and would not give it consideration. She chose a career seemingly not in keeping with her personality and below her abilities. Despite the possible negative outcomes this student continued to overemphasise the possible positives. Time showed the student made an incorrect choice and withdrew from the chosen programme to take up the career of primary teacher.

¹¹ The Irish State’s ‘clearing house’ for third level admissions.

2.4.2.7 Intuition

Social psychology is a science that studies the influence of our situations and, more specifically, how people think about, influence, and relate to one another. Social psychology lies between psychology and sociology, being the study of how people think and the influences on such thinking in social contexts (Myers, 2013). It is in this field, among others, that intuition is studied. According to Vincent A Harren, in his extensive research on career decision-making, it became clear that those who engage in intuitive decision-making rely on present feelings, fantasies, and emotional awareness to make such decisions (Harren, 1979). Thinking in an intuitive way could be said to be a certain style in/of making decisions.

The first theorist of style, Carl Jung, put forward his theory of psychological style in 1923 (Rowe & Mason, 1987, p. 139). Jung defined intuition as ‘that psychological function transmitting perceptions in an unconscious way’, and went on to document four functional types of acquiring and evaluating information through the unconscious mind.

1. *Sensation – the sense perception, tells the decision maker something exists.*
2. *Thinking – tells the decision maker what it is.*
3. *Feeling – indicates whether it is agreeable or not.*
4. *Intuition – tells where it has come from and where it is going (Jung, 1933, p. 567).*

According to Myers (2002, p. 128) intuition is “the capacity for direct, immediate knowledge prior to rational analysis”, and later contributes further by using such terms as: “automatic processing, implicit memory, heuristics, spontaneous trait inference, instant emotions, and non-verbal communications” (Myers, 2013, p. 6). Nobody is quite sure how intuition works, but it is probably through the decision maker’s own unconscious links with a store of data in the mind (Leigh, 1983). In an effort to understand intuition, Leigh suggested that thinking, memory, and attitudes all operate on two levels: one, conscious and deliberate; the other, unconscious and automatic (Leigh, 1983). According to Myers “intuition is huge but sometimes perilous, with intuitions and unconscious information processing routinely powerful and sometimes perilous to decisions” (2013, p. 7).

Intuition tends to be underrated in the study of the formal process of decision-making and an interest in it conflicts with much in the field of management science. This is due to the fact it cannot be made to work exactly to order, and cannot be analysed. Yet, many admit that it is intuition that mostly influences their decisions (Leigh, 1983). Leigh in his writings on intuition recommended that decision makers listen to their intuitions, learn to rely on them, accept that doing so can lead to richer decisions, and follow an intuition if it speaks strongly enough in the decision-making process. Sio and Ormerod (2009) suggest that when faced with a difficult decision it is

advisable to take some time, possibly sleep on it, and await the intuitive result that the out of sight information processing mind (the unconscious mind) may produce. One must acknowledge the role of guesswork in decision-making, where guesswork relies on intuition, hunches and wisdom. All three play vital roles in decision-making and must not be ignored in a rush to employ procedures based on quantitative methods. Studies have shown that what separates top from mediocre managers is the ability to listen to intuition, to know when a hunch feels right, and when to let wisdom prevail (Leigh, 1983). Such feelings are called on every day in the hospitality business. It is not uncommon for customers to complain about the quality of the product or the standard of service. Some do so genuinely, others in order to get something for free. Wisdom, gained from experience, will help distinguish between the two and make a judgment on the approach to have to the complaint. Presumably adolescents making career choices invariably rely on intuition, hunches and wisdom, in other words use guesswork. Perhaps there is a correlation between this method of making a career choice and attrition rates in third level institutes.

There is general acknowledgment that intuitive thinking can make one smart, and help when making decisions (Gigerenzer, 2007; 2010), with some researchers proposing intuition can be used effectively for rapid decisions (Dane & Pratt, 2007, p. 34). Kahneman writes “as we navigate our lives, we normally allow ourselves to be guided by impressions and feelings, and the confidence we have in our intuitive beliefs and preferences is usually justified, but not always” (2011, p. 4). However, some cognitive scientists have cautioned against over reliance or dependence on intuition in decision-making, reporting that the unconscious may not be as smart as previously believed (Loftus & Klinger, 1992). The social psychologist Michael Gazzaniga has explored error-prone hindsight judgments and the decision maker’s capacity for illusion, that is, the possibility of perceptual misinterpretations and fantasies (Myers, 2013). The phenomenon of overconfidence, investigated by Daniel Kahneman, Amos Tversky and others, may also play a part in poor intuitive judgments. The decision maker is often confident even when wrong, due to the apparent or imagined marvels, as well as the flaws, of intuitive thought (Kahneman, 2011). Overconfidence, the tendency to be more confident than correct, which may lead the decision maker to overestimate the accuracy of the decision, can lead to poor judgments. According to Kruger and Dunning (1999) incompetence feeds overconfidence, and conclude that ignorance can beget false confidence and lead to poor decisions. Presumably some adolescent students when making career choices relying on intuition only suffer from overconfidence.

2.4.2.8 Heuristics and Overconfidence

Psychologists have revealed a number of systematic errors to which a person may be susceptible in everyday decision-making (Eisenfuhr et al., 2010). In studying this topic, much research has been carried out into the concept of heuristics, a heuristic being a general strategy, or rule of thumb, that is typically accurate (Matlin, 2009).

Shapira (2008) claims that the first description of a decision heuristic was most likely by Simons (1955) in the form of the satisficing principle. Over the years additional heuristics have been identified, such as the hindsight heuristic of Fischhoff (1975), the simulation heuristic (Tversky & Kahneman, 1982), the affect heuristic (Finucane et al., 2000), and the default heuristic (Todd & Gigerenzer, 2007). However, some of the most extensive and frequently cited work on heuristics has been that of Tversky and Kahneman. Daniel Kahneman won the Nobel Prize in economics in 2002, having researched and published in the field of decision-making along with his research colleague Amos Tversky. Tversky died in 1996, but prior to his death the two emphasised the importance of decision-making heuristics, an approach that connected decision-making with three classic decision-making heuristics: anchoring and adjustment, representativeness, and availability. For a comprehensive review of these see Matlin (2009).

Concerning career decision-making the representative heuristic may help explain stereotyping (mentioned earlier and sometimes associated with career choice). This heuristic involves a person judging that a sample is likely to be representative if it is similar to the population from which the sample was selected (Kahneman & Tversky, 1972). For example, stereotyping shows the representative heuristic at work. A specific example is imagining that a person is a professor because he/she exhibits characteristics typical of a professor (being dusty, boring, untidy and so on....). Matlin summaries how this heuristic works by saying, “if the problem is based on a judgement about similarity, then this judgment is based on the representative heuristic” (2009, p. 414).

Hoffrage (2004) proposes that people are often overly confident when making decisions. Over confidence means that confidence judgments are higher than they should be, based on actual performance of the task (Matlin, 2009). Hammond et al. (2001) propose that people tend to be over confident in making estimates or forecasts about the future, with this leading to errors in judgment and, in turn, bad decisions. Fischhoff et al. (1977) suggest that people’s levels of confidence, generally, are greater than justified given the quality of their performances. Weinstein (1980) proposes that most people are overly confident about their own abilities, as well as unreasonably optimistic about their futures. Kahneman and Tversky (2003) suggest that optimistic over confidence, a departure from the rational theory of judgement and decision-making, refers to the common tendency to overestimate one’s abilities in predicting and controlling future outcomes, which, in turn, may lead to increased effort, commitment and persistence in achieving the choice made. According to Eisenfuhr et al. (2010), over confidence can have disastrous consequences when making a decision and they suggest that the over confidence bias may be a consequence of anchoring and insufficient adjustment. Presumably, overconfidence exists when students make a career decision.

And so to summarise, both external and internal factors interact and have, to a greater or lesser extent, an influence on decision-making, in particular career decision-making. To summarise, it may be said “making decisions is a pervasive aspect of human experience” (Mitchell & Krumboltz, 1984, p. 238). A person may make hundreds of decisions each day, most of them trivial. Others, however, are not so trivial and have lifelong consequences. For example, decisions such as should one marry or stay single? Should one have any or no children? What college course should one choose and, consequently, what occupation should one pursue? Gati suggests that “career decisions are among the most complex and significant decisions individuals make during their lifetime” (2013, p. 183). As has been suggested, factors influencing such important decisions can originate in the environment of the decision-maker, such as type of school attended, socioeconomic position of the family or general employment prospects. Others originate within the decision-maker such as personality type, fears and decision-making styles.

2.5 College Withdrawals

Understanding when and why a student leaves college or university is very complicated. Researchers have suggested numerous reasons for student withdrawal, as well as pointing out various times at which withdrawal tends to take place (Villella, 1986). For example, attrition tends to be higher in the first year of college as these students are particularly vulnerable to academic, social and financial pressures. Villella (1986) suggested that in order to examine the challenge of attrition the ‘environment’ should be divided into the external and internal. The former, outside the control of the institute, consists of demographic trends (traditional versus non-traditional students), education policy decided at government level (the creation of ‘new’ universities), the economic life-cycle (during a period of economic growth more students are attracted into employment; during decline more students are attracted into third level education in order to delay entry to a poor labour market) and funding models (private; public, or a combination of both).

The latter, he suggested, ought to be viewed as the characteristics of a service industry – intangibility, inseparability and variability. Regarding intangibility, unlike with a physical good, a student does not see the results or value of education prior to purchase. Students who are experiencing social, personal, financial, or academic difficulties, or merely having doubts, may decide to forego the somewhat “indistinct benefits of education in favour of more immediate and tangible rewards” (Villella, 1986, p. 227). To address this, third level institutions ought to place added emphasis on clarifying the future benefits of higher educational attainment, and indeed the institution attended (alumni benefits).

Regarding inseparability, it is not possible to separate the academic (service provider) from the student (customer). As already mentioned, attrition rates are higher during the first year of college courses. It is during this period that the curriculum is likely to consist of general education courses. These classes are often overcrowded, may be taught by inexperienced personnel such as graduate assistants or PhD students, or depend on tools of mass communication (for example online platforms such as Blackboard or Noodle). Such methods may result in distancing the institution from the student, just at the time when an encouraging atmosphere is most needed, a sense of inseparability ought to be strengthened, and bonds of personal loyalty between student and institution developed. Instead a somewhat impersonal though fiscally efficient, educational environment is often established. To some extent, individual counselling efforts and support groups can counterbalance this first-year isolation, but those approaches are frequently inadequate.

The third characteristic, variability, means that the quality of the service being delivered is directly related to the individual provider and can therefore vary not only among different providers, but also among separate offerings by the same provider. As far as retention is concerned, the task of management is not complete when they hire people who are properly trained, highly motivated, skilful, and productive. They must also plan for the burnout that is very likely to occur among those who have a high level of contact with students. Provisions for staff (re)development, as well as provisions for periodic paid leave, are a wise investment from this perspective, and should be designed so that they recognise and combat burnout without threatening the long-term career of the academic member of staff. Academic institutions ought to make special efforts to maintain the confidence of students and be aware of student dissatisfaction before it culminates in withdrawals. If unaddressed, one student's growing dissatisfaction may spread to another, so that by the time the alienated student leaves the institution, its credibility is also damaged in the eyes of others (Villella, 1986).

Villella (1986) presented the challenge of college retention as a business matter. Just as an entrepreneur in any business hopes for satisfied customers who continue to make a purchase and may send other customers to purchase its product(s), so it is in the academic marketplace; that is, colleges and universities need students who successfully complete their degrees, are satisfied with their education, and willing to maintain their identification as alumni, and in doing so, provide continuing moral, political and/or financial support for the institution and future students.

By the middle to late twentieth century, despite the very extensive literature on (dropouts) withdrawals from higher education, much remained unknown about the nature of the withdrawal process (Tinto, 1975).¹² Sandler (1998) suggested that the extensive literature on student persistence and attrition that existed prior to the 1970s was descriptive and failed to utilise conceptual models. Tinto suggested that the “failure of past research to delineate more clearly the multiple characteristics of dropout could be traced to two major shortcomings; namely, inadequate attention given to questions of definition and to the development of theoretical models that seek to explain, not simply to describe, the processes that bring individuals to leave institutions of higher education” (Tinto, 1975, p. 89). Hitherto, one significant shortcoming with research focused on withdrawals was the failure to clearly define the types of withdrawals. For example, those withdrawing due to academic inability were categorised together with those who did so voluntarily, or those leaving permanently were categorised with those who withdrew temporarily. “Such shortcomings produced findings contradictory in character and/or misleading in implication” (Tinto, 1975, p. 90). In response, Tinto developed (1975) and refined (1993) a model to explain students’ decisions to, persist in, or depart, from educational institutions.

Based on research into suicide conducted by Durkheim (1951),¹³ Spady (1971) introduced a sociological model of undergraduate withdrawal processes which posited that the more a student is socially and intellectually integrated into the life of an institution the less likely it is he/she will depart or withdraw from it. According to McCaffrey (1991), this was the first theoretical model of student persistence. Another model known as the student attrition model (Bean & Metzner, 1985) focused primarily on non-traditional students (older students). Around the same time (1970s) Tinto put forward his student integration model. In (academic) student retention literature Tinto’s model is held in high regard and is one of the most highly referenced models (Kember, 1995), providing a theoretical framework for understanding student behaviour (Tinto, 1975; 1993). According to Tinto’s theory, the decision to withdraw arises from a combination of student characteristics and the extent of their academic, environmental and social integration in an institution. The three primary principles of Tinto’s model suggest that institutions of higher education ought to: firstly, commit to the students they serve; secondly, commit to the education of all (not just some students), and thirdly, commit to the development of supportive social and educational communities in which students are integrated as competent members. Further work by Tinto led to the development of a longitudinal, explanatory model of departure (Tinto, 1993). This expanded work added “...adjustment, difficulty, incongruence, isolation, finances, learning, and external obligations or commitments” to his original model (Tinto, 1993, p. 23). He proposed that the

¹² Tinto uses the term dropout(s). Other researchers use the terms withdrawal or non-completion. Others again use the negative term attrition, or, its antonym, the positive term retention. These terms are used interchangeably in the literature and in this study.

¹³ Durkheim (1951) proposed that the more a person is socially and intellectually integrated into a society, the less likely is his/her suicide.

stronger a person's level of social and academic integration, the greater his or her subsequent commitment to the institution and to the goal of college graduation. In summary, the model suggests that a student's departure from an educational institution may be as a result of a longitudinal process of interactions between that student's attributes, skills, financial resources, prior educational experiences, dispositions (intentions and commitments) and integration with other members of the academic and social systems within an institution (Tinto, 1993). A student's entry commitment affects the extent of his/her social and academic interaction within a learning institution, depth of integration, and in turn has an impact on his/her goals and institutional commitment. Simply put, Tinto proposed that a student enters college with pre-existing attributes and experiences, including family background, skills/abilities, and prior schooling, to begin a longitudinal process of interaction with the formal and informal social and academic components of the institution. This process is affected by external forces and as a result of this interactional process, the student ultimately decides to either remain engaged, or, leave the educational environment.

However, social and academic integration is not the only variable to link persistence in college and withdrawals. There is evidence to support a relationship between declaration of a major and academic success (Foote, 1980) and between career goal identification and persistence (e.g. Spandel, 1986). In addition, a relationship between career self-efficacy expectations and persistence has been established (e.g. Brown, Lent & Larkin, 1989). Self-efficacy identifies aspects of life in which people experience certainty/uncertainty about the ability to plan and execute educational, occupational, and personal goals and objectives. Career self-efficacy identifies how students think of themselves as performing career-relevant tasks in an educational setting (Betz & Hackett, 1981; Hackett & Betz, 1981).

In a seminal piece of research, Peterson (1993) sought to explore the nature of the relationship between career decision-making self-efficacy and college integration (general, social and academic) of underprepared college students within Tinto's framework or model (1975; 1993). The results indicated that there was sufficient evidence to include career decision-making self-efficacy as an 'individual characteristic' in further studies of integration. Although calling for further longitudinal research with a broader range of participants (other than underprepared) he concluded "the likelihood of a significant relationship between career planning and decision-making – specifically, career decision-making self-efficacy – and persistence is enhanced by these findings" (Peterson, 1993, p. 680). Since Peterson's research other studies have established an integral relationship between self-efficacy and student success in college (e.g. Majer, 2009; Zimmerman, 2000; Pajares & Schunk, 2001; Aguayo, Herman, Ojeda & Flores, 2011). Generally, scholars agree that greater levels of self-efficacy lead to enhanced academic outcomes (e.g.,

academic integration, achievement, engagement, and persistence) (Jerusalem & Schwarzer, 1992; Wood et al., 2015).

Another theoretical model to emerge (2001) focusing on college withdrawals is Bean and Eaton's psychological model of colleges' student retention. They asserted that academic and social integration are outcomes of psychological processes that begin prior to, and are modified during, college. When a student enters college, he/she reflects on his/her own academic aptitudes as well as their prior experience in educational settings (e.g., the Leaving Certificate). This reflection or self-evaluation includes assessments of confidence to perform academically (self-efficacy), evaluations of prior experiences that may facilitate ability to succeed in college (past behaviour), and reflections on peer and family perceptions as to the benefits of college (normative beliefs). They proposed that students' experiences in college, and interactions with others, are filtered through two lenses: those that occur within the structure, social, and academic landscapes of college; and those that occur external to the institution. Within the institution, students interact academically and socially on campus which includes relationships with academics, students and other staff (e.g., advisors, tutors, counsellors, librarians, administrators). However, despite the frequency of interactions, integration into the campus setting does not occur simply due to interacting with others. Rather, as students interact with the campus environment and its affiliates (e.g., academics, students, administrators), they undergo psychological processes by which they assess their own experiences and feelings. These self-assessments "help students connect particular experiences they have had at the institution with their general feelings about college" (Bean & Eaton, 2001, p. 75). Self-assessments are based on three considerations. First, the student's feelings of control over his/her environment and own outcomes (locus of control); second, his/her ability to cope, adjust, and 'fit' into a new environment (coping behaviour), and third, confidence in his/her academic and social abilities (self-efficacy). Bean and Eaton asserted that as a student's self-efficacy increases, so too does his/her academic and social integration. This point is significant, as their model indicates that academic and social integration lead to an enhanced commitment to the institution and, as a result, student persistence; in other words, reduced withdrawal rates.

It was on this model that Wood et al. (2015) based their research which sought to determine if self-efficacy had an effect on integration of first-year African-American male students in a community college setting in the United States. An important tenet imbedded in the psychological model of college student retention is that self-efficacy is 'task-specific'. For instance, Bean and Eaton stated, "an individual's belief that she or he is capable in one area, such as mathematics, does not transfer to another area" (2001, p. 77). Of interest is that Wood et al. (2015) suggest that the vast majority of research on self-efficacy examines it as a general construct. Departing from this approach, and embracing the possibility that self-efficacy is task specific, Wood et al. investigated

if different types of self-efficacy (specifically mathematics and English self-efficacy) resulted in different integration outcomes. They reported differences in mathematics self-efficacy across factor levels for ‘talking with faculty about academic matters’ and ‘meeting with an advisor’. Findings indicated successive and significant mean score increases, suggesting that greater integration was associated with greater self-efficacy. Specifically, students with higher levels of mathematics self-efficacy were more likely to interact with faculty and meet with advisors. Furthermore, students who had more involvement with staff also had greater scores for English self-efficacy. They also sought to establish if, after controlling for potentially extraneous variables, self-efficacy significantly predicted academic integration. They showed that mathematics self-efficacy was significantly predictive of several academic integration measures, including ‘talking with faculty about academic matters’, ‘meeting with advisors’, and ‘using the internet to access library resources’.

Bean and Eaton (2001) had suggested that perceptions of academic competence and confidence prior to college serve as the foundation for the psychological processes underlying integration, and as a result, persistence. Their research provides some evidence to support the role of self-efficacy in this process. Interestingly, English efficacy had little or no effect on academic integration in most of the models. In fact, when English self-efficacy was significantly predictive of an integration measure (studying in the library) it had an inverse relationship on the comparison for ‘never’ and ‘sometimes’. As such, English self-efficacy does not seem to be an important factor in the psychological processes identified by Bean and Eaton (2001), at least with respect to the effect of initial self-efficacy perceptions on first-year college experiences in Wood et al.’s research. As a result, the findings regarding mathematics self-efficacy were more salient than those for English self-efficacy.

2.5.1 Factors Contributing to College Withdrawals

Considering research conducted at the end of the twentieth and beginning of the twenty-first centuries a review of relevant literature pertaining to college withdrawals revealed a paucity (Hall et al., 2003). Earlier, Dunwoody and Frank (1995, p. 553) stated “our review of the literature revealed that retention rates for individual classes have been ignored”. Of the research conducted, very few looked at the students’ reasons for course withdrawal (Adams & Becker, 1990; Hall et al., 2003). Withdrawing from a higher educational institution is such an individualised form of behaviour that it may never be possible to truly know why a student leaves (Villella, 1986). However, as competition for students by third level institutions becomes more intense, and governments are increasingly held accountable for how they spend taxpayers’ money (on education and otherwise), understanding considerations which contribute to college withdrawals is important. This ought to assist policymakers in introducing measures which may help reduce withdrawals, and in turn, increase retention and graduation rates. Many of the factors that influence or cause a

student to withdraw from college are those that have most impact on career choice (contextual and cognitive), already covered in detail earlier (including: socioeconomic background; parental level of education; academic achievement; personality; gender) but in order to be concise, and mindful of space restrictions, I will not cover ground already covered above. In this section I focus on the psychological factors, and more specifically, the role self-efficacy plays in college withdrawals. Suffice to say here that many contributing factors to college withdrawals have been identified, such as: family support and peer networks (Tinto, 1987), socioeconomic background – lower social classes tend to have lower family educational attainment (Hussey & Smith, 2010; Quinn et al., 2005); lower pre-college educational attainment on the Leaving Certificate (Morgan et al., 2001; Blaney & Mulkeen, 2008); gender – males being more likely to withdraw (Morgan et al., 2000; Blaney & Mulkeen, 2008; Dwyer et al., 2013; HEA, 2016), level of college-associated depth (Dwyer et al., 2013), incorrect course choice (Dunwoody & Frank, 1995; HEA, 2013; 2016), poor performance in class and with coursework (Hall et al., 2003), state of the labour market and availability of jobs (Bozick, 2007), age – younger students were more likely to withdraw and for reasons associated with the course or institution, while older students withdraw for reasons external to the university environment (Kevern et al., 1999; Yorke & Longden, 2008) and distance to college – dealing with long commuting times often means that students have less time to engage academically and socially in their university (Astin, 1975; Blaney & Mulkeen, 2008). There is consensus in the literature that there is never a single reason for a student deciding to withdraw, but rather what Georg (2009) describes as a bundle of reasons or influences. I focus my research on the possibility of a relationship between college withdrawals and career self-efficacy.

2.5.2 Withdrawals and Self-Efficacy

At the beginning of the twenty-first century, despite being a focus of attention for almost 40 years, college attrition remained troublesome (Seidman, 2005). As mentioned above, Tinto (1975) explained student withdrawal from a psychosocial perspective that focused on the interaction between the student and the college. His model suggested that withdrawals may be predicted based on whether the student integrates socially and academically into the college environment, and if personal factors influence academic persistence. Self-beliefs (specifically self-esteem and self-efficacy), have been linked to such persistence. According to Bandura (1997), self-efficacy reflects one's self-evaluation of one's ability to succeed in a specific area or domain. Bandura's social cognitive theory posited that confidence in one's ability to perform specific behaviours predicts intent to engage in such behaviours in the future. The theory posits that a combination of external social systems and internal self-influence factors (e.g. self-efficacy) motivate and regulate behaviour (Bandura, 2012; Schunk & Pajares, 2002). Academic self-efficacy and indeed self-esteem, have been found to be strong predictors of academic persistence decisions and academic outcomes (Pajares, 1996; Dixon Rayle et al., 2005; Hsieh, Sullivan & Guerra, 2007; Pritchard,

Wilson & Yamnitz, 2007; Robinson Kurpius, Payakkakom, Dixon Rayle, Chee & Arredondo, 2008).

Students with high self-efficacy tend to frame the demands associated with a task as challenges rather than threats, resulting in higher *expectations* for their performance as well as higher *actual* performance (Chemers, Hu & Garcia, 2001). However, easy success does not lead to a strong sense of self-efficacy as it does not foster the fortitude necessary to work through challenges. The belief that one can perform an action to bring about a specific result is gained through a cyclical process of persevering through challenging tasks and successfully completing them. Repeatedly surmounting obstacles, helps increase self-efficacy, resulting in persistence when tackling challenging problems (Bandura, 1997). Not surprisingly, then, high levels of self-efficacy promotes the development of academic motivation and success.

Academic self-efficacy, the belief in one's ability to complete the regulatory tasks needed to succeed academically (Zimmerman, Bandura & Martinez-Pons, 1992), predicts academic achievement, effort, perseverance, and decreased procrastination in secondary school (high school) and university (Di Giunta et al., 2013; Feldman, Davidson, Ben-Naim, Maza & Margalit, 2016; Komarraju & Nadler, 2013). Supposedly, there are gender differences in self-efficacy, with females reporting higher levels of confidence in their use of study and organisational strategies and effort maintenance (Pajares, 2002); however, adolescent males report higher levels of academic self-efficacy related to most specific content areas compared to females (Huang, 2013), the differences being small but statistically significant.

High levels of academic self-efficacy positively impact goal-directed, self-regulatory behaviours; it also positively influences grades both directly and indirectly through setting higher goals for academic achievement (Pajares, 2002; Poole & Evans, 1989). Setting smaller, proximal goals on the path to a larger distal goal is particularly helpful in assisting students to see progress and increase their confidence. Receiving frequent feedback, especially when students are encouraged to connect their performance with effort, results in greater self-efficacy and skill development (Pajares, 2002). In a review of the influence of academic self-efficacy on academic performance, Honicke and Broadbent (2016) found that academic self-efficacy was moderately correlated with academic performance. Some years before, Richardson et al. (2012) found that academic self-efficacy was moderately correlated with university grade point average (GPA). A study carried out in Canada identified a positive correlation between students' academic aspirations and actual academic performance and between time spent studying and academic achievement in university (Chow, 2007), suggesting that setting high goals is related to engaging in goal-directed behaviours toward those goals and ultimately to achieving these. Thus, it is not unreasonable to assume a relationship between self-efficacy, but more specifically, career decision self-efficacy and first-year

college withdrawals in Ireland. In other words, do students who withdrawal from college in his/her first year have lower levels of career decision self-efficacy that their peers who do not withdraw?

As stated earlier, at the beginning of the twenty-first century the poor attrition rates in third level education in Ireland continue to be high (HEA, 2013; 2016). Some studies focusing on the causes have attempted to establish the extent of incorrect choice and financial hardship. One such study entitled *An Inquiry into Withdrawal from College: A Study Conducted at Trinity College Dublin* and concentrating on students who withdrew from degree courses during the academic year 2000/2001, found that those withdrawing at an early stage (during the first year) cited incompatibility of course choice and lack of commitment as having the strongest influences on their decisions. Those withdrawing from the middle years of their degrees cited stress, insufficient academic progress and wanting a break from education as the primary reasons (Student Counselling Services, 2015). Another such report published in 2015, this time with a qualitative focus, entitled *Why Students Leave: Findings from Qualitative Research into Student Non-completion in Higher Education in Ireland* identified five core themes associated with non-completion which were: issues with course chosen, personal reasons, financial difficulties, medical/health issues and family (Moore-Cherry et al., 2015). This current study examines the role self-efficacy plays in the initial choice and the resulting withdrawal rates.

2.6 Career Indecision (Decision Difficulties), Decidedness and Self-Efficacy

The social cognitive career theory (SCCT) (Lent et al., 1994) is well-established as a theory for investigating the variables that predict student persistence (an antonym for withdrawals) in an academic setting. It suggests that a person's academic and career development outcome(s), such as interests, choices, and performance (including persistence), are affected by contextual variables (Lent et al., 1994). Contextual variables, or support and barriers, are those variables in an individual's background or environment that either promote or hinder academic and career development outcomes, including persistence. The person-cognitive variables of self-efficacy, outcome expectations, and goals (Bandura, 1999) are also supposed to mediate between contextual variables and career development outcomes. Persistence has not been a widely studied outcome compared to interest and choice (Lent, Brown, Schmidt et al., 2003; Lent, Brown, Sheu et al., 2003), although it has been operationalised in two ways: continuation, reflecting the length of time a student remains enrolled in an academic course over a period of time (Lent, Brown, Schmidt et al., 2003; Lent, Brown, Sheu et al., 2003) or academic course turnover, which is simply whether a student is enrolled or has dropped out at a particular point in time (Schaefer, Epperson & Nauta, 1997).

Hartman, Fuqua, and Hartman (1983) reported that if undecided students did not receive help, they were more likely to drop out of school and were unhappy with their eventual choices of careers. Furthermore, undecided students may make poor career and academic choices which could have an impact on their future careers and employment success (Fouad, Cotter & Kantamneni, 2009; Gati, Krauz & Osipow, 1996). Amongst the first researchers to suggest self-efficacy (and career outcome expectations) as a predictor of career indecision were Betz and colleagues (e.g. Taylor & Betz, 1983; Betz & Klein Voyten, 1997). Although the population for this study, in theory, ought not to demonstrate career indecision (by the very nature of the where the student is in the career development process, that is, on a college course of study – he/she has made a decision perhaps demonstrating career *decidedness*),¹⁴ some students who withdrawal from college may be considered indecisive. That said, I believe such students might be best characterised as having career *difficulties*. Nonetheless, inclusion of a section on career indecision ought to be helpful.

A negative or inverse relationship (that is, as CDSE increases career indecision decreases) has been well-established between career decision self-efficacy and indecision (e.g. Taylor & Betz, 1983; Taylor & Popma, 1990; Betz & Luzzo, 1996; Betz & Voyten, 1997; Betz & Taylor, 2001; Betz, Hammond & Multon, 2005; Grier-Reed & Skaar, 2010; Lam & Santos, 2018). Taylor and Betz (1983) and Betz (2000) suggested that weak decision-making self-efficacy may restrict career exploratory behaviour and the development of decision-making skills, which may, in turn, compound career indecision and other problems in career decision-making (presumably college withdrawal).

Career indecision has been described as lack of confidence in one's career decision-making abilities (Osipow, 1987), where a student's indecisiveness may be chronic, involving severe and pervasive difficulties that impede the career decision-making process for an extended period of time (Osipow, 1999). Career indecisiveness stems from emotional and personality-related factors and is harder to overcome (Geremeijs, Verschueren & Soenens, 2006; Santos, 2001). According to Lam and Santos (2018), it stems from a variety of sources such as difficulties with personal and vocational identities. This differs from what Osipow terms *developmental indecision*; a transitory, developmental state, which may come and go over time, considered part of a normative phase, and may exist until an academic or career decision is reached (Osipow, 1999). Career decision-making *difficulties* (CDD) are defined as “the difficulties or problems faced in the decision-making process which originate from a lack readiness, lack of information, and inconsistent information about the career decision-making process” (Gati et al., 1996, p. 512). Researchers such Gati et al. (1996) and Sepich (1987) suggest that these difficulties may lead to career indecision.

¹⁴ Career decidedness is not merely the opposite or end goal of career indecision. Rather, career decidedness is the level of confidence or certainty about a particular career-related decision (Gordon, 1998).

A student with high levels of self-efficacy tends to visualise positive outcomes regarding specific (career) tasks he/she performs (Lent et al., 1994). This helps a student focus on fulfilling his/her goal(s) which translate into being decisive about a chosen career path. Research has shown CDSE to be negatively related to CDD (Osipow & Gati, 1998; Creed, Patton & Bartrum, 2004; Amir & Gati, 2006). In the study by Osipow and Gati (1998), students who reported greater decision-making difficulties also reported lower levels of CDSE. Similarly, findings recorded by Amir and Gati (2006) suggest that students with fewer difficulties in making career decisions also had higher levels of self-efficacy for carrying out tasks specific to making those decisions. Furthermore, there is evidence to suggest that career decidedness influences persistence. In a longitudinal study of student-teachers, Marso and Pigge (1997) found that certainty about engaging in a teaching profession while studying in the academic course was related to whether or not the students were likely to become a certified teacher seven years later. On the basis of these theoretical and empirical considerations, it is not unreasonable to expect a relationship between college withdrawals and self-efficacy, or more specifically, career decision self-efficacy. Although mentioned briefly earlier (page 42), I review self-efficacy in more detail below.

2.7 Self-Efficacy

The behavioural psychologist Albert Bandura, in an attempt to explain and predict behavioural change, put forward a theoretical framework which proposed that self-efficacy is a cognitive mechanism mediating behaviour and behavioural change (1977; 1982). According to Bandura, self-efficacy is the part of a person by which he/she regulates actions through internal standards and self-evaluative reactions to personal behaviour. He referred to this as “self-referent thought” (Bandura, 1986, p. 390). Bandura believed that self-efficacy plays a part in behaviour in the social, intellectual, and physical domains; in other words, most of life. He suggested that among the different aspects of self-knowledge none is more influential in a person’s everyday life than his/her conception of personal efficacy. He was primarily concerned with self-knowledge (self-referent thought). He focused on a person’s conceptions of his/her personal effectiveness, or efficacy. Self-efficacy theory, as developed by Bandura from 1977, originally referred to a person’s perceived capabilities to control his/her performance in emotionally taxing or otherwise difficult situations. Subsequently the theory has been expanded by others to include perceived capabilities to control such self-referent activities as cognitive processes, emotions, and self-regulated behaviours (see Schunk, 1991 for a discussion of these developments).

Knowledge of self-efficacy can assist in understanding how a person judges his/her capabilities and how self-perceptions of efficacy affect motivation and behaviour in people generally. A person is partly governed by self-made judgments of capabilities. That is, what he/she thinks can be done under given circumstances may (or may not) inhibit what is actually attempted. A person’s belief about his/her capabilities, along with thoughts and emotions experienced in taxing situations,

influence that person's behaviour. Galassi and Galassi (1994) suggested that if a person possesses the necessary skills, and if he/she is given adequate incentives, then efficacy expectations are major determinants of whether coping behaviour will be initiated, how much effort will be expended, and how long that behaviour will be sustained. I witnessed this on numerous occasions while working in the hospitality industry. Often a new graduate would join the workforce. He/she would have the necessary skills (demonstrated by successfully completing college and associated internships) to complete the tasks associated with his/her job. However, as is the case with all new jobs, the new staff member would encounter day-to-day challenges. Those who were motivated by achievement, or necessity, were more likely to persist for extended periods of time until successfully overcoming the challenge(s). Those lacking interest or motivation (by achievement) were more likely to falter. What was of great interest to me was that those who faltered were usually from families with considerable means.

Self-efficacy beliefs refer to expectations about one's ability to initiate and successfully complete courses of action. Bandura hypothesised that perceived self-efficacy affects choice of activities, effort expenditure, and in the face of obstacles and adverse experiences, the level of persistence applied (1977; 1982). Self-efficacy is concerned with judgments about how well a person can organise and execute courses of action required in situations that may contain novel, unpredictable, and possibly stressful elements (Schunk, 1983).

People's judgements of their capabilities to organise and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses (Bandura, 1986, p. 391).

According to Bandura's theory (1986; 1997) other things interact with beliefs about self-efficacy in influencing behaviour. These include skills, goals, outcome expectations (expectations about the consequences of carrying out specific behaviours), perceived values of possible outcomes, and environmental supports (Arbona, 2000). Bandura distinguished between judgments of perceived self-efficacy and response-outcome expectations. He claimed that "perceived self-efficacy is a judgment of one's capabilities to accomplish a certain level of performance, whereas an outcome expectation is a judgment of the likely consequences such behaviour will produce" (1986, p. 391). For example, a student's belief that he/she can achieve a first class honours degree is an efficacy judgment; the anticipated social recognition, award, and self-satisfactions represent the outcome expectations. It is not unrealistic to assume these two variables interact and are interdependent.

The outcome expectations are the motivating factors which can drive the achievement, though this is not always the case. Efficacy expectations and outcome expectations are differentiated because a person may believe that a particular course of action will produce certain outcomes, but he/she may still not act on this due to uncertainty about his/her ability to execute the necessary tasks. Bandura drew a clear theoretical distinction between efficacy expectations and outcome expectations: “An outcome expectation is defined as a person’s estimate that a given behaviour will lead to certain outcomes. An efficacy expectation is the conviction that one can successfully execute the behaviour required to produce the outcomes” (Bandura, 1978b, p. 240). In other words, an outcome expectation is a belief about the *consequences* of behaviour. On the other hand, an efficacy expectation is a belief concerning the *performance* of behaviour (Hackett & Betz, 1981). For example, a student’s expectation that high grades will gain entry to medical school and that medical practice will produce a high income may not be sufficient to motivate the student to choose medicine as a career due to self-doubt as to his/her ability to master the science required. A person may possess the capability and skill, underpinned with a strong sense of efficacy, to complete a task, but chooses not to. Bandura suggested that in such instances a person is likely to avoid the task due to lack of incentives, the necessary equipment or other resources, or because of his/her external environment. He went on to write “when performances are impeded by disincentives, inadequate resources, or external constraints self-judged efficacy will exceed the actual performance” (1986, p. 396).

Efficacy expectations and their consequences vary in level, strength, and generality. *Level* refers to the degree of difficulty of tasks a person may feel capable of attempting and may be limited to simple tasks, extend to moderately difficult ones, or include the most taxing performance within a particular domain of functioning. *Strength* refers to the durability of efficacy expectations when a person is confronted with obstacles or challenges. Weak self-precepts of efficacy are easily negated by disconfirming experiences, whereas a person with a strong belief in his/her own competence will persevere in coping efforts despite mounting difficulties. *Generality* involves the degree to which expectations of personal efficacy transfer to different behaviour domains, that is, different situations (Bandura, 1977). A person may judge him/herself efficacious in certain domains of functioning or across a wide range of activities and situations. For example, a person may have a high level of efficacy (a high degree of self-belief) and persist in completing everyday tasks, despite obstacles. However, the same person may fail when confronted with a task in a specific domain, such as learning to use a new technology. This failure is not likely to affect this person’s overall strength of mind. Bandura (1986) has claimed that all behavioural change is mediated via efficacy expectations and that all psychological interventions can be differentiated according to the change in the level and strength of the efficacy expectations they produce. A person may judge him/herself efficacious in certain domains of functioning or across a wide range of activities and situations. Domain-linked assessments reveal patterning and degree of generality

of his/her perceptions of self-efficacy. Bandura (1977; 1986) developed scales to measure perceived efficacy which assess its level, strength, and generality across different activities and contexts.

Judgments of personal efficacy can determine how much effort a person will apply and how long that person will persist at a task. The stronger the person's perceived self-efficacy, the greater the effort applied. Those who persist in the face of barriers build stronger levels of efficacy, reinforcing that very sense, thereby eventually eliminating defensive or debilitating behaviour. Conversely, those who do not persist in completing a task due to barriers will retain their self-debilitating expectations and fears and compound these by having low levels of efficacy (Bandura, 1977). Bandura went on to write:

[a]dvantageous self-percepts of efficacy that foster active engagement in activities contribute to the growth of competencies. In contrast, perceived self-inefficacies that lead people to shun enriching environments and activities retard development of potentialities and shield negative self-percepts from corrective change (1986, p. 393).

A person who judges him/herself highly efficacious will exert greater effort and expect favourable outcomes. In the face of difficulties self-doubters will slacken the effort applied and expect the worst of themselves, resulting in failure. In the face of such failure those who are highly efficacious are inclined to attribute it to insufficient effort; whereas those of comparable skills but lower perceived degrees of self-efficacy may attribute it to deficient ability (Bandura, 1986). As knowledge and competence are achieved through sustained effort, low self-efficacy can lead to a person giving up easily, which is personally limiting. In general, successes raise efficacy and failures lower it, although once a strong sense of efficacy is developed an occasional failure will not have a sustained negative effect (Schunk, 1989).

As noted earlier, self-efficacy is considered to be both multifaceted and domain specific. That is, a person can have more or less firm beliefs about him/herself in different domains of functioning (Schwarzer, 1992). Thus, self-efficacy can be domain or context specific and anyone can exhibit different behaviours in different situations (Sodano & Tracey, 2007). For example, a person may have high self-efficacy beliefs for sporting activities but low self-efficacy for socialising; or high self-efficacy towards mathematical problems but low self-efficacy towards essay writing. In addition, self-efficacy can be viewed on a continuum from the most global or general to the highly specific. Global self-efficacy involves expectations about one's general ability to deal with situations. By contrast, specific self-efficacy concerns a narrow band of situations, and often one particular situation, task, or academic subject (Lent & Brown, 2006). An example of this in the Irish educational system might be when a second level student gains entry to a third level educational course based on his/her academic abilities; that is evidence of general self-efficacy.

However, due to a limited sense of self-efficacy for the tasks required to compete the chosen course he/she soon withdraws or drops-out. This may have a lasting negative effect, inhibiting this person in future choice of activities.

Reasonably accurate appraisal of personal efficacy is important in determining one's own capabilities and is valuable in successful functioning. Misjudgements of personal efficacy in either direction have consequences. A person who overestimates his/her capabilities may undertake activities that are beyond his/her reach. As a result, that person may experience considerable difficulties, loss of credibility, and suffer needless failures. Such failures may have a lasting negative impact on a person. The mythical story of Icarus comes to mind as the paradigm case in which overconfidence leads to a fall. Conversely, a person who underestimates his/her capabilities may avoid some activities depriving him/herself of what might otherwise be a rewarding and enriching experience. In itself this can contribute to lowering of self-efficacy while attempting the enriching experience might have had the opposite effect. Self-doubt can be increased by avoiding certain activities (Bandura, 1986). There are many factors that may contribute to faulty appraisal of one's efficacy. Bandura wrote "self-efficacy will always be misjudged when personal factors distort self-appraisal processes" (1986, p. 398). In the case of routine activities a person evaluates his/her personal efficacy based on self-knowledge gained through reputation. After a short period of time there is no need to judge efficacy in order to complete the task. The challenge arises when new activities are required, prompting self-efficacy reappraisal. It is during this process that faulty self-appraisal occurs. Bandura suggested that this occurs "at the level of perception, during cognitive processing, or during recall of efficacy-relevant experiences" (1986, p. 398).

In the late 1970s and into the 1980s, self-efficacy was studied in relation to a variety of clinical problems such as phobias of snakes, social skills, and successfully ceasing smoking. These results generally suggested that a person's self-efficacy expectations are useful in predicating behaviour change independently of the different treatment approaches used (Lent et al., 1984). The first researchers to extend Bandura's theory to vocational behaviour were, as noted above, the psychologists Hackett and Betz. According to Hackett and Betz (1981) self-efficacy expectations are the primary cognitive determinant of whether or not a person will attempt behaviour and can exert strong influence on the career decisions and achievement of both men and women. Collins (1982) found that perceived self-efficacy predicted interest in a career better than ability. Elaborating on this, Bandura (1986) suggested self-efficacy to be more predictive of future performance than such typical indicators, as confidence. He also suggested that perceived self-efficacy influences, and is in turn influenced by, thought patterns, affective arousal, and choices as well as task performance. For example, a person who holds a low sense of efficacy for accomplishing a task may avoid it; while those who believe they are capable usually participate

more eagerly. It is in this framework that career choice and performance can be studied most effectively, I submit.

2.7.1 Sources of Efficacy

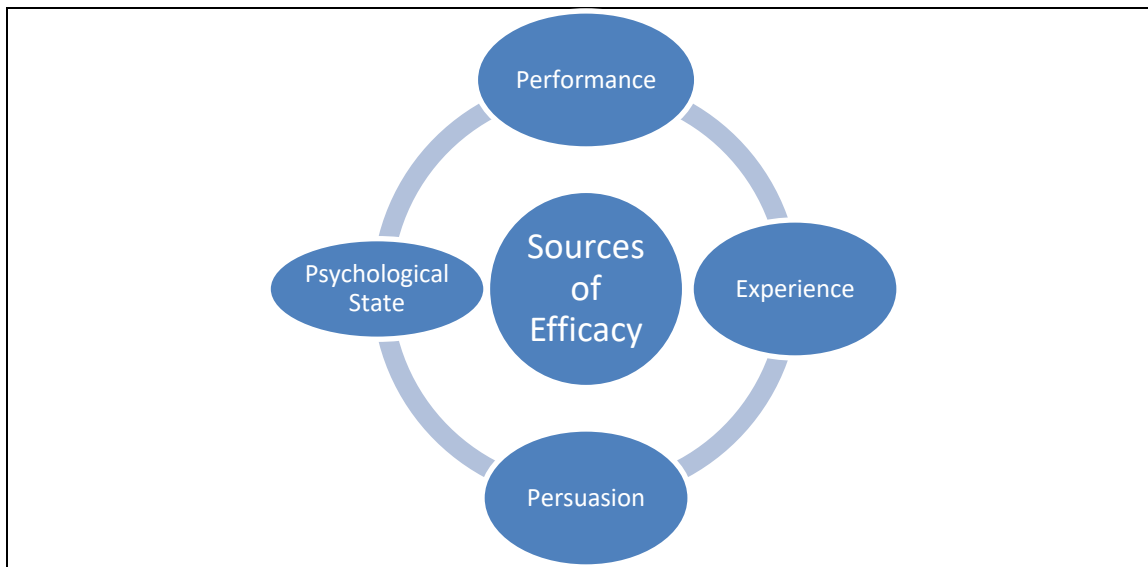


Figure 2.2 - Sources of efficacy

Somebody may use many sources of information as set out in figure 2.2. According to Bandura people acquire information to appraise self-efficacy from “four major sources: performance accomplishments; vicarious experiences; verbal persuasion, and psychological states” (1977, p. 195). Performance accomplishments, or enactive knowledge, is knowledge gained through action or repeatedly completing a task, e.g. repeatedly practising a three point turn in a car. Vicarious experiences, or vicarious knowledge, can come from learning through observation of others, e.g. a young boy watching his father shave. Verbal persuasion, or exhortative learning, comes from the encouragement of others, such as a high performance athlete learning from his/her coach. Psychological states, or emotive learning, can come from emotional arousal (e.g. if a stressful situation results in perspiration on the hands one might avoid such situations in the future) to judge his/her level of self-efficacy. Bandura (1977; 1982) suggested information acquired from such sources does not influence self-efficacy automatically as this will depend on how it is cognitively appraised. A number of contextual factors, including the social, situational, and temporal circumstances under which events occur, enter into such appraisals. Clarifying this Schunk wrote:

[e]fficacy appraisal is an inferential process in which persons weigh and combine the contributions of such personal and situational factors as their perceived ability, task difficulty, amount of effort expended, amount of external effort received, task outcomes, patterns of successes and failures, perceived similarity to role models, and persuader credibility (1989, p. 175).

He further asserted that of all the sources of information used to appraise efficacy, a person's own performance offers the most reliable guide to assessing its level (Schunk, 1991).

2.7.1.1 Performance Accomplishment

Bandura (1977) suggested performance accomplishment as a source of efficacy enhancement is especially influential as it is based on personal experiences. Amongst others, Hackett and Betz (1981) suggested that the successful performance of a task is probably the most powerful source of strong self-efficacy. Successes raise accomplishment expectations; repeated failure lowers them, particularly if the mishaps occur early in the course of task accomplishment. However, when strong self-efficacy has been established through repeated success, the negative impact of occasional failure is likely to be reduced. In fact, occasional failures that are later overcome by determined effort can strengthen self-motivated persistence, thus compounding strong efficacy. Schunk (1989), supporting Bandura's contention, suggested a person's own performances offer reliable guides for assessing self-efficacy; in general, successes raise efficacy and failures lower it, although once a strong sense of efficacy is developed an occasional failure will not lower it. Therefore, the effects of failure on personal efficacy are partly dependent on the timing and the total pattern of experiences in which the failure occurs. Self-efficacy, once established, can improve behavioural functioning not only in similar situations but to activities that are substantially different from those on which the treatment was focused (Bandura, 1977). An example of this might be a shy introverted person who lacks social skills, but who through repeated sporting successes sees those social skills improve.

2.7.1.2 Vicarious Experience

Practical experience is not the only way of having an impact on levels of self-efficacy. Efficacy can also be determined by social comparison, or "modelling", with Bandura writing "many expectations are derived from vicarious experience" (1977, p. 197). A person may acquire capability information from knowledge of others. Seeing others perform difficult activities without adverse consequences can generate expectations in the observer that they too will improve if they intensify and persist in their efforts. A person can persuade him/herself that if others can complete the task, he/she should be able to achieve the required levels of performance to achieve task completion (Bandura & Barab, 1973). However, Rosenthal and Zimmerman (1978) and Schunk (1987) proposed that, it is not just observation of others that heightens or strengthens efficacy, but observation of *similar* others which offers the best basis for comparison. Observing similar peers perform a task conveys to observers that they too are capable of accomplishing the task. Bandura acknowledged that vicarious experience is a less dependable source of information about a person's capabilities than personal accomplishments. Information acquired vicariously typically has a weaker effect on self-efficacy than performance-based information, because a vicarious increase in efficacy is negated easily by subsequent unsuccessful performances (Schunk, 1989).

Consequently, the efficacy expectations created by modelling, that is the observation of similar others, are likely to be weaker and more vulnerable to change.

2.7.1.3 Verbal Persuasion

Verbal persuasion is commonly used to influence human behaviour. People can be led to believe, through suggestion, that they can cope successfully with what has overwhelmed them in the past. A person may receive persuasive information that he/she possesses the capabilities to perform a task (e.g. a teacher saying to a student 'You can do this'). Levels of efficacy induced in this manner are also likely to be weaker than those arising from personal accomplishment. Bandura suggested that "in the face of distressing threats and a long history of failure in coping with them, whatever mastery expectations are induced by suggestion can be readily extinguished by disconfirming experiences" (1977, p. 198). Schunk (1991) supports this and suggested positive persuasory commentary enhances self-efficacy, but such an increase will be temporary if subsequent efforts turn out negatively.

2.7.1.4 Emotional Arousal

Stressful and taxing situations generally elicit forms of emotional arousal that, depending on the circumstances, might influence personal competency. Therefore, emotional arousal is another source of information than can affect perceived self-efficacy. It is not uncommon for a person to rely, in whole or in part, on his/her state of physiological arousal in judging anxiety and vulnerability to stress. Bandura wrote, "high arousal usually debilitates performance" (1977, p. 198). Thus, people are more likely to experience success when they are not experiencing aversive arousal, tension and visceral agitation. Schunk (1989) suggested that we can also derive efficacy information from psychological indexes (e.g. heart rate, sweating). Bodily symptoms signalling anxiety might be interpreted to mean a lack of necessary skills. Reducing emotional arousal can reduce avoidance behaviour. Multon et al. (1991, p. 32) wrote that in part, "anxiety reduction can strengthen one's efficacy expectations" and can lead to more successful performance behaviour. On the other hand, social learning theory acknowledges emotional arousal can be motivating. The cognitive appraisal of arousal to a large extent determines the level and direction of motivational inducements to action and so certain cognitive appraisals by a person to his/her physiological state might be energising (Bandura, 1977).

In summary, low expectations of success are a major source of internal constraints (Hackett & Betz, 1981). Such expectations are influenced, negatively or positively, by these four variables. Hackett and Betz suggested, for career choice to be more effective and increase the chance of success, comprehensive interventions within these four avenues is required.

2.7.2 Self-Efficacy, Academic Motivation and Performance

The most demanding cognitive and motivational challenge growing children and adolescents face concerns the development of academic competencies. This task, which begins before entering school, occupies most of anyone's time until adulthood. Zimmerman suggested this challenge to be "public, competitive, and self-defining in the sense that academic records predetermine public reactions and occupational paths" (1984, p. 202). Bandura (1986) suggested perceived self-efficacy predicts performance. A person with a strong sense of efficacy usually exerts greater effort and persists longer in achieving a task or challenge; such persistence usually results in high performance attainment. Bandura goes on to suggest that, it is an adolescent's sense of self-efficacy and purpose that serve as major personal influences in his/her ultimate level of accomplishment. In an effort to explain why a person does not always perform optimally, even though he/she knows full well what to do and possesses the necessary capabilities and skills, he suggested "knowledge, transformational operations, and constituent skills are necessary but insufficient for accomplished performance. This is because self-referent thought mediates the relationship between knowledge and action" (1986, p. 390). Furthermore, there is a marked difference between possessing the necessary skills for a task, and using such skills effectively under differing circumstances. For example, different people with similar skills, or the same person on different occasions, may perform inadequately, adequately, or extraordinarily. Among others, Bandura suggested a young person's belief in his/her efficacy affect academic motivation, interest and scholastic achievement (Schunk, 1989; Zimmerman, 1995).

According to Zimmerman "perceived academic self-efficacy is defined as personal judgments of a person's capability to organise and execute courses of action to attain designated types of educational performance" (1995, p. 203). Through his research Zimmerman established "efficacy beliefs affect motivation to learn, affective response to these efforts, and ultimate academic attainment" (1984, p. 203). Schunk suggested that self-efficacy research addressing career choice and performance has shown that it is an important construct for explaining students' learning and performance of achievement related behaviours, writing "research on career choice has shown that self-efficacy is an important construct in explaining students' learning and performance of achievement-related behaviors" (1989, p. 201). Qualifying this Schwarzer wrote:

[w]hen a person prepares to take action (e.g. study) self-related cognitions are a major ingredient of the motivational process with self-efficacy levels either impeding or enhancing motivation and in turn performance. A person with high self-efficacy choose to perform more challenging tasks, setting themselves higher goals and sticking to them (1992, p. ix).

He goes on to suggest that contextual variables associated with learning signal to students how much they are achieving. Examples of these task-engagement variables include role models/social comparative information, goal-setting, attributional and performance feedback, strategy instruction, cognitive processing, and reward contingencies.

According to Nicholls and Miller (1984) cognitive appraisals of effort may affect the impact of performance accomplishments on judgments of personal efficacy. People may view their efforts as inversely related to their capabilities. For example, success with minimal effort on a difficult task can indicate a high level of ability, whereas success gained through hard work on a task of similar difficulty can denote less ability, in this instance such success is less likely to raise self-efficacy.

Schwarzer (1992) suggested self-efficacy makes a difference to how people feel, think and act. When it comes to *feelings*, a low sense of self-efficacy can be associated with depression, anxiety, and helplessness. People with this can have low self-esteem and harbour pessimistic thoughts about their accomplishments and personal development. As regards *thinking*, a strong sense of competence facilitates cognitive processes and academic performance. Where *action* is concerned, self-related cognitions are a major ingredient of the motivation process. Self-efficacy levels can enhance or impede motivation.

In an empirical study Collins (1982) selected children who judged themselves to have either high or low mathematical self-efficacy at each of three levels of mathematical ability. These children were then given difficult problems to solve. Within each level of mathematical ability children who judged themselves as efficacious were quicker to discard faulty strategies, solved more problems, chose to rework more of those they failed, and did so more accurately than those of equal ability who doubted their efficacy. As this study showed, *perceived* self-efficacy exerts a substantial independent effect on performance. According to Schunk (1984) and Bandura (1986) perceived self-efficacy is a significant determinant of performance that operates partially independently of capabilities and skills. Positive attitude toward mathematics was better predicted by perceived self-efficacy than by actual ability. Thus, a student may perform poorly because he/she lacks the ability, or, may have the ability but still lack the perceived self-efficacy to make optimal use of relevant skill(s).

As mentioned earlier self-efficacy beliefs do not represent a global estimate of students' academic capabilities; rather they are tied to specific domains and tasks. A student may possess different levels of efficacy across domains (e.g. mathematics versus English courses) or across tasks within a domain (e.g. writing an essay versus writing a poem). Furthermore, Bandura (1993) suggested that children with similar levels of cognitive skills vary in their performance of academic tasks due to

the strength of self-efficacy beliefs. And so, competent functioning requires both skills and self-beliefs of efficacy.

Expected outcomes are also partially separable from self-efficacy judgments when extrinsic outcomes are limited to a minimum level of performance. When effects are linked to some minimal standard, performance exerts only partial control over outcomes. For example, when a designated level of performance produces a fixed outcome or reward, such as when a pass or fail determines progress, without providing a quantifiable mark or grade, a student will not perform optimally. According to Bandura (1986) there is a distinction between the levels of perceived self-efficacy and effort applied, depending on whether the task at hand requires new learning or established learning/skills. He suggested a new learner with a high level of efficacy may sometimes feel little need to invest in preparatory effort, which may lead to his/her failing to accomplish the task. It is not unreasonable to suggest that, a person with a high level of self-efficacy may unintentionally fail to complete a task, not due to lack of ability, but because of some superior feeling. One would not have to be religious to accept the truth of the claim that, sometimes at least: 'Pride goeth before destruction, and an haughty spirit before a fall' (Proverbs 16, xviii [KJV]).

This may help explain why students in third level education in Ireland fail examinations even though they have the ability to succeed. On the other hand in utilising skills already acquired, a high level of self-efficacy intensifies and sustains the effort needed to achieve difficult tasks, which are hard to accomplish if a person possesses self-doubt. In addition, self-doubt acts as a prompt to learning but may also hinder completion of a task using previously established skills or acquiring the necessary new skills. Thus, Bandura suggested "some uncertainty can benefit preparation. Self-development is aided by a strong sense of self-efficacy to withstand failures, tempered with some uncertainty to spur preparatory acquisition of knowledge and skills" (1986, p. 394).

Dependent on levels of self-efficacy, a person's thoughts about and emotional reactions to a situation may also have an impact on performance. While coping with demands in the external environment, a person who judges him/herself inefficacious concentrates on the personal deficiencies and imagines potential difficulties to be more formidable than they really are. Bandura (1986) proposed that such self-referent misgivings create stress and undermine effective use of competencies by diverting attention from how best to accomplish the task, to concern over personal failings and possible mishaps.

A study conducted in 1984, Lent et al. tested a specific theory of occupational behaviour originally devised by Hackett and Betz (1981), who proposed that efficacy expectations are related to degree of persistence and success in career choices. Lent and his colleagues investigated this hypothesis by assessing the relation between self-efficacy beliefs and academic success and persistence among students considering science and engineering careers. They found that students with a high academic-related self-efficacy in the fields of science and engineering were more likely to remain in and succeed in associated careers. They also found that both *level* and *strength* of self-efficacy for educational requirements were generally related to academic outcome. Students reporting relatively high strength ratings regarding their ability to complete technical/scientific majors achieved higher grades and persisted longer than those with relatively low ratings. In other words, students who believed they had the ability to complete the educational requirements of various science and engineering fields were predictive of subsequent academic performance.

In an extensive study published in 1996 Bandura and others examined the factors influencing academic achievement. The findings showed that a diverse range of influences including socioeconomic, family, peer, and self-processes operate in concert to shape the course of academic achievement (Bandura et al., 1996). Focusing specifically on family, it was found that the socioeconomic status of the family on children's academic achievement is mediated through its effects on parental academic efficacy and aspirations. Parents' beliefs in their ability to promote their children's academic development and the educational aspirations they hold for them may increase children's beliefs in their own abilities of academic efficacy and raise their aspirations. In turn, the children's beliefs and aspirations can contribute to academic achievement both directly and by fostering peer acceptance and reducing depression and the problem behaviour that can undermine school work.

Bandura suggested, based on organisational research published in 1993, that a person's performance is enhanced by increased personal efficacy from "progressive mastery". Conversely, a person who sees him/herself surpassed by others while completing a task has his/her personal efficacy undermined. Under such circumstances erratic analytic thinking is increased and performance is impaired. He wrote "social comparison affects performance through its impact on self-regulatory mechanisms" (Bandura, 1993, p. 123). An example of this in an academic environment where students receive comparative information about their capabilities from grading practices and teachers' evaluations of scholastic performances.

As mentioned earlier, Bandura (1993) suggested that a student's conception of ability can affect that student's levels of self-efficacy. Testing this theory he found that a person who believed ability was inherited experienced reduced efficacy levels as problems were encountered while competing a task. These people became erratic in analytic thinking, lowered aspirations and showed a progressive deterioration in performance. In contrast, a person who viewed ability as an acquirable skill demonstrated a highly resilient sense of self-efficacy with increasing level of performance through setting higher standards and challenging goals.

2.7.3 Efficacy Measurement or Assessment

According to Zimmerman (1995) the role of self-conception (e.g. self-efficacy) in academic performance has long been recognised but its measurement and scientific study has been hampered by a variety of conceptual and psychometric problems. He suggests this was addressed in 1977 with Bandura's seminal treatise which proposed a theory of the origins, mediating mechanisms, and diverse effects of beliefs on personal efficacy. This allowed for its measurement and analysis. Bandura suggested that "the most informative efficacy analysis requires detailed assessment of the level, strength, and generality of perceived self-efficacy...[with] ill-defined global measures of perceived self-efficacy or defective assessments of performance yielding discordances" (1986, p. 397). Bandura (1977, 1986) developed scales to measure perceived efficacy which assess its level, strength, and generality across different activities and contexts. In 2006, in an effort to address shortcoming with measures being developed Bandura authored a chapter in the *Guide for Constructing Self-efficacy Scales*.

Following Bandura's measurement scales many researchers developed instruments designed to measure general or domain specific efficacy. *General* self-efficacy may be measured or accessed with rating scales such as the General Self-efficacy Scale (GSE) developed by Schwarzer and Jerusalem (1995). This scale measures self-efficacy in adaptation, optimism, and coping with reference to adversity or everyday problems. The purpose of the GSE is to measure perceived self-efficacy. That is: confidence in setting goals, applying effort, and persistence. As a general measure it does not access specific behavioural change and as such, in most applications it is necessary to add a few items to cover the particular focus of the survey for example, the incidence of examination failure with adolescent students. Another general efficacy scale is the Self-efficacy Scale (SES) of Sherer and Maddux (1982). This instrument measures the expectation of success based on abilities rather than chance. It was developed to measure general self-efficacy expectancies in areas such as social skills or vocational competence. Subsequently, Bandura (2006) cautioned that an all-purpose measure might have limited explanatory and predictive value as most of the items in an all-purpose test may have little or no relevance to the domain of functioning. Items in such a measure are usually phrased in general terms divorced from the situational demands and circumstances. This leaves much ambiguity about what is being measured

(Bandura, 2006). Maddux (2011) suggests investigating specific dimensions of self-efficacy produces more robust results and provides greater clarity regarding its prediction and impact on specific areas of a person's life.

As well as general measures, many domain-specific ones were also developed. For example, the Fear of Commitment Scale (FOCS) was developed to understand the role fear of commitment plays within the career behaviours of career undecidedness and career indecision, the latter considered the more chronic of the two (Sterling & Betz, 1990; 1993). The scale of Perceived Social Self-efficacy (PSSE) a measure of self-efficacy expectations with regards to a range of social behaviours such as peer group relationships (Smith & Betz, 2000). Many scales were developed focusing specifically on *academic* self-efficacy. These usually involved asking students to rate their confidence in performing tasks such as: solving specific mathematics problems (Hackett & Betz, 1989); performing particular reading or writing tasks (Shell, Colvin & Brunning, 1995); or engaging in certain self-regulatory strategies such as listening to lectures, understanding content taught in class, and/or organising academic activities (Zimmerman, Bandura & Martinez-Pons, 1992). However, most of the academic self-efficacy scales were usually a subscale or part of a scale. Furthermore, many of these academic self-efficacy scales focused on just one source of self-efficacy, such as mastery experiences, vicarious experiences, social persuasion, or emotional states (Dullas, 2018).

Developing an even more specific scale than a general or academic one, Taylor and Betz (1983) developed what was originally called the Career Decision-making Self-efficacy Scale (CDMSE) to measure a person's belief that he/she can successfully complete the tasks necessary to make career decisions. This instrument consists of 50 items comprising five subscales: self-appraisal; gathering occupational information; goal selection; planning, and problem-solving. Each subscale consists of 10 items. The subscales are theoretically based on the five career choice competencies from his model of career maturity (Crites, 1978). To create a more practical scale for individual assessment, a 25-item short form (CDMSE-SF) was constructed by eliminating five of the 10 items from each of the five subscales. For present purposes I use the original 50-item version. This scale has been referred to as the "gold standard" of career decision self-efficacy measurement as it is based on relevant career development theory, demonstrates favourable psychometric properties, and has been reliably linked to relevant decisional outcomes (Lent et al., 2016, p. 49; Choi et al., 2012).

2.7.4 Self-Efficacy and Career Choice

As stated earlier, people make many choices daily, some trivial, others important and with long-term consequences. Making a career choice is partly determined by judgments of personal efficacy. Bandura (1977) suggested a person tends to avoid tasks and situations he/she believes exceed his/her capabilities. Any factor, such as self-efficacy, that influences choice may have profound effects on the course of a person's development. Schunk (1989) suggested that a person who has a strong sense of succeeding in a profession is more likely to persist longer and apply greater effort to succeed in activities leading to getting into that profession, as well as in job-related duties once in the role. Bandura (1996) suggested efficacy beliefs shape career aspirations and pursuits during the formative years. He wrote that the stronger a young person's beliefs in his/her efficacy, the more occupational options he/she considers possible, the greater the interest shown in them, the better he/she prepares academically for the different pursuits associated with the role(s), the greater persistence and success there will be in the academic coursework.

While Bandura's concept of self-efficacy has been applied primarily to the treatment of various phobic syndromes in clinical settings, Hackett and Betz (1981) have suggested that it has direct relevance to the understanding of career-related behaviours in that creating and successfully pursuing a career requires a variety of coping behaviours. The behaviours necessary for occupational decision-making were identified earlier by Krumboltz et al. (1976), amongst others. These include skills in information gathering, analysis of that information, the generation of alternatives, and goal setting. Krumboltz et al. identified other general coping behaviours, including a capacity for self-assertion and the ability to take the initiative. Hackett and Betz (1981) have suggested that if somebody lacks personal efficacy in one or more of these career-related behavioural domains, behaviours critical to the effective and satisfactory choice of career are less likely to be initiated. In other words, low self-efficacy can have an adverse impact on career choice and subsequent behaviour.

According to Schunk (1984; 1985) a new and particularly rich avenue of inquiry into educational attainment and ultimately career development was opened up by the study of self-efficacy on achievement. Many researchers have made a connection between levels of self-efficacy and career choice. Bandura (1986), working in the field of achievement anxiety, and building on the work of Sarason (1975; 1978) and Wine (1971), suggested self-referent thought arouses anxiety and debilitates performance, and, in doing so, has an impact on the quality of career choice. Both Sarason and Wine had shown that a person who becomes overly anxious and concentrates more on his/her deficiencies and the possibilities of failure will be less successful when it comes to completing a task. Krumboltz, Mitchell, and Jones (1976) in their application of social learning theory to career decision-making suggested that self-observation evaluating one's performances are major components of the process of career decision-making. Wheeler (1983) suggested

occupational preferences are determined more by perceived self-efficacy than by the value outcomes believed to be attainable by the different occupational pursuits. According to Talyor and Betz (1983) perceived self-efficacy can not only restrict the range of career options, but also generate indecision about those regarded as possible. Mitchell and Krumboltz (1984), exploring the concept of indecision, also suggested a link with career choice. They proposed that anxiety is often a factor in career indecision, writing “anxiety is produced by physiological arousal and maladaptive self-percepts about efficacy” (1984, p. 259). This may affect the career decision-making process negatively. Therefore, in career decision-making behaviour, certain self-perception may impair appropriate decision-making behaviour.

Working in the field of career choice indecision, through a qualitative study using interviews, Mitchell (1980) revealed that low self-efficacy was the reason many students gave for being indecisive about occupational choices. Mitchell documented such representative statements as “I hate the sight of blood so I couldn’t be a doctor”, “since I’m not brilliant I can’t aspire to a professional job”, “I’m not good at giving speeches so I can’t be a lawyer” and “I’m not talented at art so I wouldn’t get anywhere if I take it up as a career”.

In their research Hackett and Betz found that levels of self-evaluation of performance and abilities differed between men and women and these differential perceptions were related to career choice and development. In extending Bandura’s theory to gender differences, Betz and Hackett (1981 and see also: Hackett & Betz, 1981) pointed out the importance of the construct in understanding the differences between the choices made by men and women. They hypothesised that efficacy beliefs are related to a person’s range of perceived career options, and to persistence and success in his/her chosen field(s). They suggested that a person’s perceived career options can be predicted, in part, by levels of self-efficacy for learning or performing the various specific tasks/roles required by the profession.

Hackett and Betz (1981) proposed that, largely as a result of socialisation, women exhibit lower expectations than men for much achievement-related behaviour and thus fail fully to realise their capabilities and talents in career pursuits. They found that the career choices of college women tend to be restricted to occupations traditionally selected by women because they judge themselves inefficacious in occupational fields traditionally selected by men. In their research Betz and Hackett (1981) showed men reported higher self-efficacy for performing the normal duties of accountant, drafter, engineer, highway patrol officer, and mathematician; all of which are traditionally male-dominated occupations. Women reported higher self-efficacy for the traditionally female dominated occupations of dentist hygienist, home economist, secretary, and social worker. Concentrating on perceived mathematical self-efficacy Betz and Hackett (1983) found that avoidance of careers requiring some quantitative competency was due to mathematical

self-inefficacy rather than actual mathematical ability. Exploring sex differences within mathematical self-efficacy, Hackett and Betz (1983) suggested that women typically possess less sense of mathematical efficacy than men and tend to avoid science-based college subjects as a result. In a follow up study by Hackett (1984) using path analysis to identify casual links, it was found that gender affects perceived self-efficacy in quantitative capabilities. As such, perceived self-inefficacy in dealing with numeracy-based careers affects students' levels of anxiety about mathematics and inhibits associated college study and careers. However, such choice restrictions occurred despite the fact that college men and women do not differ significantly on actual verbal and quantitative ability on standardised tests (Mitchell & Krumboltz, 1984). According to Bandura (1986) regardless of sex, the higher the level of perceived self-efficacy, the wider range of career options considered and the greater level of interest shown.

In a study of gender differences in leadership self-efficacies required to succeed in global corporate roles, Javidan and Bullough (2016) found that women demonstrated stronger global leadership profiles with regard to passion for diversity, intercultural empathy, and diplomacy. Conversely, men were more likely to show strong global leadership self-efficacies regarding global business savvy, cosmopolitan outlook, and interpersonal impact. Rosenbloom et al. (2008) point out that despite substantial gains by women in the labour market over the half-century following the 1960s, they remain substantially under represented across a range of technical and scientific fields. For example, at the beginning of the twenty-first century in the US women made up 47% of the labour force. However, less than 20% of people working in engineering were women, while just 27% of environmental scientists, 31% of chemists, and 27% of those in computer and mathematical occupations were female (Rosenbloom et al., 2008).

Persistence in academic majors (subjects studied) as a function of self-efficacy beliefs was explored in studies by Lent et al. (1984; 1986). They showed students desiring science and engineering careers had high levels of self-efficacy, earned higher grades and persisted longer in scientific and technical majors than those with less self-efficacy. They also showed self-efficacy was positively related to mathematical ability and general academic achievement (Lent et al., 1984). In follow-up research they showed that self-efficacy accounted for a significant portion of the variability in grades in science and technical courses, persistence in technical majors during the academic year, and interest in science and engineering careers (Lent et al., 1986).

More specifically, career decision-making was examined in two seminal studies. The first, by Taylor and Betz (1983), specified five career choice competencies: accurate self-appraisal, gathering occupational information, goal selection, making future plans, and problem-solving. In their research they formulated several specific behaviours relevant to each competency and asked college students to judge their degrees of self-efficacy for accomplishing each behaviour. They

reported no sex differences with respect to career decision-making tasks. However, regardless of sex, less self-efficacy was associated with greater career indecision. The other study by Post-Kammer and Smith (1985), presented school students in the US's eighth and ninth grades (aged 14-15) with descriptions of predominately male or female occupations. Self-efficacy was assessed for each occupation's educational requirements and performing associated job duties. Results proved mixed with regard to sex differences. Boys judged themselves likely to be effective in the careers of drafter and engineer, but there were no sex differences for mathematician or physician. Self-efficacy accounted for a significant portion of the variability in interest in pursuing given careers.

A high sense of personal efficacy is always required to sustain the effort needed to complete a job search successfully (Kanfer & Hulin, 1985), and Bandura (1986) proposed career success requires more than the specialised knowledge and the technical skills required. He goes on to suggest "success on the job further depends on self-efficacy in dealing with the social realities of work situations" (Bandura, 1986, p. 433). Qualifying this Hackett, Betz and Doty (1985) identified a number of skills that contributed to broader functioning including: ability to communicate; ability to relate effectively with others; ability to plan and manage the demands of a job; ability to exercise leadership, and ability to cope with stress effectively. A person's level of perceived self-efficacy in these skills can aid or impede career advancement.

In summary, much research supports the proposition that a student who believes he/she can complete the educational requirements for the duties typically associated with a career will be more likely to choose that career than one who has doubts about his/her capabilities. Self-efficacy may contribute to different choices by male and female students; educational, family, and social experiences may preclude students from gaining efficacy-enhancing experiences in certain areas, which may have negative impacts on career choices.

2.7.5 Career Decision Self-Efficacy

Career decision self-efficacy is based on Bandura's (1977; 1986) research on psychological conditions. This evolved from his social learning theory (Bandura, 1977). As already stated, Bandura defined self-efficacy as the "belief in one's capabilities to organise and execute courses of action required to produce given attainments" (1997, p. 3). Hackett and Betz applied self-efficacy theory to career decision-making, initially focusing on anxiety experienced by women when studying mathematics/technical subjects. In doing so, they took a major theory from developmental and social psychology (Bandura, 1977) and applied it to counselling and vocational psychology, that of career choice and development (Betz & Hackett, 2006). Hackett and Betz (1981) initially developed a theoretical/conceptual paper and went on to test this with empirical research presented in Betz and Hackett of the same year. Their research has attracted many other vocational and counselling researchers, and by 2005 Hackett and Betz (1981) and Betz and Hackett

(1981) had attracted several hundred citations each. Their work, and the work of others, has produced a major career theory, *social cognitive career theory*. This has subsequently been developed by Lent, Brown, and Hackett (1994, 2000) and Lent (2005) and the most current iteration of SCCT is Career Self-Management (CSM) Lent & Brown, 2013). Although initially focusing on understanding women's career development, the theory is now used to understand career development in general, as well as that of specific groups; for example, people of colour, elderly persons, people with disabilities, and female offenders (Betz & Hackett, 2006).

Betz and Hackett (2006, p. 5) have stated that “the huge degree of research activity in this area can be attributed in part to the increasing availability of high quality measures”, one of which (as developed by Taylor and Betz (1983), and Betz, Klein, and Taylor (1996)) is the CDSES, an instrument, as already noted above, developed to “define and operationalise the skills required in career decision-making” (Betz & Luzzo, 1996, p. 415), in other words: to measure a person's degree of belief that he/she can successfully complete tasks necessary to making career decisions. This scale assesses the level of confidence that someone has about his/her ability to identify resources and constraining personal characteristics that may influence career choice. The instrument is divided into five subscales.

1. Self-appraisal (the extent to which a person accurately assesses his/her career-relevant abilities, values and interests).
2. Occupational information (level of knowledge a person has about university programmes, occupations and labour markets).
3. Goal selection (ability a person has to set priorities in order to manage successfully his/her professional advancement).
4. Planning (a person's ability to set plans for the future and identify possible career paths).
5. Problem solving (a person's ability to identify/develop alternative coping strategies and solve career choice problems when outcomes do materialise) (Taylor & Betz, 1983; Betz & Luzzo, 1996).

Betz and Hackett (2006) emphasise the importance of defining the domain of behaviour (e.g. career decision-making) before assessment. In developing the CDSES, Taylor and Betz chose the theory of career maturity as developed by John O Crites. This required taking his (1978) five career choice competencies (self-appraisal, occupational information, goal selection, planning, and problem solving) as the definition of the domain and then producing items that *appeared* to reflect each of these competencies. Finally, traditional item analysis¹⁵ procedures were then used to select

¹⁵ In psychometrics, item analysis refers to statistical methods used for selecting items for inclusion in a psychological test. A variety of statistical procedures are applied to the responses to the candidate items in order to eliminate unsatisfactory items.

the best items for each subscale based on the confidence response continuum used by Bandura to define self-efficacy originally (Betz & Hackett, 2006). Betz and Luzzo (1996) reviewed literature using the CDSE scale and cited research attesting to its reliability, as well as content, criterion and construct validity (Reddan, 2016). Similarly, Prideaux and Creed (2001) indicated that the measure is a well-developed construct with sound psychometric properties. Subsequently, Betz, Klein and Taylor (1996) shortened the CDSE to a 25-question scale (CDSE-SF). To repeat an earlier point, I have used the original 50-question instrument.

2.8 Theoretical Framework

The quest for theoretical perspectives in career development emerged in the 1950s as a means to help counselling professionals establish a foundation for defining and understanding individuals' career development processes (Brown, 2011). In response, there are various well respected career development theories (mentioned earlier), including Super (1990), Holland (1985), and Roe (1956), that have served as a guide to the implementation of career planning (Owens et al., 2010). These career theories have been classified in the areas of trait and factor, personality-based, developmental, social learning theory, and economic and sociological (Zunker, 2012). However, this study focuses only on the career developmental theories, more specifically social cognitive theory (SCT) and social cognitive career theory (SCCT).

Bandura (1993) believed that a person's intellectual development cannot be studied or understood in isolation from the social relations within which it exists and from its interpersonal effects. As such, it must be analysed from a social perspective. Bandura (1977; 1986) presented the social cognitive theory (SCT) model in response to his dissatisfaction with the principles of both behaviourism and its antithesis, psychoanalysis, and in doing so investigated how an individual's behavioural and environmental factors interact to determine motivation and behaviour. He suggested not all learning can be detected simply through observing behaviour. Instead, some learning occurs through observing others. In SCT the interplay between self-referent thought and social processes in guiding human behaviour (decision-making) is explored. Bandura (1978) proposed that while a person's behaviour can be changed through operant conditioning (external forces); behaviour can also be changed through cognitions (internal forces). Furthermore, since a person's behaviour influences his/her future behaviours and cognitions, as well as the environment, all are reciprocal determinants of human behaviour as these factors act in concert and cannot be separated. SCT recognises that variables within a person (cognitions), variables demonstrated by a person's (behaviour), and variables outside the person (the environment) have influence on behaviour. According to Bandura (1986), human functioning is the result of the interaction between these three factors as laid out in his Triadic Reciprocal Determinism model. In the social cognitive view, self-efficacy is not a passive, static trait. It is considered a dynamic set of self-

beliefs that are specific to particular performance domains and interact in complicated ways with other considerations (Lent et al., 1994). According to this theory, personal agency operates within a broad network of sociostructural and psychosocial influences in which efficacy beliefs play an influential regulative function (Bandura, 1997).

As mentioned earlier, application of this theory to career behaviour began to attract attention in the early 1980s based on the theoretical framework put forth by Hackett and Betz (1981). Their framework began a trend in vocational counselling psychology with early research conducted by, among others, Schunk (1989), Zimmerman (1989), and Bandura (1993). Initial research focused on understanding academic motivation and achievement. Literature developed around these two themes focusing on developmentally linked skill domains (e.g. cognitive performance in academic and work-related tasks), and produced complementary findings on the correlates and effects of cognitive-expectancy variables. In turn, this research was guided by similar conceptualisations of educational-vocational functioning (Lopez, 1997). This influenced Lent, Brown and Hackett (1994; 2000), and later Lent (2005), to develop a unifying social-cognitive framework for the conceptualisation and study of career and academic behaviour. This framework continues to influence research in the field today.

Thus, SCCT is a more recent theoretical approach in career counselling literature used for studying academic and career development (Betz, 2008; Lent, 2005; Lent, Lopez, Sheu & Lopez, 2011). Social cognitive career theory refers to self-efficacy as a “dynamic set of self-beliefs that are specific to particular performance domains and activities that interact complexly with other person, behavior, and contextual factors” (Lent, Brown & Hackett, 1994, p. 83). Hence, I use social cognitive career theory as a guiding framework to explore the research questions. Derived from Bandura’s (1986) general cognitive theory mentioned above, SCCT emphasises three social cognitive processes that are believed to operate with regard to career development and behaviour: self-efficacy beliefs, outcome expectations, and goal mechanisms (Lent, Brown & Hackett, 2000). Social cognitive career theory also focuses on how these mechanisms interrelate with other personal (race/ethnicity), contextual (support systems such as family), and experiential learning (access to educational resources) factors. Researchers (e.g. Gushue & Whitson, 2006; Duffy & Klingaman, 2009; Lent et al., 2011) who use this framework have examined how social factors such as race, culture, ethnicity, and gender affect career self-efficacy beliefs and outcome expectations, which in turn are hypothesised to determine career interests, goals, and ultimately career behaviour, with this study exploring the impact on college withdrawal. The iteration of SCCT known as CSM was not used to inform this study as it had only recently been formulated at the time of my writing this.

By way of a supplementary note to career theory I feel mentioning the inclusion of happenstance by some researchers into current theoretical frameworks is important. The twenty-first century has seen researchers start to recognise that happenstance (planned or unplanned) has a part to play in career choice. This has been driven by changing environments in the world of work and jobs which are challenging traditional career development theories. Although happenstance has been mentioned by psychologists in the past (e.g. Bandura, 1982) and some have attempted to develop theories based on it (e.g. Mitchell et al., 1999; Krumboltz, 2009), happenstance has not received the attention it may deserve. Happenstance, also referred to as the ‘chance factor’ is beginning to gain recognition as one of the most influential factors in career choice of the twenty-first century (Kim, et al., 2014; NCDA, 2008). Happenstance can be understood not only as chance events and experiences, but also as the ability of individuals to seek out such events and experiences that can contribute most to their learning (Kim et al., 2016).

2.9 Conclusion

It is evident that decision-making, and more specifically, career decision-making is a complex process. People make many decisions daily, some of a trivial non-consequential nature, others more important with life-long effects. It is possible to approach decision-making in a number of ways, no one way may be deemed superior to the other. It is necessary to be aware of the considerations, both contextual (external) and cognitive (internal), that may affect the decision. However, in order to increase the accuracy of the decision and achieve the desired outcome, it is advisable that, whatever the process, it is approached in a measured systematic way. It is not uncommon, especially amongst adolescents, to make decisions in a haphazard manner. This is not recommended. It is especially important when making career choices that a person does so having engaged in a process which will increase the likelihood of success. Having a strong sense of efficacy ought to improve career decision-making process.

3.1 Introduction

Research is concerned with understanding the world in which we live. It is informed by how someone views his/her world(s), what he/she takes understanding to be, and what he/she sees as the purpose of seeking that understanding (Cohen et al., 2011). This chapter addresses the subject of methods and aims to describe and explain the journey taken in pursuit of answers to the research questions outlined in chapter one. This research was undertaken in an attempt to understand the high incidence of withdrawal from third level college in Ireland and investigate the possibility of a link between this and self-efficacy levels. In order to achieve this, I explored the various factors influencing career choices and those contributing to withdraw from third level.

The theoretical foundations for the research are explained below. These gave direction to the methods and mechanisms chosen and gave direction and structure to the study.

3.2 Research Objectives/Goals/Questions

According to Arneson “the primary consideration in all research is identifying the purpose for which the inquiry is conducted” (2009, p. 71). The research plan, and all associated decisions, will be informed by the purpose(s) identified. The researcher must understand the reasons for conducting the study. For example, will the end product reveal knowledge (basic research)?¹⁶ Or will it achieve social change (applied research)?

In general, empirical research seeks to advance knowledge. The purpose of this type of research is to understand and explain new or existing phenomena or theories. Such research, as with this study, may emerge from human curiosity. As a researcher discovers answers to satisfy his/her curiosity, so knowledge grows and further questions emerge. University academics are often empirical researchers, free to pick research topics to satisfy their curiosity about the natural or lived worlds, free from constraint from outside forces (Arneson, 2009).

On the other hand, applied researchers are usually motivated by a desire to solve experiential problems. The purpose of this type of research is to identify solutions, with findings directed to improving the conditions of the target audience. Applied research may be influenced by the values of the inquirer, be subjective and may even overtly/admittedly be biased. That is, the findings are predictable. This is highly likely if the research is sponsored by a commercial or charitable organisation or government agency, or if the research problem emerges from the lived experiences of the researcher (Arneson, 2009). In such cases care must be taken to neutralise biases and

¹⁶ Arneson (2009) uses the word ‘basic’ to describe this type of research but I dislike this word and do not use it hereafter as it seems to me that it fails to capture the very rigorous nature of such research.

produce words free of personal values. However, regardless of whether one holds a “value-laden or value-free approach to research, or is conducting empirical or applied research, the inquirer has an axiological responsibility to conduct ethical inquiry” (Arneson, 2009, p. 72).

This study, which may be considered empirical but also applied, broadly speaking is concerned with adolescence career choice. Within this there are some underlying issues which require understanding in order to improve the accuracy of the career decision. I present these here.

Ireland had in the past experienced and at the time of writing continued to experience high withdrawal rates amongst first year students in third level educational institutions, particularly in the IoT sector. For example, those studying in IoTs were up to three times more likely to drop out of their courses than those in universities by 2015. These students might then go on to pursue different courses of study, but a report by the HEA in 2013 offered stark evidence that too many initially made the wrong choices. Findings from this report suggested that, on average, 9% of first-year students on level eight courses did not continue to second year in that course; this rose to an average of 22% in the IOTs (HEA, 2013). Non-progression was even higher among first-year students on level six and level seven courses with rates averaging 25% and 26% respectively, and sometimes rising to 33% (HEA, 2013).¹⁷ Changing course choice, or dropping out of college altogether, can be a traumatic and costly experience for students and their families, and a waste of taxpayers’ money. The Irish educational system of the twentieth and early twenty-first centuries was based on a quantitative system of course achievement. That is, the greater the number of points achieved in the terminal examination at second level the greater range of courses available to the student at third level. Students made choices based on the points they scored, perhaps at the expense of choosing courses they were more suited to pursuing. In the early twenty-first century this issue received some attention both from state agencies (e.g. HEA) and academics (e.g. Moore-Cherry et al., 2015). However, such research was primarily descriptive, failing to explore the cognitive characteristics of those withdrawing.

¹⁷ As I have already noted above, level six and seven degrees are set down by the **National Framework of Qualifications of Ireland (NFQ)** as part of a system of 10 levels (1-10) which allows for the comparison of the different standards and levels of qualifications. This system gives an academic or vocational value to the qualifications obtained. Each level is based on nationally agreed standards of what a learner is expected to know and do following successful completion. Level six is a higher certificate usually completed in two years, while level seven is a bachelor’s degree completed in three years in the technology sector.

In addition, the issue of ‘field-of-study mismatch’ (where a person studies or acquires skills in one field but ends up working in another), raised in an OECD study published in July of 2015, deserves consideration (Montt, 2015). The issue had received relatively little attention from an economic perspective by 2015. The study found that amongst OECD countries Ireland had a higher than average level of occupation mismatch, with 42% of people working in fields that did not match their qualifications, over half of these being considered over-qualified for their jobs. The report observed that the causes of field-of-study mismatch are twofold. One is structural: employment prospects in different sectors rise and fall as demand for labour shifts. The other is cyclical: in times of recession higher unemployment results in higher levels of mismatch (Montt, 2015). Choosing the wrong course of study, and the resulting occupation mismatch, can have several negative consequences. Montt (2015) suggests that those who are mismatched earn less, are more susceptible to unemployment and experience lower levels of job satisfaction. It may not be unreasonable to suggest that the phenomenon of field-of-study mismatch begins when adolescents first make educational course choices. Understanding the factors which contribute to this is important if interventions are to be made at appropriate junctures to assist in more successful choices.

Certain sub-questions arise from these two issues.

1. What factors influenced young people when making a career choice in Ireland at the beginning of the twenty-first century?
2. What factors contributed to college withdrawal rates amongst undergraduate first-year students in Ireland and did those who withdrew have lower levels of CDSE?

These sub-questions lead to or provide two more.

1. What demographic factors contributed to CDSE amongst undergraduate first-year college students in Ireland at the beginning of the twenty-first century?
2. Were those with lower CDSE more influenced by external considerations when making career choices (e.g. parents or career guidance counsellors) at the expense of internal or cognitive factors?

That is, have those who withdraw from higher education in the first year of their chosen educational course lower levels of self-efficacy? Are these students more influenced in their choices by external factors? In other words, have they been persuaded to ignore their own personalities in making these choices? Ultimately does this lead to the realisation of an incorrect choice and withdrawal?

The purpose of this study was to investigate those questions. The intent was to use a quantitative methods approach to the inquiry, obtaining statistical, quantitative results from a sample of students studying at what was then called Dublin Institute of Technology (DIT).

3.3 What is Research?

If we are to come to terms with problems in everyday life, we must research. Research is a means, among other available,¹⁸ of discovering truth. Borg (1963) suggested research is a combination of both experience and reasoning and must be regarded as the most effective approach to the realisation of truth. It is about transforming things one *believes* to be true into things one *knows* as factual or true. According to Mertens, it is “different from other ways of knowing, such as insight, divine inspiration, and acceptance of authoritative dictates” (2010, p. 2). Mertens defines it as:

[a] process of systematic inquiry that is designed to collect, analyse, interpret and use data....[and] is conducted for a varied of reasons, including to understand, describe, predict, or control an educational or psychological phenomenon or to empower individuals in such contexts (2010, p. 2).

In order to solve problems in times past, experience and authority might have been enough. However, “as tools for uncovering ultimate truth they have decided limitations” (Cohen et al., 2011, p. 3). According to Cohen et al. the differences between research and experience in solving problems are threefold. First, experience deals with events in a haphazard manner whereas research is systematic and controlled. Second, research is empirical: the researcher validates the claim through testing. And third, research is self-controlling. That is, there are built-in mechanisms to protect from error, as well as the procedures employed and results presented are open to scrutiny and correction. This process of research has been described by Kerlinger as “the systematic, controlled, empirical and critical investigation of hypothetical propositions” (1970, p. 11).

According to Hitchcock and Hughes (1995) one’s approach to research is based on how one views the world, what is valued in it, and one’s understanding of life and its purpose. They suggest that such views move the researcher beyond research as a technical process into the development of a worldview. The term worldview means “a basic set of beliefs that guide action” (Guba, 1990, p. 17). However, others use different terminology. For example Lincoln and Guba (2000) and Mertens (2010) referred to worldviews as paradigms. Creswell (2009) has suggested that a person’s worldview is influenced by past experiences in doing research, the assumptions of

¹⁸ According to Cohen et al. (2011) people attempt to understand the world in three ways: through experience, by reasoning and by conducting research. Experience, or common-sense knowing, along with the three types of reasoning (deductive reasoning as identified by Aristotle, inductive reasoning as identified by Francis Bacon, and a combination of both: inductive-deductive reasoning) have limitations. Research, approached in a systematic manner, that is tested empirically and is self-correcting may be the best approach to establishing truth.

advisors and academics in educational settings, and the discipline in which the study is conducted. The paradigms typically used in career choice research are either positivism or constructivism, or a combination of both. This study utilised methods based on the assumptions from a positivist paradigm. The assumptions attached to the paradigm or philosophical worldview usually dictate the approach to research. In order to understand the process which guided this study I start, as suggested by Hitchcock and Hughes (1995), by discussing the ontological assumptions (assumptions about the nature of reality and the nature of things) that influence my epistemological assumptions (ways of research and enquiry into the nature of knowledge), which, in turn, influence my methodological approaches, resulting in a quantitative method (survey) employed for the collection and analysis of data. I add to their schema by placing axiological beliefs at the beginning as I believe all studies should be based first and foremost on ethical considerations (figure 3.1(a)).

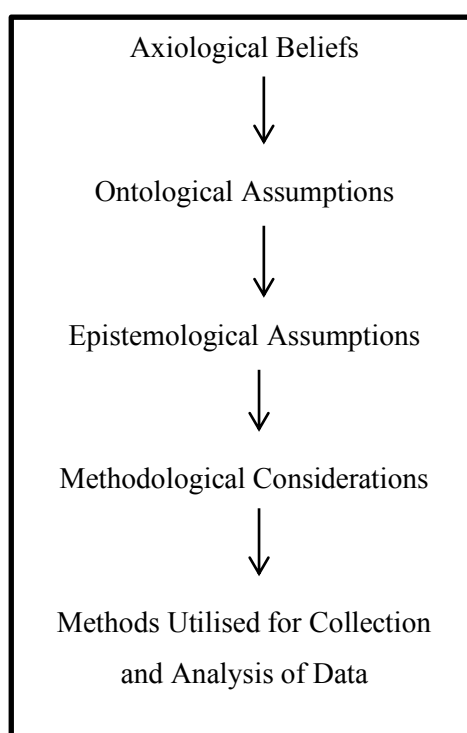


Figure 3.1(a) - Approach to research adapted from Hitchcock and Hughes (1995); Cohen et al. (2011); Mertens (2010) and Crotty (1998)

3.4 Research Philosophy

A researcher should be aware of his/her basic beliefs and view of the world, (i.e. functional paradigm), and the way these influence the approach to research (Mertens, 2010). Those writing on research philosophies in the fields of education and psychology identify several paradigms (ways of viewing the world), but often use different terminology to categorise the same thing.¹⁹

¹⁹ Lather (1992) used the word emancipatory to describe one paradigm or community, while Mertens (2005) described the same category as transformative. And Creswell (2009) used the words advocacy or participatory. All terms describe those who support the philosophy that “change rests in the persons in the

According to Kuhn a paradigm is a “philosophy and/or a community of scholars. It is a way of looking at or researching a phenomena, a worldview, as ideas to what counts or should be accepted or correct scientific knowledge, a way of working, or an accepted model or pattern” (1962, p. 23). Cohen et al. (2011, p. 5) extend this and add that a paradigm is a shared belief system or set of principles, the identity of a research community, a way of pursuing knowledge, consensus on what problems are to be investigated and how to investigate them, typical solutions to problems, and an understanding that is more acceptable than its rivals. This gives rise to such questions as: To what research community do I belong? What philosophical worldview assumptions underpin this present study? What strategy of enquiry is employed? What methods or procedures of research should be used in order to translate the approach into practice? Such questions can only be answered after a review of the paradigms, or communities, that underpin career choice research.

Education, psychology and sociology, the three disciplines within which career choice research finds itself,²⁰ are situated in the social sciences. Social science, originally viewed as akin to the natural sciences had, by the early twenty-first century, widely come to be seen as subjective rather than objective, as a means of dealing with the direct experience of people in specific contexts. Thus, social scientists are expected to understand, explain and demystify social reality through the eyes of different participants; with the participants themselves defining the social reality (Cohen et al. 2011). It is this view of social science (referred to as the interpretive view) which helps shape the philosophies or paradigms under its umbrella.

As stated earlier, this study is primarily situated in the disciplines of education and psychology but not in isolation of knowledge gained from the field of sociology. According to Mertens (2010, p. 6) the four predominant philosophies or paradigms in education and psychology are as follows.

1. *Positivist or post-positivist approach.*
2. *Constructivist approach.*
3. *Transformative approach.*
4. *Pragmatic approach.*

Mertens developed those four paradigms by adapting/extending ideas on educational and psychological worldviews originally presented by Lather (1992) and Guba and Lincoln (1989, 1994, 2005).

community working side by side with the researcher toward the goal of social transformation” (Mertens, 2010, p. 8).

²⁰ Some career choice theory has developed in economics but such theories are not typical and rarely appear in career choice literature.

“The dominant paradigms that guided early educational and psychological research were positivism and its successor post-positivism” (Mertens, 2010, p. 10). The positivist approach is also referred to as the scientific, empirical or scientific method of enquiry. Those belonging to this community believed that the social world can be investigated in the same way as the natural world, through the use of scientific methods which allow for experimentation and measurement of what can be observed. The objective was to establish generalisable laws in order to establish relationships between variables. “Positivists believed that scientific knowledge is utterly objective and that only scientific knowledge is valid, certain and accurate” (Crotty, 1998, p. 29).

From the second half of the nineteenth century scholars began to question the possibility of knowing with absolute certainty as proposed by positivists (Cohen et al., 2011). This community, which has become known as that of the postpositivists, has suggested that positivism fails to recognise the unobservable aspects of human behaviour such as feelings and thinking. Postpositivists have suggested that “we cannot be ‘positive’ about our claims of knowledge when studying the behaviour and actions of humans” (Creswell, 2009, p. 7). Postpositivism rejects the mechanistic and reductionist view of nature held by positivists whereby life is defined by measurable variables. In contrast, the postpositivist defines life through inner experience, choice, freedom, individuality and moral responsibility; thus viewing the world and its occupants as living organisms instead of a machine (Cohen et al., 2011).

3.5 Research Approach

The assumptions attached to the paradigm or philosophical worldview usually dictate the approach to research. Crotty referred to this process as scaffolding. The researcher builds on an initial framework which provides direction and stability but ultimately each person “moves towards understanding and expounding the research process after their own fashion in forms that suit their particular research purposes” (1998, p. 2). Crotty goes on to suggest that there are two central questions when designing a study or inquiry.

1. *What methodologies and methods will be utilised?*
2. *How does the researcher justify the choice of methodologies and use of methods?* (1998, p. 2).

The ordering of these questions might indicate that decisions pertaining to the choice of methodologies and methods take place before assumptions about reality, that is, the theoretical perspective (philosophical view informing the methodology) the researcher brings to the study are made. Such decisions can be informed by epistemological questions including these. What kind of knowledge will the study produce? How should readers of the study regard the outcomes presented? Why should the reader take these outcomes seriously? Such questions must be

answered regardless of the ordering of the steps in the process. In practice there is continuous movement back and forth between one step and another until the completion of the study (figure 3.1(b)).

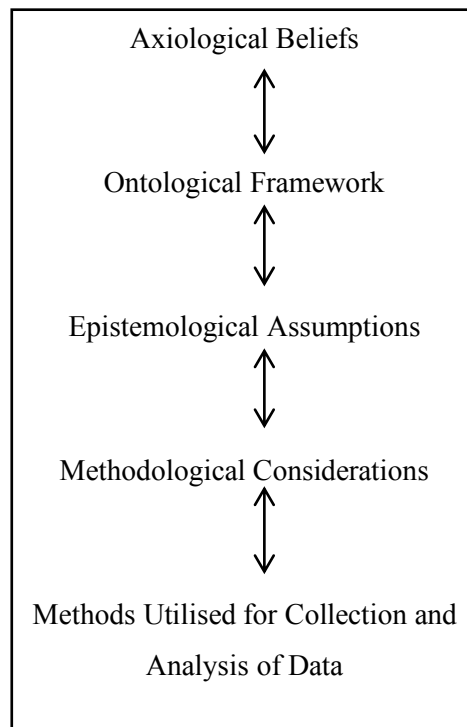


Figure 3.1(b) - Approach to Research adapted from Hitchcock and Hughes (1995); Cohen et al. (2011); Mertens (2010) and Crotty (1998)

3.5.1 Axiological Beliefs

It has been said that “Axiology is the branch of philosophy that considers the nature of value and what kinds of things have value” (Arneson, 2009, p. 69). Cohen et al. define axiology “as the values and beliefs that we hold” (2011, p. 3). An axiological question might be ‘what is the nature of ethics’? According to Arneson (2009) all axiological issues are associated with ontological frameworks and epistemological assumptions. Axiological beliefs are those ethical beliefs of the researcher which may or may not influence the research approach and interpretation of findings. Human communication theory suggests that every researcher makes decisions before, during and after a study in line with his/her axiological beliefs. For communication theorists a primary interest is with the philosophical establishment of the research approach. Arneson (2009) suggests there is an ongoing debate between the two communities of scholars as to the most appropriate approach. At one end of the continuum are those who comply with an established scientific approach; at the other, those who take a more freewheeling or interpretivist approach.

Those who take what might be variously called a conventional, traditional or scientific approach (usually consistent with realist ontology and empiricist epistemology) believe that good research must be free of values in order to be worthwhile. Therefore, it is necessary for the scientist to approach his/her research in a neutral and objective manner. The researcher should attempt to uncover the truth surrounding a theory or phenomena without biasing the study by imposing personal beliefs. Those who support this position generally use quantitative methods of inquiry. In contrast, the interpretivist approach (usually consistent with nominalist ontology and rationalist epistemology) asserts that it is impossible for researchers to be completely free of personal values, as research is always biased towards the values of the researcher. Furthermore, research may be influenced by institutional values as well as political and economic ideologies. According to interpretivists, these biases are sometimes so entrenched in the researcher's culture (e.g. a European socialist or an American capitalist) that they may go unnoticed during research. Those working with an interpretivist view generally use qualitative methods of inquiry (Arneson, 2009).

According to the Belmont Report²¹ (as cited by Mertens, 2010, p. 12) there are three ethical principles and six norms that ought to guide scientific research. These principles are as follows.

1. Beneficence – the study should maximise the effectiveness of the outcomes for science, humanity and the individual research participants and minimise risk, harm or wrong.
2. Respect – for all those associated with the study, including those who are dependent such as small children or those with disabilities.
3. Justice – for those who bear the risk associated with the study should be the beneficiaries and that the procedures are reasonable, non-exploitative, carefully considered and fairly administered.

The ethical norms are as follows.

1. Use a valid research design.
2. The researcher must be competent to conduct the study.
3. Procedures must respect privacy, ensure confidentiality, maximise benefits and minimise risks.
4. The sample selection must be appropriate for the purpose of the study, representative of the population under scrutiny, and sufficient in number.

²¹ The Belmont Report was created by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. The complete title is the *Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research*, Report of the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. It established ethical principles and guidelines for research involving human subjects. It was first published in 1979 by the Federal Register in the United States.

5. Participants must act voluntarily, be informed as to the nature of inquiry, and consent to participate.
6. The researcher must inform the participants if harm will be compensated.

Ethical considerations ought to be taken seriously from the start of the research. This list identifies such considerations during each phase of the study and is summarised in table 3.1.

- **Research design** - during the identification of a research question it is important to identify a problem that, when researched, will benefit those on who the research was conducted (Punch, 2005). The researcher must exercise care not to further marginalise or disenfranchise the study's participants. One way of guarding against this would be to conduct a pilot study to establish trust and respect with the participants and in order to observe if any ethical issues arise before the core study begins. It is important to inform participants of the purpose of the study, its beneficiaries and incidence of exposure in the public domain. Further, it is important to inform participants if the study is sponsored or funded by any organisation and the intention of such funding. Creswell (2009) cautions against deception associated with such issues and recommends clear notification in covering letters or instructional sheets accompanying instruments for data collection. Furthermore, there should be clear understandings on the part of the researcher, participants, sponsors and any others involved as to ownership of the data and, indeed, the findings of the research, both are always to be vested with the researcher in a study such as this. It is advisable to use personal agreements to establish ownership should there be any confusion and to protect against sharing the data with those not involved in the study (Creswell, 2009).
- **Data collection** - during this stage of the study the researcher must ensure participants are not put at risk and that vulnerable populations are protected. Also, if conducting qualitative research such as interviews, the researcher should anticipate the possibility of harmful or intimate information being revealed. For example, a young person may inadvertently reveal some form of abuse (physical or mental). Such revelations should be treated in a professional and compassionate manner but within the law, with illegal activities being promptly reported to the appropriate authorities. The researcher must also be mindful of his/her relationship with the participants. It is not uncommon for participants to feel coerced into completing surveys. This is especially probable if, for example, a teacher uses his/her own students to participate in a study, the teacher is seen as occupying a position of power and the students may, consciously or subconsciously, give the answer(s) assumed to be expected by the teacher.

In order to mitigate against such issues it is advisable that the research proposal, plans and instruments for collection of data are reviewed by what Creswell refers to as “Instructional Review Boards” (2009, p. 89). Such committees exist in colleges, universities and elsewhere (e.g. hospitals) to provide protection against potential human rights violations and possible physical, psychological, social, economic, or legal harms (Sieber, 1998).

- **Analysis and interpretation** – it is important that the confidentiality (when one knows the participants but does not identify them, such as interviewees) and anonymity of participants (when one does not know the participants, such as respondents to a survey) are protected, unless they wish it to be otherwise. Quantitative data are normally generated through surveys and should be presented in aggregate form, while qualitative research, such as interviews, are better presented by using aliases or pseudonyms for people and places to protect identities. It is recommended that data, once interpreted, should be kept in a secure environment and that for not more than 10 years, at which point records should be destroyed.
- **Writing and dissemination** – it is advisable to use unbiased language that does not marginalise participants due to gender, sexual orientation, racial or ethnic identity, disability or age. Researchers must exercise great caution not to distort, suppress, falsify or invent findings to achieve the objective(s) of the study. Such fraudulent practices are not accepted in professional research communities and may constitute scientific misconduct (Neuman, 2000). If the findings are disseminated through conference or journal publications care should be taken to ensure findings and conclusions are not duplicated and to avoid attributing authorship to people not involved in the study. Conversely, those who have been involved should be given the appropriate recognition. Finally, it is important to make public the details of the research so that readers, participants and other researchers can determine the credibility of the study (Newman, 2000).

	Issue	Questions Associated with Issue	Action
1	Explaining purpose	• Method(s) of explaining purpose? • What details are critical to share? • Value of study to society?	
2	Promises and reciprocity	• Benefits for participants? • Reasons for participation?	
3	Risk assessment	• Risks to participants (psychological stress; legal liabilities; political repercussions?)	
4	Confidentiality	• Confidentiality assured? • Anonymity assured? • Statement surrounding illegal issues? • Storage of data? • Length of time of storage?	
5	Informed consent	• Informed consent for mutual protection? • IRB guidelines adhered to? • Timeline for submission of documentation to IRB?	
6	Data access and ownership	• Who will have access to the data and for what purposes? • Who owns the data? • Who has the right to review prior to publication?	
7	Interviewer protection and mental health	• Protection of interviewer? • Possible risk of exposure to sensitive issues?	
8	Advice	• Who will give advice and direction on ethic issues as they arise?	
9	Data collection boundaries	• How hard will researcher push to get data?	
10	Ethical versus legal	• Ethical framework informing the researcher? • Legal requirements?	

Table 3.1 - Checklist of ethical considerations (adapted from Patton, 2002)

3.5.2 Ontological Framework

Crotty does not favour the term ontology in his schema, tending to refer to ontology as the “theoretical perspective” (1998, p. 5). He positions it between epistemological and methodology considerations. Though he identifies subtle differences between the two, he suggests that “ontological issues and epistemological issues tend to merge together” (1998, p. 10). However, for the purpose of this study I have divided the two and positioned ontology before epistemology as I believe the former is broader in scope and informs the latter.

Having established the guidelines and ethical boundaries around the study the next step in the process is the ontological framework. Ontology is the “science or study of being” (Blaikie, 1993, p. 6). It is the study of the nature of things and reality, and influences one’s epistemological assumptions when conducting research. To use the terminology preferred by Crotty (1998), it is the “theoretical perspective” underpinning research. Ontology concerns itself with what is, while epistemology is about understanding what it means to know (Crotty, 1998). An ontological question might be: what is the nature of reality? Ontologists concern themselves with understanding the reality of the world, what a person considers reality to be, its purpose and value in the context of his/her respective environment (Crotty, 1998; Cohen et al., 2011). According to Cohen et al. people understand the environment around them by using three types of reasoning: deductive, inductive and inductive-deductive. In addition to those, research may also contribute to understanding.

1. Deductive reasoning is based on Aristotle’s contribution to formal logic. In simple terms this means a top down approach to logic, where one begins with a general theory and through a series of formal steps, from the general to the specific, attempts are made to prove or disprove a theory (figure 3.2). Here a hypothesis or idea is empirically tested and a valid conclusion drawn. Deductive reasoning is more narrow in nature and may lead to the confirmation, or not, of the hypothesis. A deductive argument is either valid or invalid; that is, either true or untrue, black or white in nature. Those following this school of thought are more likely to discover truth through quantitative means.

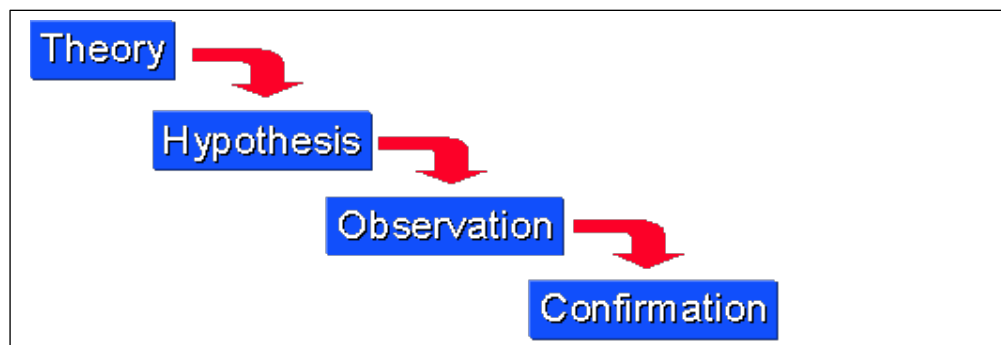


Figure 3.2 - Deductive approaches to research

2. Inductive reasoning is based on Francis Bacon’s contribution to reasoning. Bacon queried the basic premise of deductive reasoning which suggests that truth is based on preconceived notions which may bias conclusions drawn (Cohen et al., 2011). Inductive reasoning approaches inquiry through a bottom up approach which involves the study of a number of individual cases through observation and measurement, leading to the discovery of possible patterns or regularities, which in turn leads to a hypothesis and eventually to a generalisation or theory (figure 3.3). An inductive argument attempts to establish truth by way of strong probability. In other words, if truth is found to be highly probable then it is unlikely to be

incorrect. Those following this school of thought typically use qualitative methods of enquiry to discover truth.

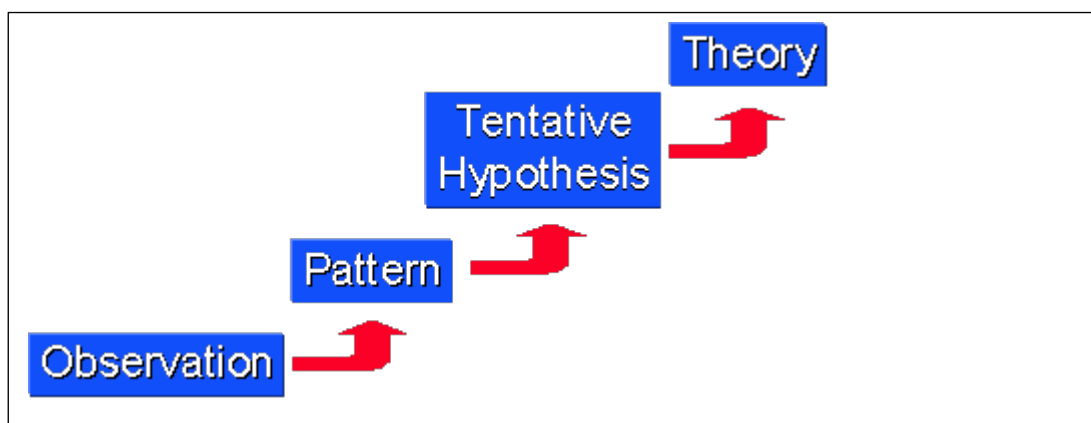


Figure 3.3 - Inductive approaches to research

3. Inductive-deductive reasoning is a combination of the Aristotelian and Baconian approaches. With this approach the researcher is continuously moving from the general to the specific and back to the general, adjusting or improving the hypothesis each time. It is a cyclical process where each approach informs the other. Those conducting research based on this approach are more likely to use mixed methods in the pursuit of truth.

The concept of reality or existence can be understood in any of the five ways: realism, rationalism, empiricism, nomalism and conceptualism. For detailed explanations of these see Crotty (1998), Mautner (2005), and Jupp (2008). There are traditional relationships between these ontologies and certain epistemologies. For example, realism is typically coupled with positivism; conceptualism with post-modernism. However, according to Crotty “seemingly opposing ontological-epistemological pairings are in fact quite compatible” (1998, p. 10).

A researcher must align him or herself with a school of thought in order to advance the study. There must be a theoretical framework underpinning the approach to the research based on the author’s position on reality and truth. For me, truth is realised from a rationalist viewpoint, where rationalism exists on a continuum with empiricism. At one end of the continuum the rationalist believes that knowledge is gained independently of experience while at the other the empiricism believes experience is the primary source of knowledge. I situate myself on this continuum but move one way or the other depending on the situation.

One of the central questions a rationalist concerns him or herself with is: what are the limits of one’s knowledge? Some aspects of the world may be within the limits of thoughts but beyond the limits of knowledge. If this is so, is it possible to form true beliefs by making lucky guesses? This gives rise to another important question: how does one gain warranted beliefs? For some

rationalists warranted beliefs are those that go beyond even the slightest doubt, while for others such beliefs (warranted) are simply beyond a reasonable doubt. Another dimension of rationalism depends on how its proponents understand the connection between intuition and truth. Some view intuition to be infallible claiming that whatever a person intuitively must be truth. Others allow for the possibility of falsely intuited propositions.

However, Loeb (1981) and Kenny (1986) have cautioned against such simplified classification, suggesting that the views of individual researchers are more subtle and complex. It has been suggested that rationalism and empiricism can exist side-by-side so that a person can approach one situation in a rationalist way and another as an empiricist.

3.5.3 Epistemology Assumptions

Maynard had suggested the relevance of thinking about epistemology in research lies in its “providing a philosophical grounding for deciding what kinds of knowledge are possible and how we can ensure that they are both adequate and legitimate” (1994, p. 10). Epistemology deals with “the nature of knowledge, its possibility, scope and general basis” (Hamlyn, 1995, p. 242). It is a way of understanding and explaining “how we know what we know” (Crotty, 1998, p. 8). An epistemological question might be: ‘What is the nature of knowledge and how it becomes known?’ Thus, it becomes necessary to identify how I know what I know. I must identify my personal beliefs concerning the creation of knowledge. To this end I reflect here on my own approach in the search for truth.

I have lived my life theorising, looking at phenomena in my social world and wondering if they were true or not. An example of this might be a situation I have observed at the gym I use. This facility has two car parks; one at the gym itself, the other two minutes’ walk away. Every day many arriving by car choose to queue outside the main carpark waiting for a space to become available, waiting times may be up to 15 minutes, possibly longer. Surely this is in contradiction with the very point of attending a gym? I surmise that these people are mostly lazy, and though they are attending the gym, presumably for exercise, they refuse to walk the two minutes from the other carpark. Of course talking to one or two of these people would give an indication of the reason(s) for this phenomenon. However, in my view, a survey conducted on a statistically representative sample would be more worthwhile and allow for solid conclusions to be drawn. I have always considered truth to exist in the general, that is, if the majority of the population under review qualify the theory then it must be true. Thus, my natural inclination when investigating a casually constructed theory is to conduct a survey. However, I also appreciate the importance of the specific, that is, inquiry through qualitative methods such as interviews. Qualitative approaches help explain the why of the phenomenon whereas the quantitative simply confirms its existence. The qualitative method of inquiry helps to establish the causes behind the phenomena; to

establishment the cause-effect relationship. I believe, in the pursuit of truth, a general inquiry must be conducted first (e.g. a survey) and subsequently qualified through a more precise lens such as a focus group or interview. I contend that there are only two possible approaches when investigating the social world, a quantitative or qualitative approach. It is my belief that either of those, or both, gives way to the discovery of ultimate truth. Thus, this study is based on a positivist position (quantitative survey). Although I appreciate the value of including qualitative methods of enquiry, this study did not set out to do so. To justify this stance or choice, a more detailed review of the positivist epistemological view is necessary. I also include a review of constructivism in order to acknowledge its emergence as an approach to enquiry in the fields of education and psychology.

3.5.3.1 Positivism

In the field of career or vocational psychology Collin and Young (1986; 2000) have observed that, to-date, career choice theories have been largely developed within organismic and/or mechanistic worldviews. The organismic worldview sees human development as an orderly, maturational or unfolding process. The individual is seen as responsible for movement towards the next stage of personal development, and any problems that may develop during this process are viewed as the fault of the individual decision-maker (Patton & McMahon, 2006). This worldview provided the basis for the development of stage-based models in vocational psychology. It is a mechanistic perspective that views the world as operating in much the same way as a machine. It is proposed that people think in straight lines, from the general to the particular, and that life can be explained in 'cause and effect' terms (Patton & McMahon, 2006).

Brown notes "most theories of career choice and career development are rooted in logical positivism" (Brown, 2002, p. 12). Since its birth in the early twentieth century career choice as part of decision-making theory has been steeped in the traditions of the positivist worldview (McMahon & Patton, 2006). Explanations of career choice rooted in positivism in this way include those of Parsons (1909), Super (1949), and Holland (1997).

In the positivist view career counselling involves quantitative assessment, diagnosis and prediction. The career counsellor assumes the role of expert advisor, providing answers based on objective data ascertained through quantitative assessment instruments, with the career decision-maker fulfilling the role of passive responder. This can be seen as an analytical process with an emphasis on rational planning and suited to a stable working environment. The commonly used 'matching model' of career choice falls within the positivist paradigm, where the concrete reality of a career for life is what is being sought (Barnes et al., 2011).

This person-environment fit approach (referred to as trait-factor approach in the early history of career guidance as a field) concentrates on occupations and the types of people who fill them. In this approach career guidance identifies a few stable traits or personality types that differentiate people in meaningful ways related to occupational requirements. Tests are then used to measure these traits and to match individuals to appropriate occupations that lead (ideally) to job success and satisfaction (Savickas, 2005).

The necessary assumptions of positivism are relatively straightforward and can be summarised as follows (Brown, 2002).

- People can be studied separately from their environments and can be subdivided into categories for study.
- Human behaviour can be objectively observed and measured with behaviour operating in a lawful, linear fashion.
- The tradition of the scientific method is the accepted paradigm for identifying facts about human behaviour.
- The contexts (environments) in which people operate are either neutral or deemed relatively unimportant so that the focus of inquiry should be the actions of those being observed.

However, perhaps an error in the basic assumptions of positivism is the assertion that the environment is neutral. Sociological theorists such as Blau and Duncan (1967) and psychologists such as Holland (1997) have suggested that environments are very influential for career decision-makers. Blustein and Ellis (2000), writing from a position that diverges from positivism, that of social constructivism, recommend making assessment tests more environmentally and culturally sensitive. Brown supports this and writes, "the cultural context in which occupational choice takes place is receiving increased attention" (2002, p. 13).

Savickas proposes career counselling “keep pace with our society’s movement to a postmodern era and that its practice move from seeking truth to participation in conversations; and from objectivity to perspectivity” (1993, p. 205). Understanding of career choice has evolved and the notion of *lifespan* career development has become more widely canvassed (Patton & McMahon, 2006). Following decades of extensive and seemingly irreversible change in the world of work, the discipline of career counselling in the early twenty-first century was called on to modernise the practice of advising and guiding the career decision-maker. The expectation of a job for life had been called into question during the late 1990s and there was a move to a career being something that people ‘constructed’ throughout their lives (Barnes et al., 2011).

The need to develop the ability to navigate career pathways grew in the latter part of the twentieth century and the beginning of the twenty-first. The impact of economic recessions, globalisation, and the increasing use of information and communication technologies (ICT) proved influential in creating constant change in people’s experiences of careers: In the UK, a report produced by the Skills Commission in 2008 to review current models used by those in careers education and guidance and entitled *Inspiration and Aspiration; Realising our Potential in the 21st Century*, pointed out that:

[t]he matching model has remained the dominant influence on guidance since the model’s formulation in the first decade of the 20th [sic] century. There is an urgent need to recognise that the matching model is flawed and move beyond this approach (Skills Commission, 2008, p. 20).

In the positivist worldview the assessment process is viewed as neutral. Change is promoted only after the assessment, with the counsellor planning interventions on the basis of the assessment results (McMahon et al., 2003). Athanasou (2007) cautions against this person-environment fit approach as the quantitative assessment used may suffer limitations due to difficulties in generalisability. That is, it may not suite all types of personality. Athanasou goes on to suggest that “client centred counselling rooted in constructivist approaches is in part a reaction against directive counselling rooted in positivist approaches” (2007, p. 15).

Positivist traditions, with their emphasis on rational planning, although perhaps suited to stable environments, had begun to be rejected in favour of constructivist approaches by the early twenty-first century. “The continued use of the traditional models with an emphasis on matching people to jobs has been questioned” (Barnes et al., 2011, p. 1). Constructivist approaches, where career choice is viewed as holistic, so that work and personal life are inseparably intertwined, began to emerge and develop. Such a view advocates that the person making the career choice is an expert in his/her own life and that we should all be actively constructing our careers (McMahon & Patton, 2006). This contrasts with the analytical positivist approach. The constructivist approach is more

descriptive. However, perhaps both are necessary with Athanasou writing “both the analytical and descriptive perspectives are seen as complementary, neither is considered adequate as a complete basis for career exploration and decision-making” (2007, p. 7). Table 3.2 represents a comparative analysis of the positivist and constructivist approaches.

	Positivism	Constructivism
Focus of inquiry	Objective	Subjective
Nature of reality	Absolute truth	Constructed reality
Methodologies/research design	Quantitative approach	Qualitative approach
Research methods	Analytical	Descriptive
Values of researcher	Value-free	Value-laden
Subjects/participants	Passive responder	Active participant
Cognition	Facts	Feelings
Context/environment	Closed-system	Open-system
Outcomes	Generalisability	Specificity

Table 3.2 - Comparative analysis: positivism versus constructivism

3.5.3.2 Constructivism

Constructivism is rooted in the work of the American psychologist George Kelly (1955). Kelly proposed that in order to understand humans it is necessary to consider each person’s construction of reality. The individual decision-maker has to try to impose some structure on his/her experiences by looking for recurring themes or patterns, which Kelly describes as *constructs*. With the assistance of counsellors the decision-maker can make a career choice based on these themes or patterns from the past. In other words, past experiences, or stories, can assist in predicting successful experiences of the future. Theories based on constructivism include: Ginzberg et al. (1951), Super (1953; 1957; 1990), Gottfredson (1981), and Savickas (2005). The constructivist approach can be seen as qualitative, descriptive, idiographic and holistic in scope (McMahon, Patton & Watson, 2003).

Emerging in a number of fields within the social sciences (for example, Collins and Young [1986] in career psychology, and Steenbarger [1991] in counselling psychology) is a contextual worldview that focuses on the world simply as *events* in a unique historical context (Patton & McMahon, 2006). Savickas sums this up by saying: “the constructivist approach views careers from a contextualist perspective, one that sees development as driven by adaptation to an environment rather than by maturation of inner structures” (Savickas, 2005, p. 43).

The contextualist worldview involves a constructivist epistemology, as opposed to the traditional objectivist or positivist epistemology. To clarify the differences in these two positions, it may suffice to say that positivists emphasise rationality based on a belief in the possibility of having objective value-free knowledge, with objectivity valued over subjectivity, and facts over feelings. On the other hand, constructivists argue against the possibility of absolute truth. Constructivism is directly derived from the contextualist worldview in that the reality of world events is constructed from the inside out, through each person's thinking and processing. "Careers do not unfold, they are constructed as individuals make choices that express their self-concepts and substantiate their goals in the social reality of work roles" (Savickas, 2005, p. 43).

An implication of this is that constructivism views the person as an open system, constantly interacting with the environment, seeking stability through continual change. The essential tenet of social constructivism is that people actively construct their own realities. The necessary underlying assumptions of social constructivists are as follows (Brown, 2002, p. 14).

- All aspects of the universe are interconnected. It is impossible to separate figure from ground, subject from object, and people from their environments.
- There are no absolutes, thus human functioning cannot be reduced to laws or principles.
- Human behaviour can only be understood in the context in which it occurs.
- The subjective frame of reference of human beings is the only legitimate source of knowledge. Events occur outside human beings. As individuals understand their environments and participate in these events, they define themselves and their environments.

As constructivism represents an epistemological position that emphasises the decision maker as the central focus (as opposed to positivism which makes the career counsellor central), it provides a perspective from which to conceptualise changing views as to the nature of career in postmodern society. These include the importance of people becoming more self-directed; understanding the impact the work environment has on their lives, and the importance of managing their careers (Richardson, 1993; 1996). The emphasis is on describing the process, not the outcome, with no sense of a career as necessarily involving completion of one stage and arrival at the next as in stage-based views of human development. "Career construction theory asserts that the individual construct his/her career by imposing meaning on their vocational behavior and occupational experiences" (Savickas, 2005, p. 43). In contrast to positivism, which asserts a single (stable and external) reality, one of the key principles of constructivism is its emphasis on the active nature of humanity, claiming that people actively participate in the construction of their own realities (Patton & McMahon, 2006).

Barnes et al. (2011, p. 133) outline four key points when applying constructivism to learning about career, occupational choice and development.

1. *Knowledge about career is not something that people acquire. The career decision-maker is not an 'empty vessel' that can be 'filled up' with career information, assuming that he/she will then be able to make a decision.*
2. *Knowledge about career is constructed through activity.*
3. *Knowledge about career is constructed in interactions with others, including career, learning and development (CLD) professionals, other teachers, parents, peers and so on. Career decision makers need opportunities for discussion in order to construct new knowledge.*
4. *People construct knowledge in their social and cultural contexts.*

In describing constructivist career assessment, Brott (2004, pp. 189-190) states: “post-modern approaches emphasise assessments as providing pieces of information to be woven into the client’s story to form a more holistic and integrative picture of the client”. Brott (2004, pp. 191-192) described this as a “storied approach” and listed assessments associated with three phases of career counselling as follows.

1. Co-construction phase – the emphasis is on uncovering elements of the career decision makers past, where the client’s story is seen as a sequence of chapters. The process is collaborative.
2. De-construction phase – the emphasis is on taking different perspectives of the client’s past, the links (if any) within and between chapters become important where the purpose is for the counsellor and client to identify meaning. The content becomes the patterns or themes in the client’s life.
3. Construction phase – the emphasis is on planning or visualising elements of the decision-maker’s future. The chapters in the story are continued and the process involves building upon the themes and meanings that have evolved. The purpose is to emphasise the type of life that is wanted and at the same time reduce the aspects of life that are not wanted.

3.5.3.3 Positivism versus Constructivism

At this stage it becomes appropriate, having described them at some length, to weigh up the merits of these two accounts of careers and career planning or decision-making: the positivist and the constructivist. Which better fits the facts of how modern life is lived, work done and decisions about careers made? And if we have some room for choice to plan in one way or another (or in guiding others in how to plan) which should we prefer? A significant difference between the positivist worldview and constructivism is that the latter holds “human functioning cannot be

reduced to laws or principles, and cause and effect cannot be inferred” (Brown & Brooks, 1990, p. 11). Thus, the objectivity of assessment informed seemingly objective, but perhaps spurious test results is replaced by subjectivity, as workers are encouraged to define themselves and to refer to the subjective sources of their knowledge (Mahon et al., 2003).

Positivist approaches to counselling have seen the counsellor in a central position, often as a provider of information, or in a directive role fixing a problem or advising on a solution. In the constructivist approach guidance counselling is not about advising on an occupation for the decision-maker, but investigating the kind of life in which he or she will be happy (Vahamottonen, 1998). Constructivists are less directive and aim to facilitate exploration and restructuring, where the counsellor and the client join to construct and reconstruct meanings considered important in the latter’s life (Patton & McMahon, 2006).

Constructivist theories of career choice and career development offer a contrasting perspective to person-environment fit theories. They are based on a phenomenological view in which one’s perceptions of the world are critical in making a career choice. The gathering of information on the career decision maker in the positivist approach is quantitative, while in the constructivist approach it is qualitative, descriptive, idiographic and holistic in scope, and “designed to obtain as complete an understanding as possible of work and family relationships” (Athanasou, 2007, p. 16).

If we adapt or advocate the constructivist approach, the process of career counselling is used to assist the career decision-maker uncover themes and meanings through personal stories so that he/she can take action in some preferred way(s). The emphasis of theories of the positivist kind is on person-environment fit and latent traits, whereas constructivist theories give priority to decision-makers’ backgrounds and the meaningfulness of situations. The latter involves analysing the person’s life and situation so that themes and meanings relevant to career development may become apparent. In a constructivist approach it is proposed that “when these themes and meanings become self-knowledge they provide the basis for personal reflection, understanding, and future action” (McMahon, Patton & Watson, 2003, p. 195). Researchers who class themselves as constructivists propose that people making such decisions be encouraged to define themselves and their environments and create their personal stories, and “explore the storied self as a means of creating knowledge and meaning” which will assist in the successful and fruitful selection of a career (Brott, 2004, p. 190).

The net result of this is that the active role of the individual in the career counselling process is most emphasised in the constructivist approach. The career counsellor’s aim is thus to work collaboratively with the career decision-maker, focusing on holistic approaches to life-career, and encouraging all of us to actively reflect on, revise and reorient our life-career relationships.

Savickas suggests that “qualitative assessment emphasises the counselling relationship rather than the delivery of the service” (1992, p. 355). The career decision-maker thus becomes more involved in the counselling process as the assessment is grounded in his/her own lived experience about which they are the experts, and from which they will each have a story to tell. With this rebalancing of the relationship the position of the decision-maker is elevated from that of “passive responder to that of active participant” (Mahon & Patton, 2006, p. 9).

One way to sum this up could be to say theories of career choice rooted in positivism “might be classed as assessment of the person”, while the “constructivist approach might be classed as assessment for the person” (Athanasou, 2007, p. 24). However, the process of career choice does not occur in a vacuum but in the reality of human encounters. It arises from the efforts of the career decision-maker through dealing with decisions, choices and occupational concerns. The use of both positivist and constructivist approaches may thus be required to meet the existential problems encountered in the process of describing and accounting for people’s occupational choices. Athanasou concludes “it is not just a matter of methodology” (2007, p. 24).

3.6 Summary of Discussion on Methods Used for Collection and Analysis of Data in this Work

Methods are the “techniques or procedures used to gather and analyse data related to some research question or hypothesis” (Crotty, 1998, p. 3). This study seeks to find answers to the questions outlined earlier. Objective, empirically verifiable knowledge is sought in order to answer those questions.

Quantitative research is generally derived from a deductive approach to theory construction. In contrast, the qualitative conceptualisation of research implies an emphasis on processes and meanings that are defined differently or not measured under controlled conditions. Those following qualitative research methodologies emphasise the socially-constructed nature of reality, holism, exploration, flexibility, meaning-making and understanding. Qualitative research is generally derived from an inductive approach to theory construction. Instead of ignoring or defending particular research approaches, it may be possible, and more fruitful, to see both qualitative and quantitative approaches as parts of a continuum but not as irreconcilable opposites (Harrits, 2011; Hall, 2012). Informing the decision as to how to proceed with a piece of work should be “the worldview assumptions the researcher brings to the study; procedures of inquiry (called strategies); and specific methods of data collection, analysis and interpretation” (Creswell, 2009, p. 3). Thus, the epistemological position above (positivism) had direct implications for this work, as such, I have therefore used a quantitative method for this study.

3.6.1 Literature Review

A literature review (as depicted in figure 3.6) is a review of relevant literature which can also bring focus to a study (Patton, 2002). It can assist in answering such question as: what is already known/not known? What are the current theoretical issues? Creswell (2008) advises that such a review will prevent conducting a study that replicates prior research and will assist in building on existing knowledge. However, Patton (2002) cautioned that reviewing the literature, especially for a qualitative study, may bias the researcher's thinking and reduce openness to whatever emerges in the primary research. A literature review may take place before, during or after data collection. For this study the literature review took place before the data collection, which is typical for a quantitative study. However, this proved to be a dynamic process with the chapter ebbing and flowing until the final version of it above. The literature was also incorporated into an analysis chapter at the end of the study; that is, a comparison of the results with prior predictions or expectations made at the beginning.

Creswell defined a literature review as a “means of locating summaries, books, journals, and indexed publications on a topic; selectively choosing which literature to include....and then summarizing the literature in a written report” (2008, p. 9). Such research skills are only developed over time. Initially in order to situate the topic I conducted a review of relevant official reports. Such reports as those produced by the Higher Education Authority of Ireland were used to contextualise the topic in relation to withdrawal rates in higher education in Ireland. This was done to establish the existence and extent of the phenomenon. Following this, the literature review process started with the identification and variations of the terminology associated with the topic. For example, depending on the researcher and/or the point in time during the twentieth and the beginning of the twenty-first centuries, the terminology varied from vocational choice to occupational choice and career choice. By 2015/16 the term educational choice was becoming more commonplace in the literature. This facilitated a general search for and of books on career choice and its associated quandaries. Taking a broad approach was, I soon discovered, necessary, as this topic covered three disciplines. In order to gain a clear understanding of the topic it was necessary to identify its origins, widely considered to be in writings by Parsons (1908). This gave me a foundation. Thus, books were the primary source of information providing an overview of the topic. What I term here as the breath. These included, but were not limited to, *Career Decision Making* (Walsh & Osipow, 1988); *Theories of Career Development* (Osipow & Fitzgerald, 1996), the *Career Choice and Development* series by Brown (1984; 1996; 2002); *Career Development and Counselling: Putting Theory and Research to Work* (Brown & Lent, 2005); *Career Development in Childhood and Adolescence* (Skorikov & Patton, 2007) and *Career Information, Career Counselling, Career Development* (Brown, 2012). Throughout the twentieth and twenty-first centuries as the topic grew in popularity and became a discipline in its own right a considerable body of research began to develop. Academic journals focusing on the matter began

to emerge allowing for the wider availability of this research. These journals included the *Journal of Adolescence*, the *Journal of Vocational Behavior*, the *Journal of Behavioral Decision Making*, *Journal of Adolescence Research*, *Psychological Reports*, *British Journal of Guidance and Counselling* and the *Journal of Counselling Psychology*. Articles appearing in these, and others, provided what I describe as the depth of this study. Furthermore, during this time certain researchers working in the field wrote exclusively on the discipline. These included the occupational psychologist Donal Super, the occupational sociologist Carroll Shartle, the clinical psychologist Stephen D Brown, the vocational psychologist John L Holland and the psychologists Albert Bandura and Nancy Betz. Throughout the research process the researchers who became synonymous with the topic gave direction to it. This I describe as the particular. Thus, it may be said that, once informed by the topic and associated research questions, the literature review followed a three-step process as depicted in figure 3.4.

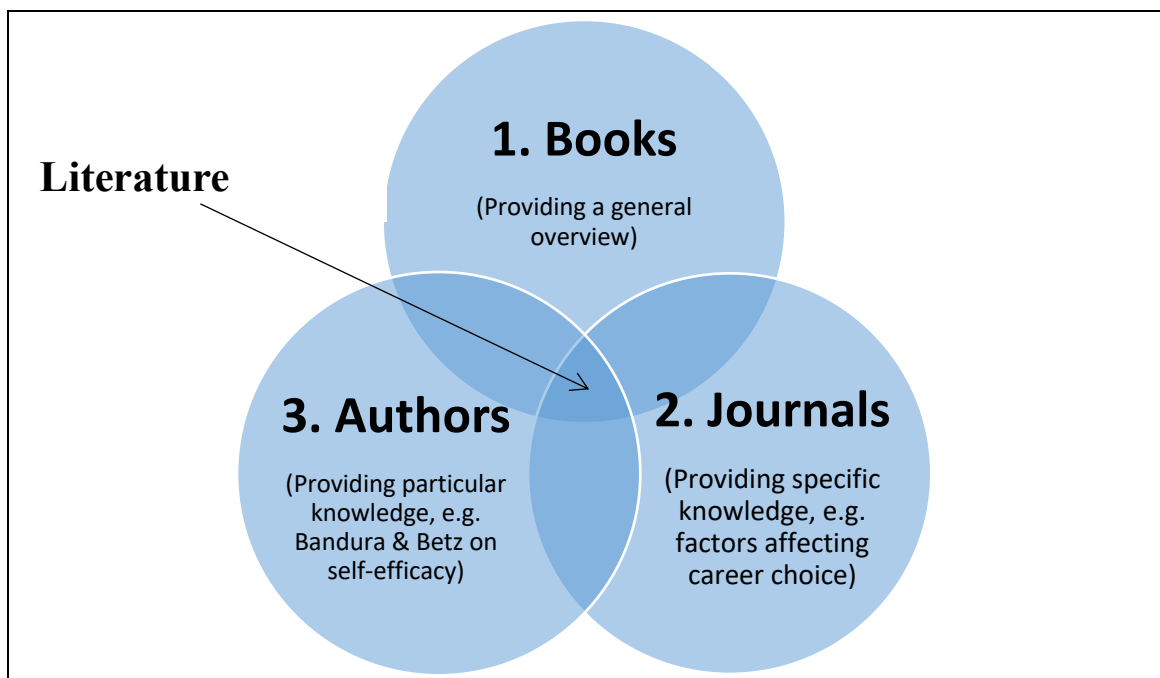


Figure 3.4 - Study resources

I obtained information through university libraries and computerised databases including ScienceDirect (www.sciencedirect.com), Educational Resources Information Center (www.eric.ed.gov) and PsycNET (www.psycnet.apa.org). Such information has been referred to as “primary empirical research” or primary sources (Mertens, 2010, p. 89). Reports associated with the study were sourced from such organisations as the OECD and HEA. Newspaper articles in such publications as *The Irish Times* and *The Guardian* also proved fruitful sources of personal career-related stories. Such information has been referred to as secondary sources (Creswell, 2008).

The literature review was completed during the first two years of a six year cycle. However, throughout the study the literature ebbed and flowed. Later in the study as issues emerged from the primary data it became necessary to research these and include associated empirical research. This culminated in a chapter of circa 28,000 words and helped me focus and inform the research questions.

3.6.2 Survey

A survey was used for data collection from three cohorts of full-time first year undergraduate students registered on level seven and eight courses at what was then called DIT during the academic years of 2016/17 and 2017/2018. This survey may be considered cross-sectional (as opposed to longitudinal [Creswell, 2009]) with the data collected during two academic years. For comparative analysis three groups were necessary: the first, students who were continuing to year two of their chosen course of study (this group became the control group for the study); the second, those who were withdrawing from college, and third, those failing examination(s) but showing persistence through the re-taking of examinations. The Dublin Institute of Technology has circa 12,000 registered full-time students of whom around 3,500-4,000 are new entrants (first years) annually. Statistics show that, in any year and dependent on their courses of study, up to 33% of them will dropout during the first year of study. A survey was designed to allow for a larger number of respondents in order to achieve a sample statistically representative of the population, which for the two academic years of the study was 7415 students. This allowed inferences to be made about the population. For group A (those continuing to second year) the survey was administered to classes which were “conveniently selected” (Creswell, 2008, p. 161) across the first-year student population on level seven and eight courses. For group B (those who formally withdrew from DIT) the survey was self-administered and this was done in the company of Retention Officer as part of the exit process. That is, those who chose to engage with the withdrawal process and attend the DIT Retention Office were asked to participate in the study; these students were thus “self-selecting” (Creswell, 2008, p. 163). Group C consisted of a “convenient sample” (Creswell, 2008, p. 161) of those who were repeating examination(s) in order to progress to the second year of his/her course of study. Online surveying was not something I considered due to its poor response rate.

The survey was divided into four parts.

1. General demographic questions establishing such things as: age, sex, ethnic and socioeconomic backgrounds.
2. Factors influencing career choices.
3. Factors influencing withdrawal from college.
4. Career decision self-efficacy.

The first three parts were constructed using information from the literature review and prior knowledge from similar research. These questions were structured requiring answers based on the Likert scale, or closed questions with suggested options requiring respondents to pick one or more. The final part used the original Career Decision Self-efficacy (CDSE) measure as developed by Betz and Taylor in 1983. This instrument consists of 50 questions divided into five sections which measure a person's degree of belief that he/she can successfully complete tasks associated with career choices. This instrument was chosen as it is designed specifically to measure the career self-efficacy levels of students or young adults. Parental or guardian consent was not required as the population and sample were all of adult age (18 or over). Cross-correlation between all four sections was used in order to confirm, or cast doubt on, the research objectives. A copy of the survey and cover page can be found in appendix one.

3.6.3 Population and Sample

"Population is the group to whom you want to apply your results" (Mertens, 2010, p. 4). It is the entire group of subjects for whom the findings may be extrapolated, but usually for reasons such as size and accessibility a sample is chosen for study. Creswell describes it as "the unit of analysis....of a group of individuals who have the same characteristic[s]" (2008, p. 151). For this study the population, or group of subjects, was 7415 full-time first year undergraduate students registered at DIT on level seven and eight courses. The sample was conveniently selected by compiling a list of all qualifying programmes (level seven and eight programmes – 197 programmes) and every third programme from that list selected to participate (49 programmes). Access to 32 programmes was achieved (programme chairs afforded my attendance at his/her class for the administration of the survey) and of those present on the day (every student present completed a survey) 714 surveys were completed. This represented 47% of all registered students on these 32 programmes (1505 registered students). Within the population a sub-population (group B) of students who *formally*²² withdrew from their courses of study was identified. Statistics

²² Students who formally withdraw are those who present themselves to the institute and engage in the formal withdrawal process (complete the necessary paperwork), internal statistics show this to be circa 200/250 students annually. The remaining students who withdraw just leave (dropout), failing to engage in a meaning full way with the institute and can be in the region of 500 to 600 students annually (circa 18% of first year intake).

produced by the institute show this to total between 200 and 250 students in any given academic year (September to June). Group B had the common characteristic of withdrawing from college. Since this research involved a comparative analysis a third population (group C) was identified. That is, those students who failed some examination(s) but chose to persist and re-take the examination(s) in an effort to progress. This sub-population is considered larger but the institute was unable to produce accurate statistics on the group (that is, those failing and re-sitting examinations annually). An informal calculation by the examinations office estimated the number of repeat students over the two academic years of the study to be 455.

Since it was not possible to survey the entire population or sub-populations (census) a sample representative of each was sought. A sample is “the group that you have chosen from your population from which to collect data” (Mertens, 2010, p. 4). In other words, a sample is a subgroup of the targeted population. The idea with sampling is that those chosen are representative of the population. That is, those sampled are typical of the population under study. This is also known as “probability sampling” (Creswell, 2008, p. 153). This enables one to draw conclusions from the sample about the population as a whole. The sample for population A (those continuing on to year two) was 1505 students and this resulted in 714 (47%) completed questionnaires. For group B (those withdrawing) the survey was self-administered to those who formally withdrew from DIT and this was done in the company of the Retention Officer as part of the exit process. This resulted in 164 (38%) completed useable questionnaires from a total of 432 withdrawing students. Group C were selected using convenient sampling as they left the supplemental examination, that is, as the student exited the examinations hall he/she was asked to participate in the study. This resulted in 172 (38%) completed useable questionnaires of the circa 455 repeating students. The total number of useable questionnaires was 1050 for the three groups. Table 3.3 demonstrates that the sample sizes were representative of the DIT first-year undergraduate levels seven and eight populations using the following equation:

$$\text{Ideal Sample Size} = (Z\text{-score})^2 * \text{StdDev} * (1 - \text{StdDev}) / (\text{margin of error})^2 \text{ (Mertens, 2010).}$$

Confidence levels of 99% and 90% (Z-score), a standard deviation of .05, and a margin of error (confidence interval) of +/- 5% were used for the equation.

Population	Confidence Level	Margin of Error	Ideal Sample Size	Actual Size
7415	99%	+/- 5%	609	714 (control)
432	90%	+/-5%	167	164 (withdrawal)
455	90%	+/- 5%	170	172 (repeat)

Table 3.3 - Sample size calculations

From the above I determined that the sample was representative of the student population at DIT.

3.6.4 Validity and Reliability

This study involved a quantitative method of enquiry. According to Patton (2002) validity in quantitative research is dependent on careful construction of the instrument of research to ensure that it measures what it is supposed to measure. The instrument must then be administered in an appropriate, standardised manner and in line with the prescribed procedures. Here the focus is on the measuring instrument, the test items and the question structure and layout. Mertens made a connection between validity and the ethical standards of the study. She suggested three types of validity (Mertens, 2010, p. 83).

1. *Methodological validity concerns the soundness or trustworthiness of understandings warranted by our methods of inquiry, particularly with reference to the measurement instruments, procedures, and logic of inquiry.*
2. *Interpersonal validity refers to the soundness or trustworthiness of understandings emanating from personal interactions.*
3. *Consequential validity refers to the soundness of change exerted on systems by evaluation and the extent to which those changes are just.*

Reliability is primarily associated with quantitative methods though not exclusively. Qualitative reliability indicates that the researcher's approach is consistent across different researchers and projects (Creswell, 2009). For quantitative methods Creswell suggested selecting an instrument that reports individual scores that are reliable and valid. Here reliability means that "scores from an instrument are stable and consistent" (2008, p. 169). Scores should be nearly the same when the instrument is used multiple times, in different settings and at different times. Furthermore, scores need to be consistent. This means when a person answers certain questions one way, he/she should consistently answer closely related questions in the same way. Several things can result in unreliable data.

1. *Questions on instruments are ambiguous and unclear.*
2. *Procedures of test administration vary and are not standardised.*
3. *Participants are fatigued, are nervous, misinterpret questions, or guess on tests.* (Rudner, 1993, cited in Creswell, 2008, p. 169).

The central focus of this study was career self-efficacy and the possible connection between low self-efficacy and third level college withdrawal rates amongst first year students at DIT. The instrument chosen to measure efficacy levels was the original Career Decision Self Efficacy scale (CDSE) as developed by Betz and Taylor and tested for validity and reliability by them in 1983. The instrument consisted of 50 questions divided into five subscales (accurate self-appraisal,

gathering occupational information, goal selection, making plans for the future and problem solving). The five career choice competencies as established by the Crites model of career maturity, assessed in the Career Maturity Inventory, formed the basis for the scale construction (Crites, 1978). While testing validity and reliability I obtained responses using a 5-level confidence continuum ranging from one (not at all confidence) to 5 (very confidence).²³ The original scale used 10 levels. However, in 2005 Betz et al. proposed shortening the response scale to five. They concluded that this change did not affect the psychometric quality, either as to the accuracy of the responses (i.e. internal consistency) or the estimates of convergent and discriminant validity (i.e. construct validity) of the results. For the original scale values of coefficient alpha²⁴ ranging from .86 to .89 indicated that the subscales were sufficiently reliable for research purposes. The overall alpha value of .97 suggested a highly homogeneous general construct (Taylor & Betz, 1983). These levels of reliability indicate stability and consistency and have been validated through subsequent research. For example, Luzzo (1996) concluded that adequate reliability of the scale had been repeatedly demonstrated in research and applied settings. Furthermore, Cheung has stated that “its reliability and validity were supported in studies of college and high school students in Mainland China” (Cheung, 2013, p. 239).

It is recommended by Betz and Hackett (2006, p. 7) that traditional methods of evaluation of the measure for self-efficacy be used “including internal consistency or test-retest reliability and construct validity based on such concepts as Cronbach and Meehl’s nomological network (1955)”. The original scale, based on the Five Career Choice Competencies postulated in Crites’s model of career maturity (1978) was used for this study. To assess whether the 50-question score formed a reliable scale, Cronbach’s alpha was computed. The scale showed to be highly reliable while the subscales showed moderate reliability. Values of internal consistency reliability ranged from .67 to .76 for the subscales and were .92 for the total score. A minimum acceptable value of .7 was suggested by Nunnally (1978). The alpha value, or internal reliability coefficient, of .92 suggests a highly homogeneous general construct.

The following table shows the results of the alpha tests on the entire scale and subscales compared with the original Taylor and Betz (1983) normative study.

Scale and Subscales	Cronbach Alpha	Taylor and Betz (1983)
Overall Scale	.92	.97
Sub-scale Self-appraisal	.71	.88
Occupational Information	.76	.89

²³ In 2005 a version was made with the same number of items but with a 5-level confidence continuum which proved as reliable as the 10-level and simplified the instrument (Betz, Hammond, & Multon, 2005).

²⁴ Alpha means “internal consistency reliability coefficients” (Betz & Luzzo, 1996, p. 419). In other words, mathematical measurement of consistency of results showing reliability if administered at different times and with different participants.

Goal Selection	.67	.87
Planning	.74	.89
Problem Solving	.69	.86

Table 3.4 – Internal consistency reliability test results

3.6.5 Pilot Study

Piloting a questionnaire “helps determine that the individuals in the sample are capable of completing the survey and that they can understand the questions” (Creswell, 2008, p. 402). A pilot test is a procedure in which the researcher makes changes or adjustments to the questions based on the responses of those who complete and evaluate the instrument. Those chosen to complete the pilot should be representative of the overall study sample or population. Testing is usually done by a small number of people who are then omitted from the final sample study. It is advisable to have the pilot participants write comments or make adjustments on the instrument in order to have a written record of the improvements. In order to achieve this, the pilot questionnaire may be structured giving additional space for comments. When piloting a survey issues may become apparent such as poorly worded questions, responses that do not make sense, response options that are not included or an excessive amount of time required to complete the task.

The questionnaire for this study was piloted on 10 first year students studying hospitality management at DIT. It was also inspected by my supervisor. Feedback provided resulted in some minor changes to questions. For example, for the question concerning gender an option was added to allow a student not to identify a biologically assigned sex. Also, an option was added allowing a student to indicate he/she did not sit the Irish LC examination. For the original version of the CDSE questionnaire some words were changed to allow for cultural differences between terminology used in the United States and Ireland. For example, ‘major’ (subject of study) was changed to ‘subject’ or ‘course’, and ‘resumé’ was changed to ‘Curriculum Vitae’.

3.6.6 Statistical Analysis and Interpretation of Data

Analysis of the data consists of “taking the data apart” to determine people’s responses and then “putting it together” in summary form (Creswell, 2008, p. 10). Interpreting it involves drawing conclusions about it; representing it in tables and figures, and explaining the conclusions in words to provide answers to the research questions. The analysis and interpretation of the data involves interpreting the findings in light of the hypotheses or research questions set out at the beginning (Creswell, 2009). Statistical analysis was used to make sense of the quantitative data with the help of SPSS and R. In summary, statistics presented in the findings include descriptive (describing characteristics of the sample), correlational (the strength and direction of relationships between scores) and inferential (group comparisons).

The frequencies of responses to all categorical items in the questionnaire (demographics of sample population; factors influencing career choice; factors influencing withdrawal; factors relating to repeating students) were calculated and displayed in pie charts, histograms and bar charts. Responses to items relating to student demographics were cross-tabulated and Z-test was used to test multiple proportions to identify significant differences ($P < 0.05$) within and between demographic groups.

The 50 items of the CDSE instrument were scored as described by the authors (Betz & Taylor, 1993) and a total CDSE score was calculated for each student. Mean CDSE scores and CDSE sub-scores were calculated for each group in the study and for each demographic grouping. CDSE scores were presented as box-plots in the findings chapter. One-way Analysis of Variance (ANOVA), with post-hoc Bonferroni testing, was used to compare mean CDSE scores (and sub-scores where appropriate) between the three study groups, between various demographic groupings, and within the withdrawal and repeat groups.

A Principal Component Analysis (PCA) with Varimax rotation was carried out on the 50-item CDSE instrument to determine the validity of its construct and its appropriateness for use in the current context. An exploratory factors analysis, using Principal Axis Factoring, with varimax rotation was used on the 14 items relating to career choice in order to identify underlying themes or factors influencing career choice. A PCA was also carried out on the eight items relating to withdrawal from college to determine similarities in how these items were considered by students.

Multiple linear regression models were constructed, with CDSE score as the dependent variable and demographic items and career choice factors (as identified by factor analysis) as independent predictor variables. Linear regression was also used to determine the relationship between the CDSE score of repeating students (dependent variable) and demographic items, career choice factors and repeat-student specific items.

Logistic regression models were constructed to determine the relationship between the predictor variables of demographic and career choice factors and for level of CDSE scores ('high' or 'low'), and withdrawal status.

3.7 Conclusion

This study was concerned with understanding career choices but more specifically the factors influencing those choices and the factors contributing to third level college withdrawal rates. Understanding of these was necessary in order to answer the central research question. That was, the establishment, or not, of a link between withdrawal rates and career self-efficacy levels. The choice of a quantitative study as a means of inquiry supported the research questions as methods of

data collection. The comparison of those withdrawing and those showing persistence in the face of obstacles (examination failure) added to the understanding and assisted in answering the research questions. The various points outlined in this chapter are further summarised in figures 3.5, 3.6 and 3.7 below.

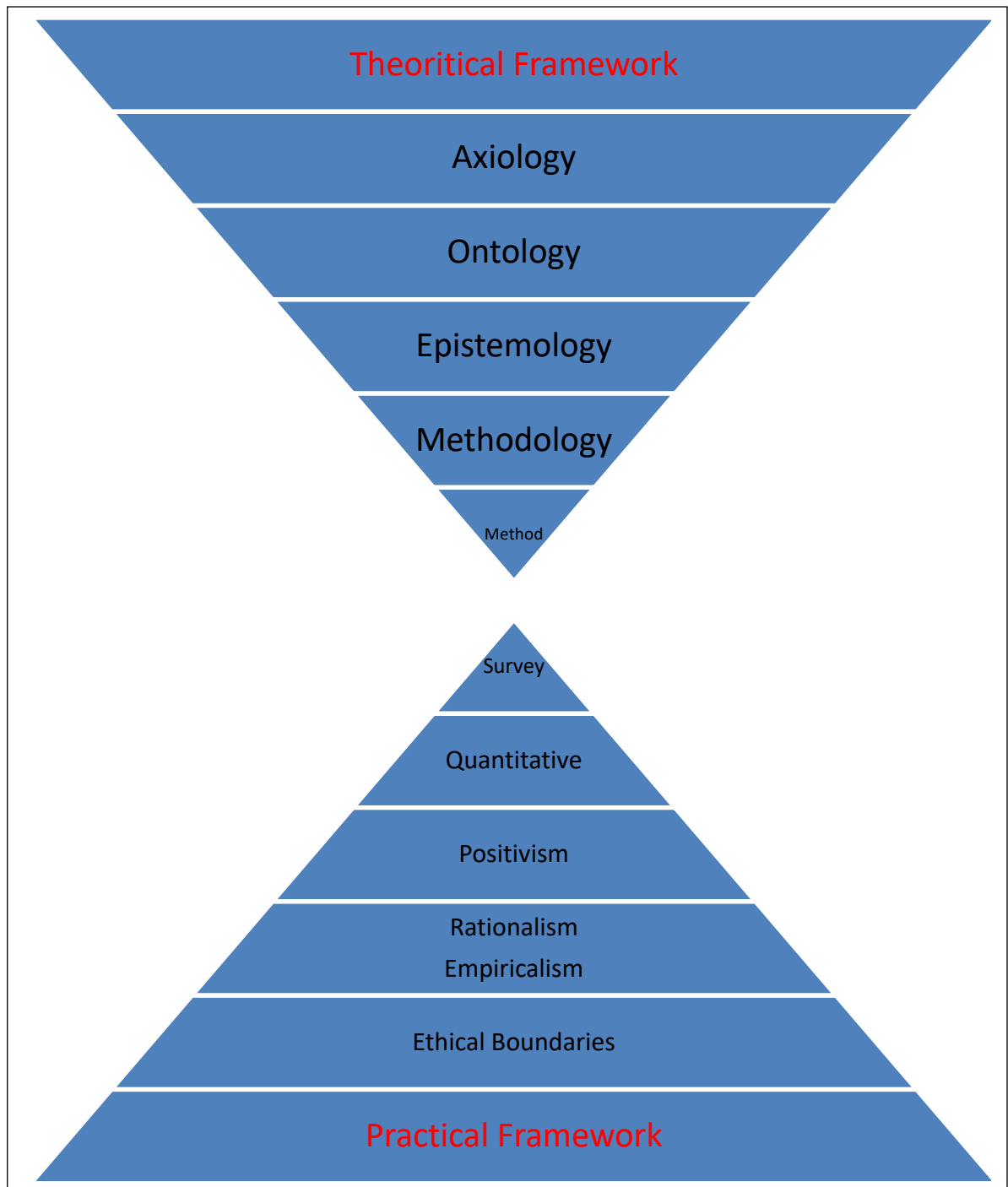


Figure 3.5 - Theoretical and practical framework underpinning this research

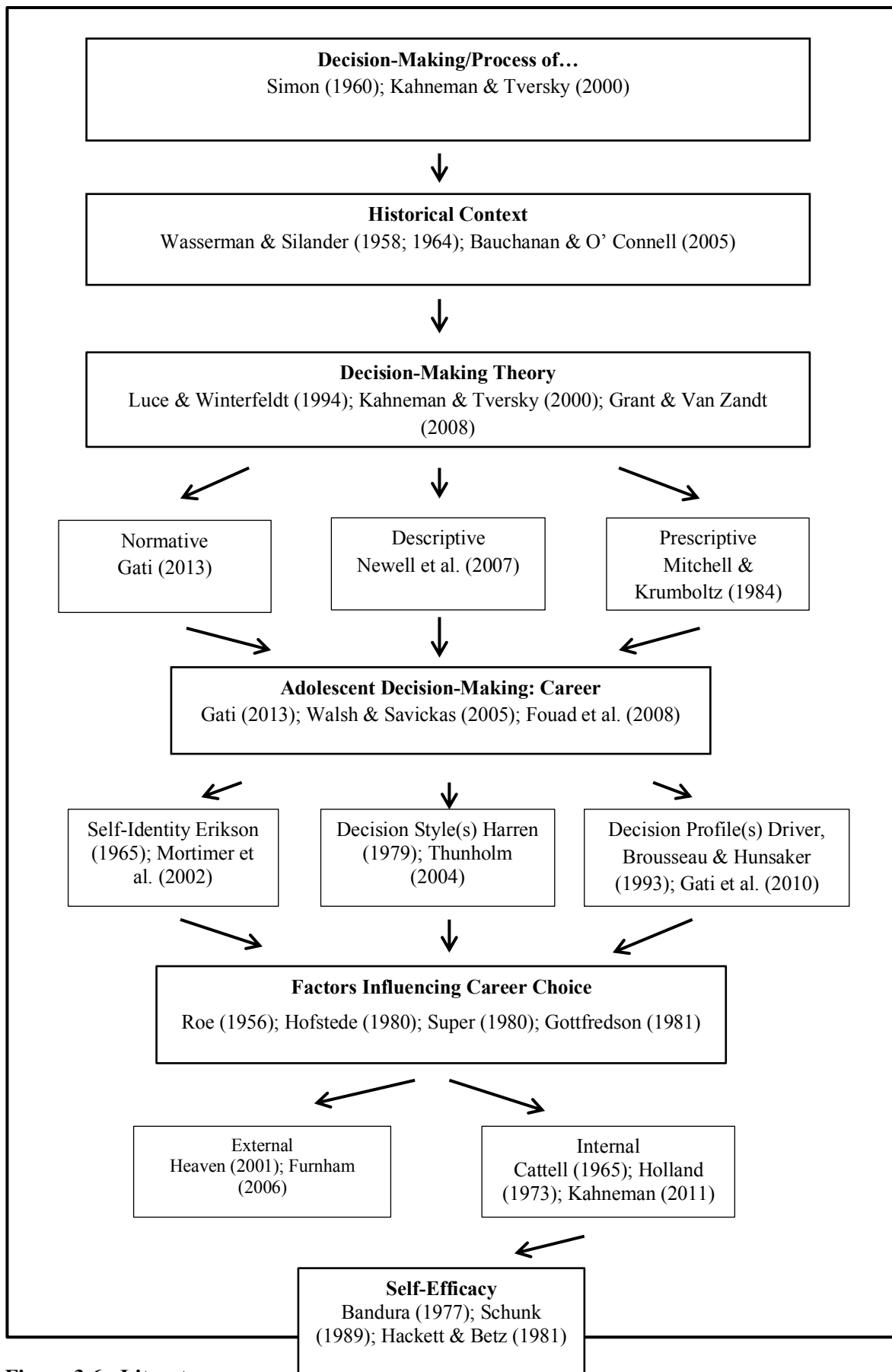


Figure 3.6 - Literature map

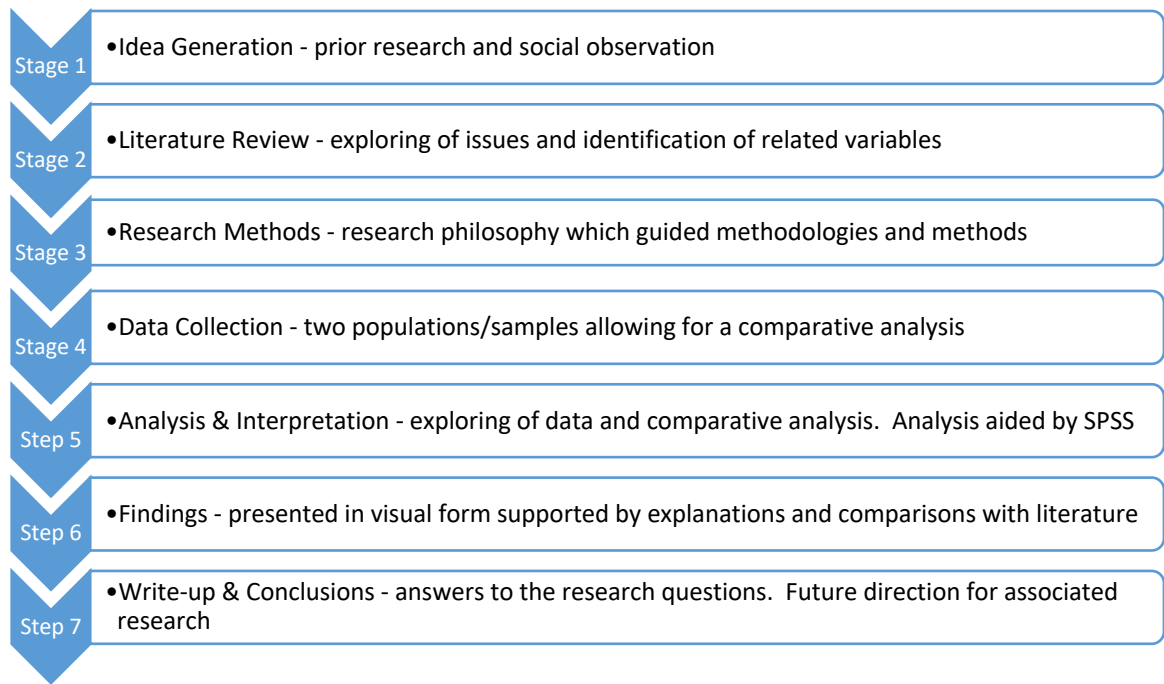


Figure 3.7 - Research process

4.1 Introduction

This chapter sets out the findings from the data collected in order to confirm or dispute the hypotheses set out earlier (page 13). There are eight sections. The central focus is the presentation of findings pertaining to CDSE and related issues. Data were collected from 1050 respondents over a two-year period and made up of three groups: a control group (n = 714); a withdrawals group (n = 164), and a repeats group (n = 172). The control group was used as a benchmark for comparison with the first-year full-time undergraduate DIT student population registered on levels seven and eight courses, and similarly the national student population. I present a conclusion at the end of this chapter.

4.2 Sample Population

The response rate for the control group was close to 100%, was 37.5% for the withdrawals and 38% for the repeats.

Data were obtained from three groups of full-time undergraduate first-year students registered on level seven and eight courses at DIT. The first, a control group of 714 students established parameters to use for comparative purposes with groups two and three. The second, comprised 164 withdrawing students; the third, 172 repeat students. The total first-year student population registered on level seven and eight courses in DIT for the two academic years in question was 7415. The total number of useable questionnaires was 1050 for the three groups. Table 4.1 demonstrates that the sample sizes were representative of the DIT first-year undergraduate level seven and eight populations.

Population	Confidence Level	Margin of Error	Ideal Sample Size	Actual Size
7415	99%	+/- 5%	609	714
432	90%	+/-5%	167	164
455	90%	+/- 5%	170	172

Table 4.1 - Sample size calculations

From the above I determined that the sample population was representative of the student population at DIT.

The data collected over two years are broken down as shown in figure 4.1. Data collected in 2016/17 (n = 479) were 12.08% of the overall full-time first year under-graduate DIT population, while data from 2017/18 (n = 571) equalled 16.5%. The total response rate represented 14.16% of those registered on level seven and eight courses for both academic years (n = 1050).

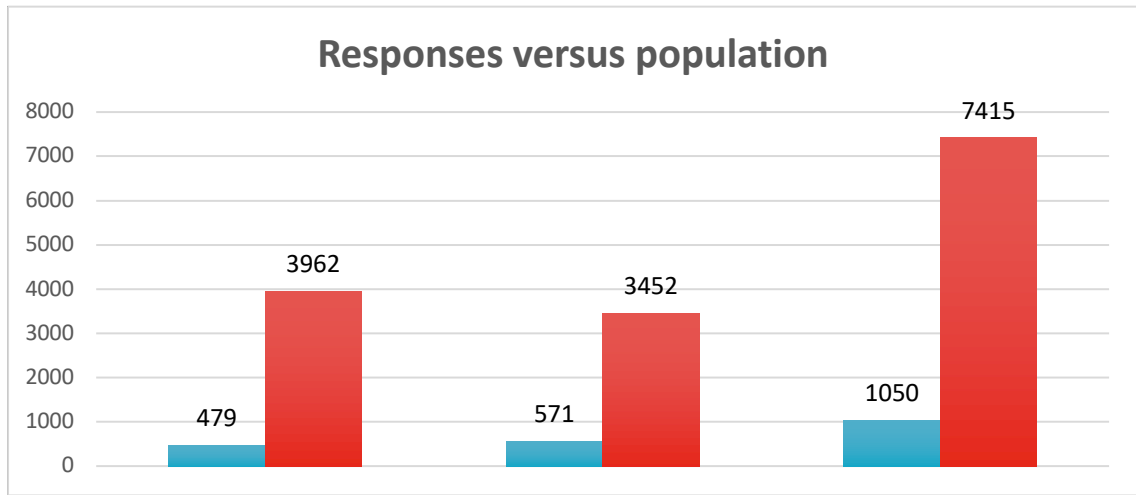


Figure 4.1 – Sample size compared to corresponding population

4.3 The Instrument – Principal Component Analysis

To assess whether the 50-question score formed a reliable scale, I computed Cronbach's alpha. The total scale was shown to be highly reliable while the subscales showed moderate reliability. Values of internal consistency reliability ranged from 0.67 to 0.76 for the subscales and 0.92 for the total score (table 4.2). A minimum acceptable value of 0.7 was suggested by Nunnally (1978). The alpha value, or internal reliability coefficient, of 0.92 suggests a highly homogeneous general construct.

Scale & Subscales	Cronbach Alpha	Taylor & Betz (1983)
Overall Scale	.92	.97
Sub-scale Self-appraisal	.71	.88
Occupational Information	.76	.89
Goal Selection	.67	.87
Planning	.74	.89
Problem Solving	.69	.86

Table 4.2 – Internal consistency reliability test results

I decided to conduct a Principal Component Analysis (KMO = 0.92) on the instrument to determine if the five career choice competency areas are appropriate for the cultural domain of Ireland (see appendix 2). It would appear that the five-factor structure is not supported (figure 4.2). Factor one was the clearest with 42 items²⁵ loading on this factor, which included all the planning items, all the self-appraisal and occupational information items with the exception of one item each, seven of the goal selection items, and eight of the problem-solving items. Other items were widely dispersed over factors two, four and five. For example, factor two was less clear with only seven items loading which included one each for self-appraisal and occupational information, two for goal selection, and three for problem solving. However, two of these items were double loaded with factor one, item one (self-appraisal) and item 50 (problem-solving). Both these items scored higher for factor two than factor one (appendix 2). No items loaded solely onto factor three. Factor four had only two items, 25 (problem-solving) and 26 (self-appraisal). Factor five was constituted by one isolated item, 23 (goal selection). Looking at the entire instrument only 17 items total score correlations was above .50.

A one-factor structure appears to be more accurate. The one factor solution accounts for 21.40% of the total variance (appendix 3). In contrast factor two accounts for only 4.97% of total variance. According to the criteria proposed by Reckase (1979), which has been widely used to assess the multidimensionality of measures, it is expected that the first factor explains more than 20% of the variability, and the first eigenvalue needs to be several times greater than the second. For this study it was more than four times greater. These findings support the existence of a dominant first factor.

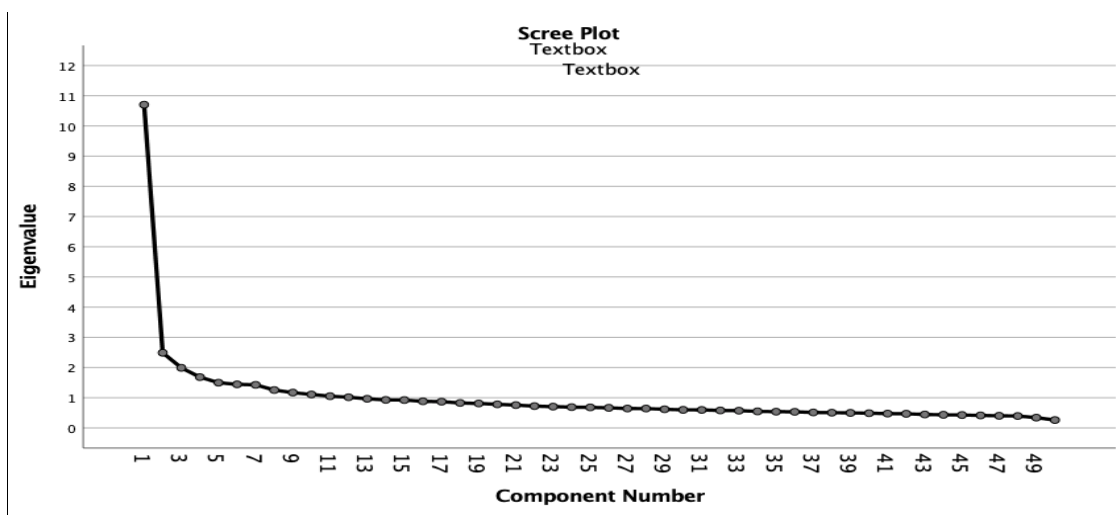


Figure 4.2 - Scree plot for factor analysis

²⁵ This study offers support for the unidimensionality of the CDSE scale (long version) whereby 42 of the 50-items loaded onto one factor. Eight items were dispersed amongst other factors. These items possibly represent secondary constructs which should be explored in future research with alternative methodologies.

4.4 Demographic Findings

I collected data over the two academic years 2016/2017 and 2017/2018. The response was 479 in 2016/17 and 571 in 2017/18 ($n = 1050$). The breakdown of responses across both years is presented in figure 4.3. Analysis of demographic factors in relation to the year of data collection demonstrated that, respondents who performed moderately on the LC examination were overrepresented in the second year. Those who achieved 401 to 450 points ($P = .001$) and those who achieved 451 to 500 points ($P < .001$). Analysis of the CDSE scores did not show a statistically significant difference between years ($P = .203$).

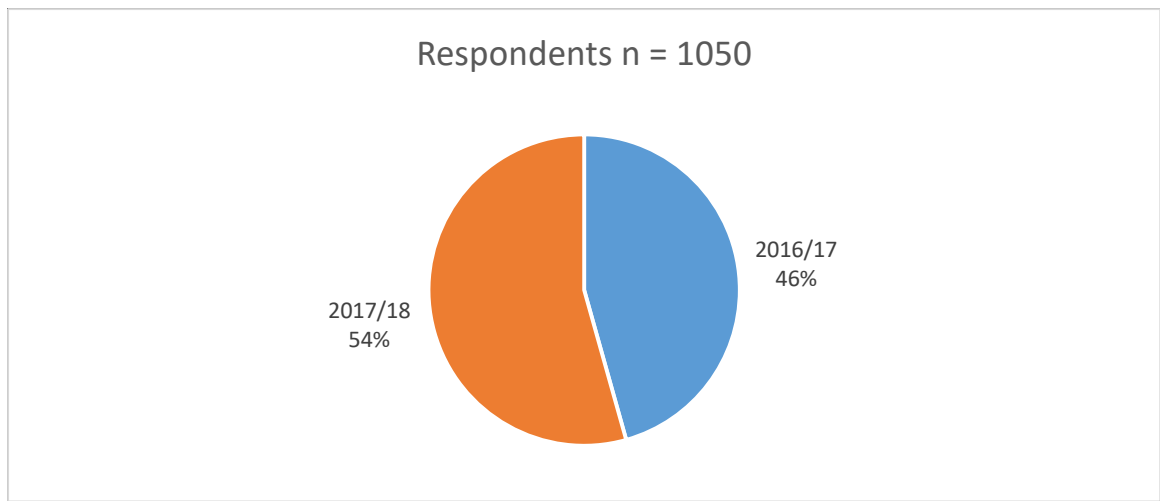


Figure 4.3 – Respondents by academic year

4.4.1 Question 1: Study Groups

This study comprised three separate groups. First, a control group of 714 students necessary to establish a base level of career decision self-efficacy (CDSE). The second, were those withdrawing from college ($n=164$). The third were those repeating examinations in order to progress into second year ($n=172$) (figure 4.4).

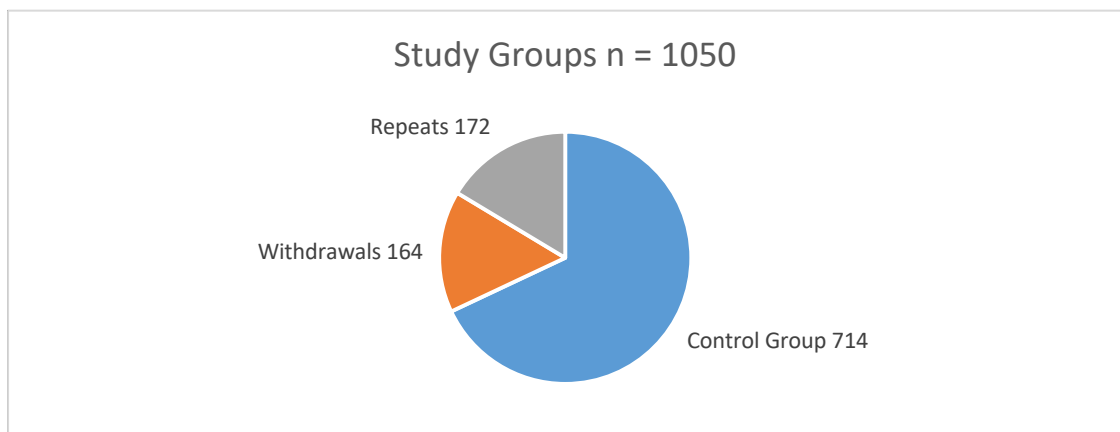


Figure 4.4 – Respondents by study group

4.4.2 Question 2: Gender

Forty-five percent (471) of respondents were male, 54% (569) female, while 1% (10) opted for ‘prefer not to say’²⁶ (figure 4.5a).

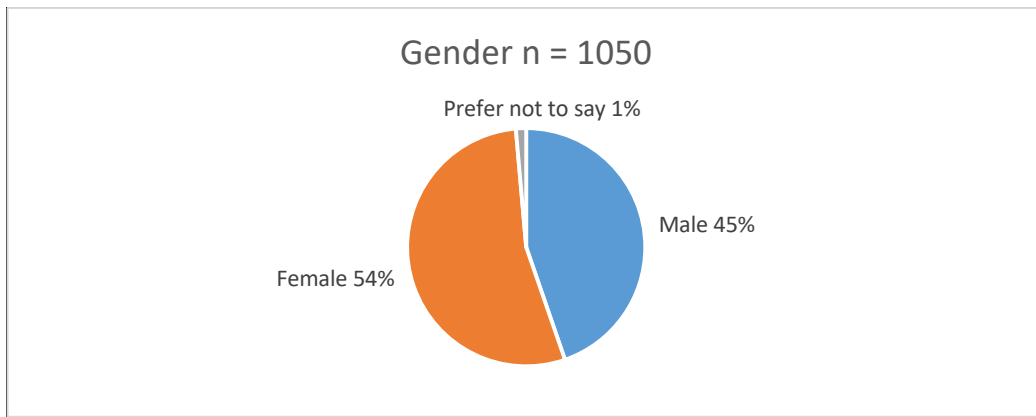


Figure 4.5a – Participants by gender

The gender make-up of the control group was closely aligned with that of the DIT student population and moderately aligned with national averages (figure 4.5b).

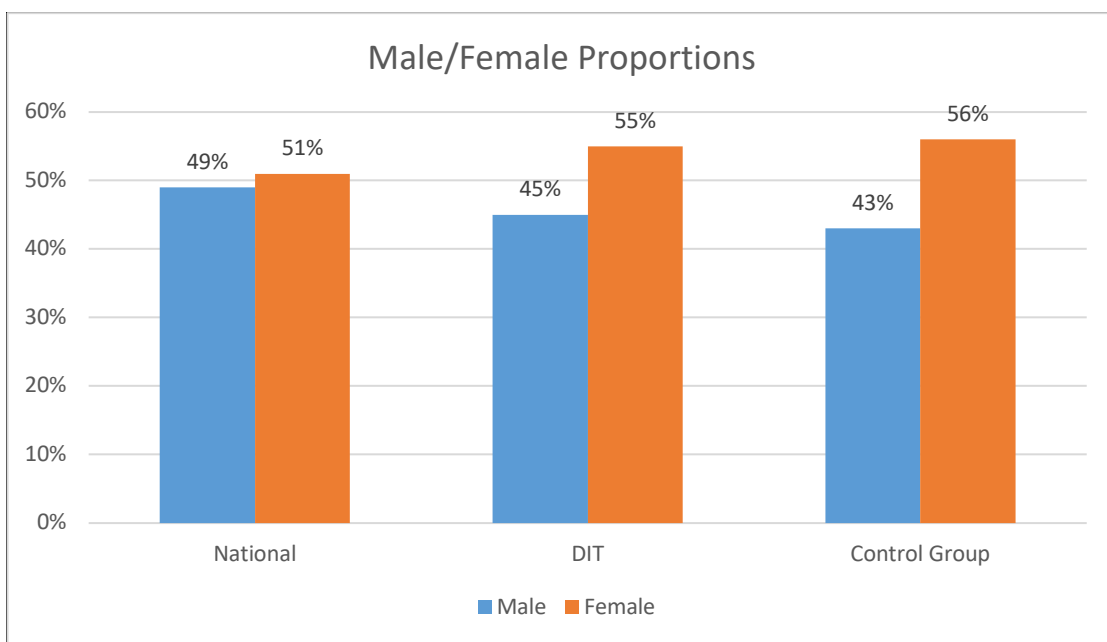


Figure 4.5b - Male/female proportions

²⁶ Although this group is too small to show any significant differences statistically with the population it is worthy of note that the CDSE scores for these students of 172 was considerably lower than the mean for the control group of 180.

Within the control group 43% of respondents were male and 56% female (figure 4.5c). Those repeating had a similar gender make-up to the control group (figure 4.5c). However, the proportion of males in the withdrawal group (55%) was significantly greater than that of the control group ($P = 0.05$).

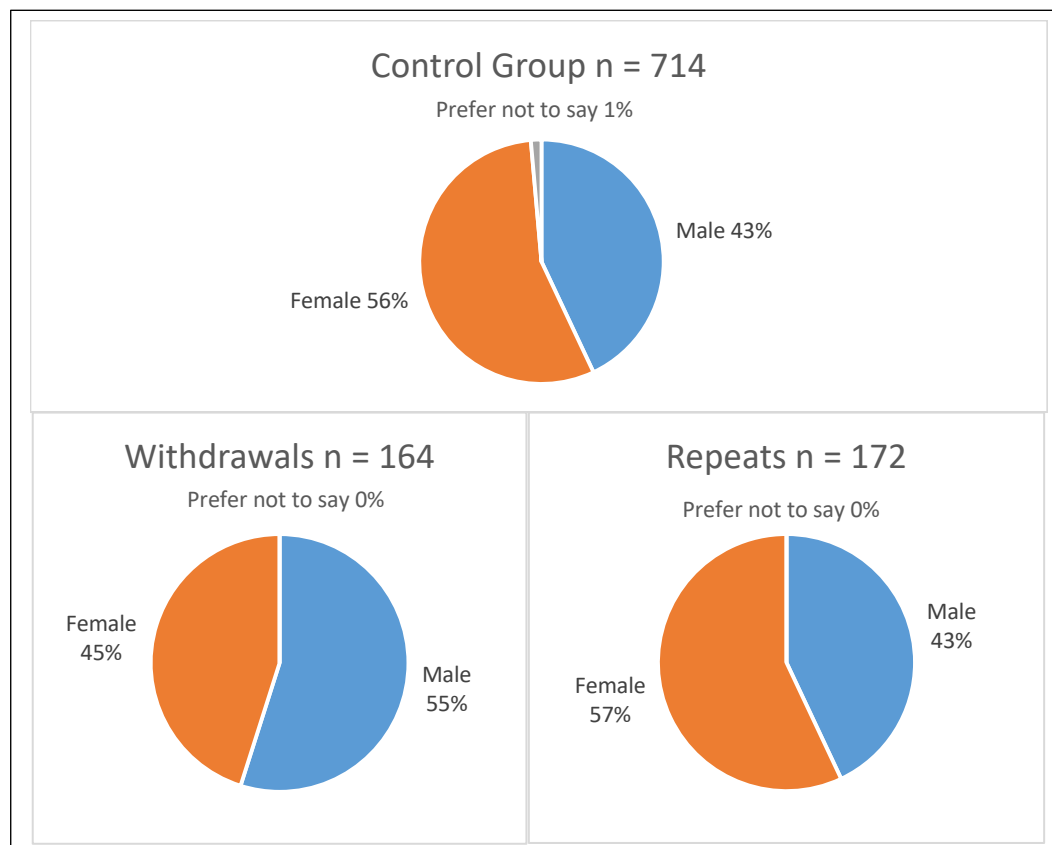


Figure 4.5c – Respondents by gender for the three study groups

Analysis of other demographic factors in relation to gender demonstrated that, based on the LC points system, females performed better academically than males. Both males and females performed similarly at the lower end of the LC points scale with 6% of males and 5% of females achieving 250 points or less. Three percent of males achieved greater than 500 points with 6% of females doing so. Despite this, only 30% of females attempted higher level mathematics while 36% of males did so. Females were more likely to take higher level English with 86% doing so while 81% of males took the higher option.

In this study, participation by females in science and health related courses is 16% greater than males (table 4.3).

	Arts & Tourism	Business	Science & Health
Male	40%	54%	42%
Female	60%	46%	58%

Table 4.3 – Gender distributions by faculties

There was no statistically significant difference in the CDSE scores between male and female respondents ($P = .435$). Those students who opted not to identify a gender had a lower mean CDSE score of 172 (table 4.4).

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
Male	180.50	181.89	176.05	180.16
Female	179.45	179.46	183.04	176.70
Prefer not to say	171.60	171.60		
Total	179.85	180.40	179.20	178.19

Table 4.4 – Gender CDSE scores for three study groups

4.4.3 Question 3: Age

Thirty-one percent (331) of respondents were 18, 41% (434) were 19, 13% (132) were 20, while 15% (153) were 21 and above (figure 4.6a).

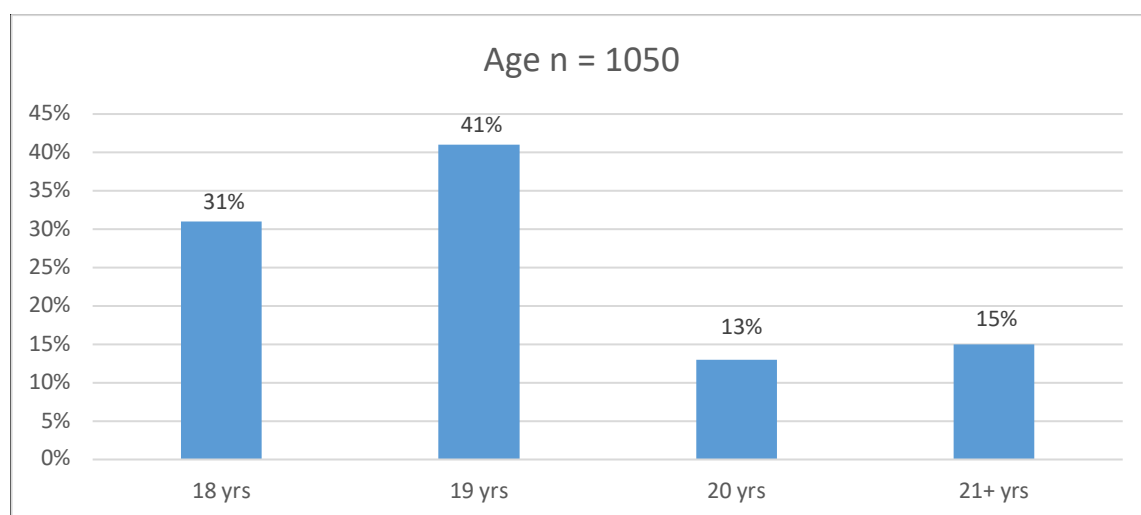


Figure 4.6a – Respondents' age

The age make up of respondents was closely aligned with that of the DIT student population and national averages (figure 4.6b).

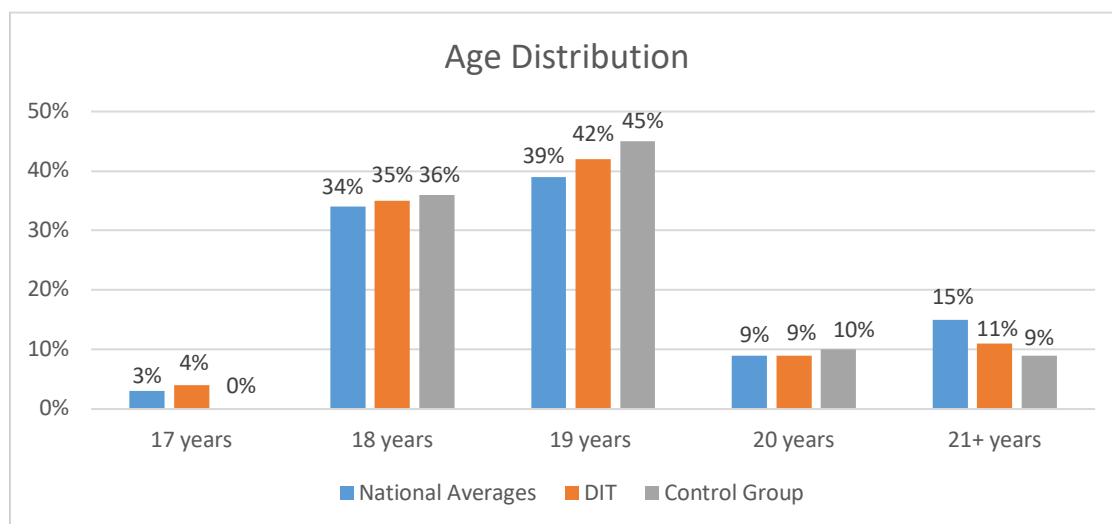


Figure 4.6b - Age distribution comparative to DIT student population and national averages

The age make-up of those withdrawing was somewhat aligned with the control group (figure 4.6c). Those repeating was not aligned. Nine percent of those who returned to repeat were 18; 24% were 20, and 35% were 21 and over. The proportion of repeat students who were aged 20 or above was significantly greater than that of the other age groups ($P < .001$).

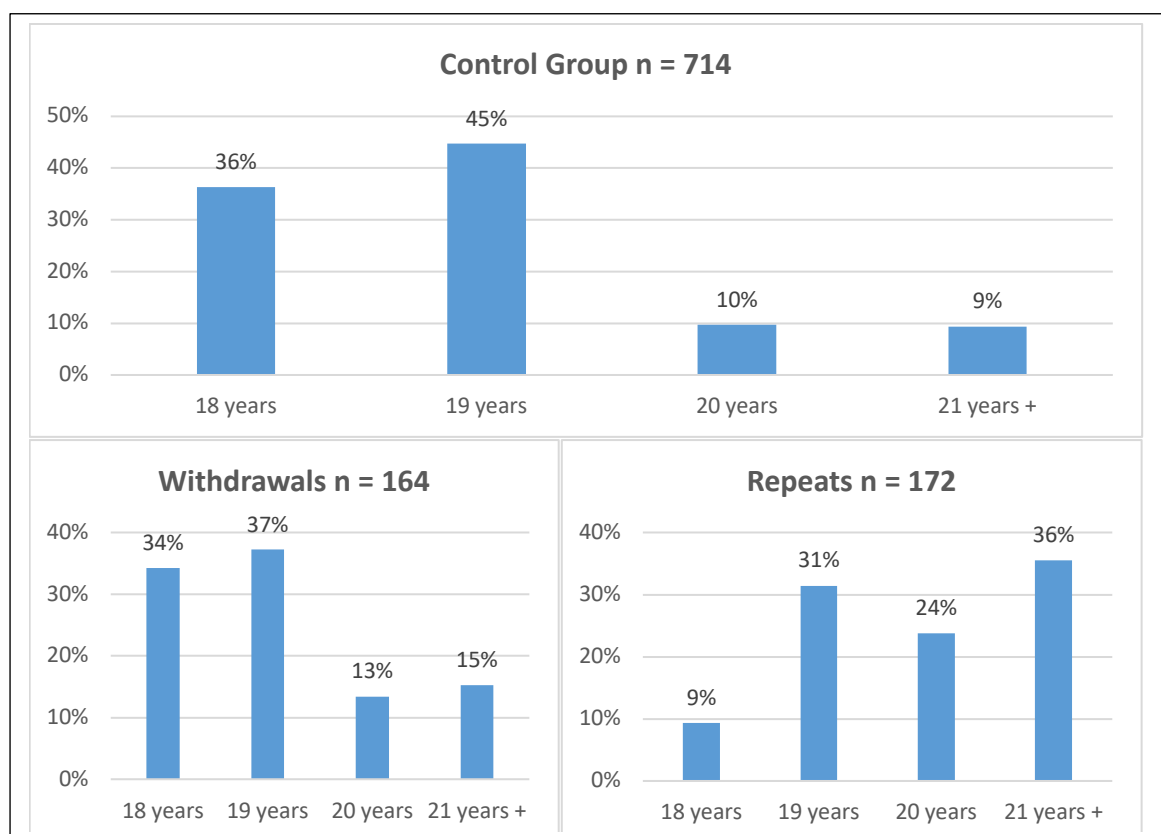


Figure 4.6c – Age distribution of the three study groups

Analysis of other demographic factors in relation to age suggested that, based on parents'/guardians' levels of schooling, a disproportionate number of older participants (21+) came from households where the highest level of schooling of the primary earner was primary level ($P < .001$).

A statistically significant association between CDSE scores and the respondent's age was observed using one-way analysis of variance (ANOVA), with post-hoc Bonferroni testing ($P < .001$) whereby older students had higher CDSE than their younger peers.

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
18 years	177.03	177.45	175.91	174.12
19 years	178.11	179.87	176.67	169.37
20 years	184.09	184.71	191.27	179.19
21+ years	187.22	189.86	182.16	186.39
Total	179.85	180.40	179.20	178.19

Table 4.5 – Age CDSE scores for the three study groups

4.4.4 Question 4: Ethnic Background

Seventy-eight percent (821) of respondents were Irish. Other White accounted for 10% (100), 6% (66) were Asian, 4% (39) Black, while 2% (24) identified as Mixed (figure 4.7a).

The ethnic make-up of the study group was closely aligned with that of the DIT student population and national averages (figure 4.7b).

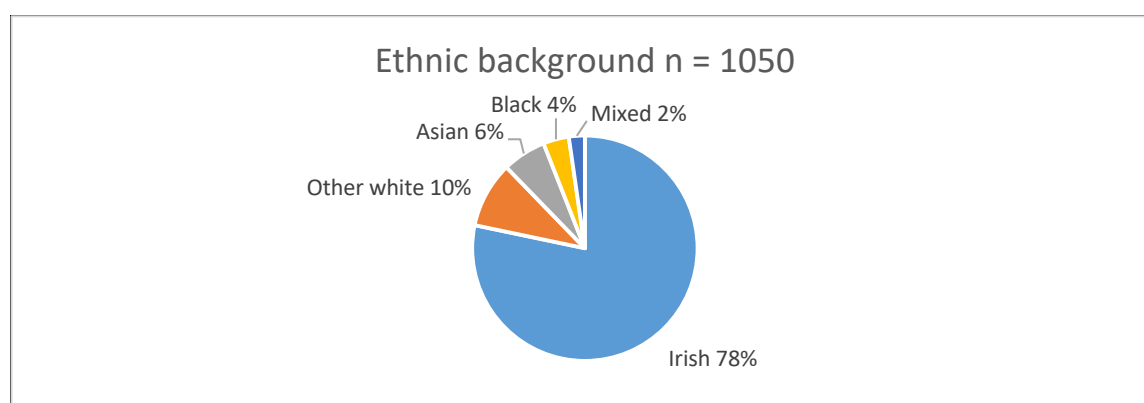


Figure 4.7a – Ethnic make-up of respondents

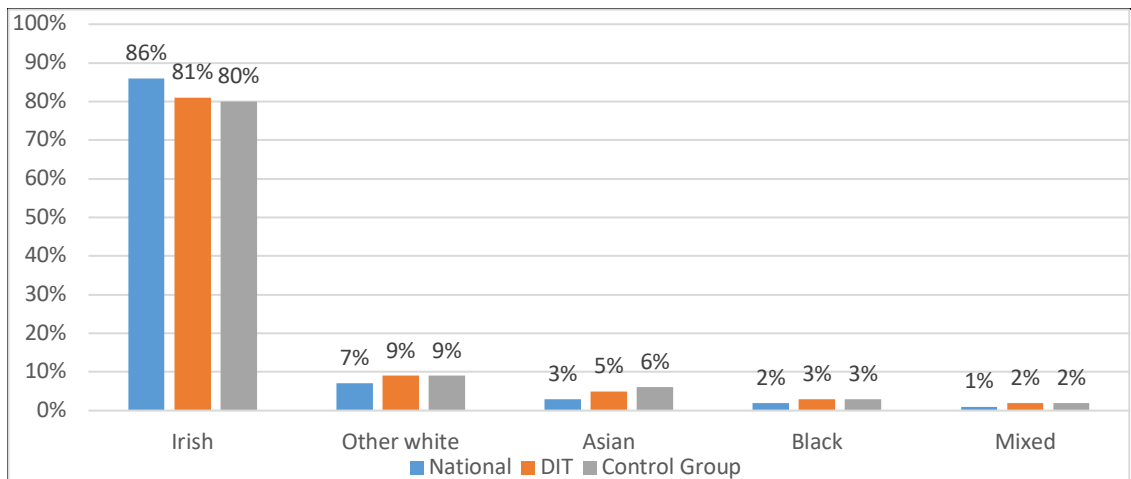


Figure 4.7b – Ethnic make-up comparative to DIT student population and national averages

Eighty percent of the control group were Irish. Other White accounted for 9%, Asian was 6%, Black 3% and Mixed 2% (figure 4.7c). The ethnic make-up of those in the withdrawal group did not differ from those in the control group. In contrast, the proportion of those who identified as Irish in the repeat group was significantly less ($P < .001$). Other White respondents were overrepresented in the repeating group, accounting for 18% of this group compared with 9% of the control group ($P < .001$). Those who identified as Black and Mixed also doubled their participation in the repeating group. This did not prove to be statistically significant.

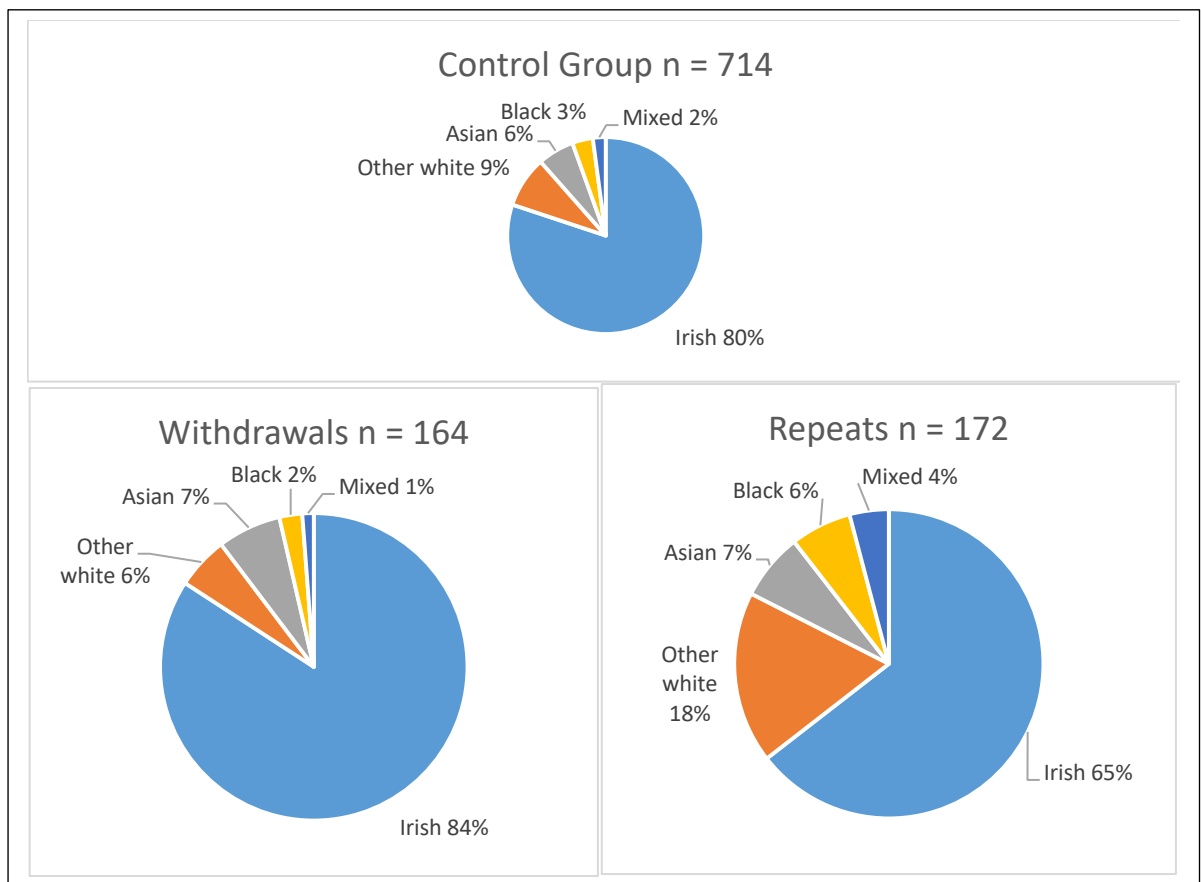


Figure 4.7c – Ethnic make-up of the three study groups

The CDSE scores indicated that there was a significant difference between students from the various ethnic backgrounds ($P = .005$). ANOVA with Bonferroni post hoc testing demonstrated that Asian students had significantly lower CDSE when compared with Other White students ($P = .009$) (table 4.6).

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
Irish	179.32	180.46	177.48	175.72
Other white	185.50	183.80	203.11	183.68
Asian	172.76	172.72	171.72	173.83
Black	185.38	182.58	199.25	186.45
Mixed	185.00	182.87	192.00	187.57
Total	179.85	180.40	179.21	178.19

Table 4.6 – Ethnicity CDSE scores for the three study groups

4.4.5 Question 5: Socioeconomic Background

Nine percent (93) of respondents came from social class A, 42% (439) from class B, 21% (225) from class C1, 15% (154) from class C2, 10% (103) from class D, and 3% (36) from social class E (figure 4.8a).

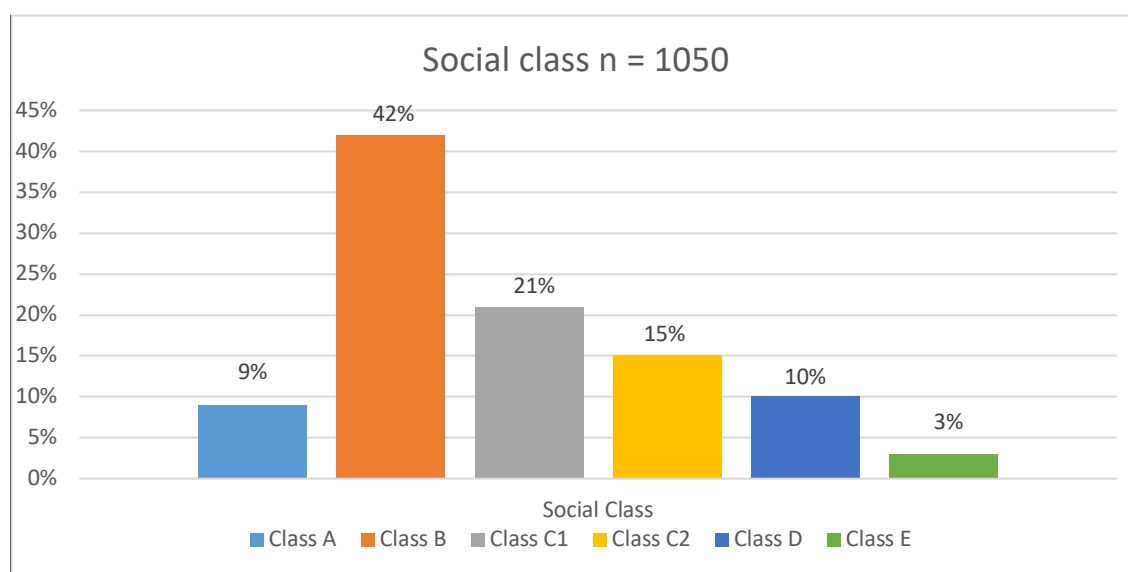


Figure 4.8a – Social class of respondents

The socioeconomic make-up of the control group was closely aligned with the DIT student population and national averages with two exceptions. In this study and DIT generally, members of class A were underrepresented while class B was overrepresented (figure 4.8b).

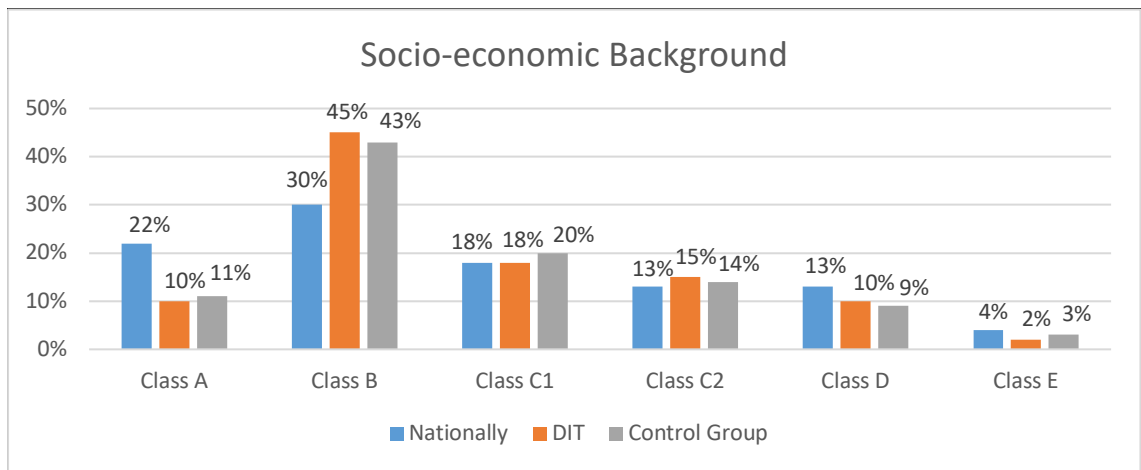


Figure 4.8b – Respondents’ socioeconomic backgrounds compared to DIT and national averages

The proportions within the two test groups showed no significant deviation from the control group, with the exception of social class A where students were underrepresented amongst the withdrawal group (4.8c).

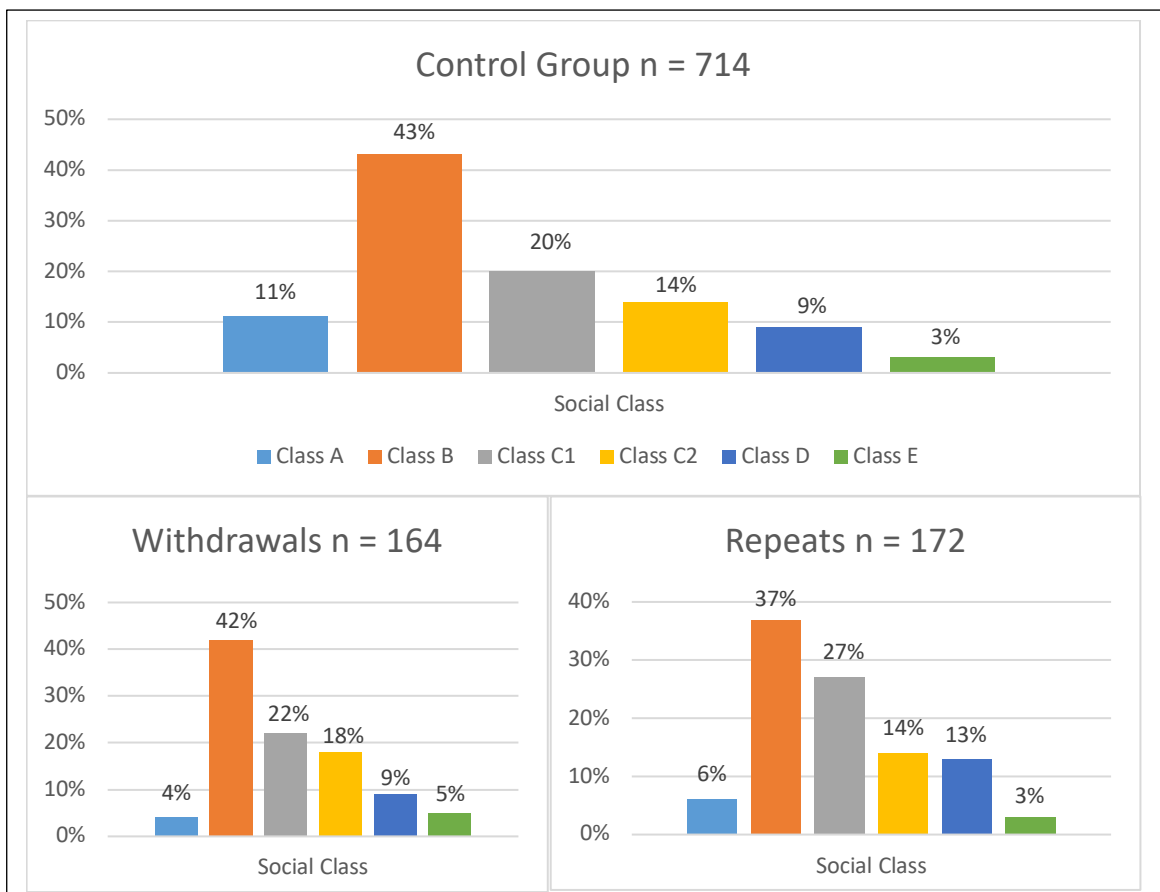


Figure 4.8c – Social class of respondents for the three study groups

Analysis of the study groups and other demographic factors in relation to social class demonstrated that, social class A respondents were disproportionally represented in the control group compared with the withdrawal group ($P = .003$). Respondents who came from backgrounds where the educational level was to PhD were overrepresented in social class A ($P < .001$). Students from families where the highest level of education was secondary school were disproportionally represented in social class E ($P < .001$). The proportion of students from social class E who performed poorly on the LC examination was significantly greater than those who performed well ($P < .001$).

The CDSE scores indicated that there was a significant difference between students from the various social classes ($P = .006$). ANOVA with Bonferroni post hoc testing demonstrated that social class C1 and C2 students had significantly lower CDSE scores when compared with social class A students ($P = .014$ and $P = .041$ respectively).

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
Class A	187.01	180.80	178.83	186.00
Class B	179.55	179.43	183.29	176.06
Class C1	176.71	177.00	175.97	176.40
Class C2	178.34	179.67	174.76	177.03
Class D	184.25	184.17	180.06	187.36
Class E	178.47	182.04	173.75	169.60
Total	179.85	180.40	179.20	178.19

Table 4.7 – Social class CDSE scores for the three study groups

4.4.6 Question 6: Education Level of Primary Earner

Five percent (55) of respondents came from families where the highest level of education was primary school, 39% (406) secondary school, 38% (402) undergraduate certificate/diploma/degree, 15% (158) masters, and 3% (29) had a level of education equivalent to PhD (figure 4.9a).

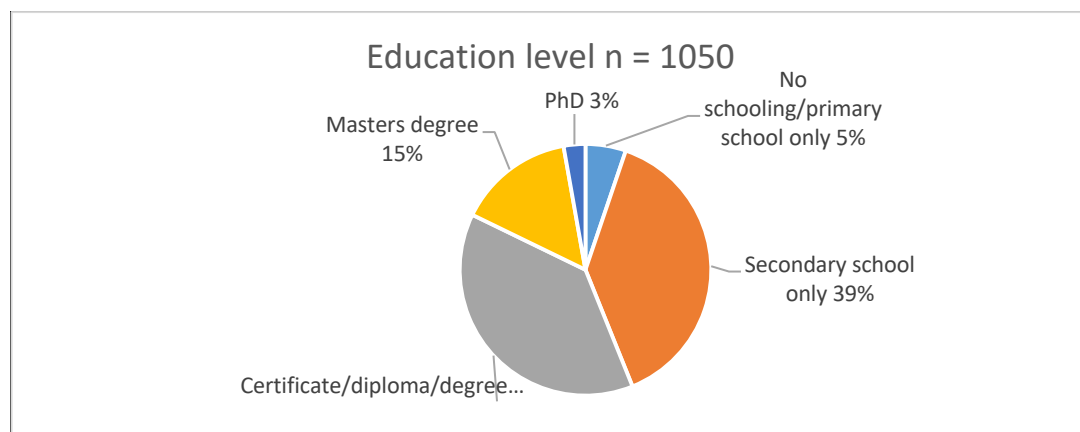


Figure 4.9a – Educational level of respondents' parent/guardian

The education level of respondents' parents/guardians in the control group was aligned with the respondents who repeated but not with respondents who withdrew. In the control group 36% of respondents came from a family where the highest level of education was secondary. This increased to 48% amongst withdrawals (figures 4.9b).

Analysis of other demographic factors in relation to educational level of primary earner demonstrated that, based on gender, a disproportionate level of those who opted not to identify gender came from a family where the primary earner had a PhD ($P = 0.00$). A disproportionate number of those respondents aged 21 and over came from families where the highest level of education was primary school ($P = 0.00$). Those who identified as Asian were disproportionately represented where the primary earner had a PhD compared to those of Irish ethnicity ($P < .001$). A disproportionate number of respondents from social class A came from families where the primary earner had a PhD ($P < .001$). A disproportionate number of respondents who came from families where the highest level of education was primary school were represented in the lower social classes (Classes C2-E) ($P < .001$).

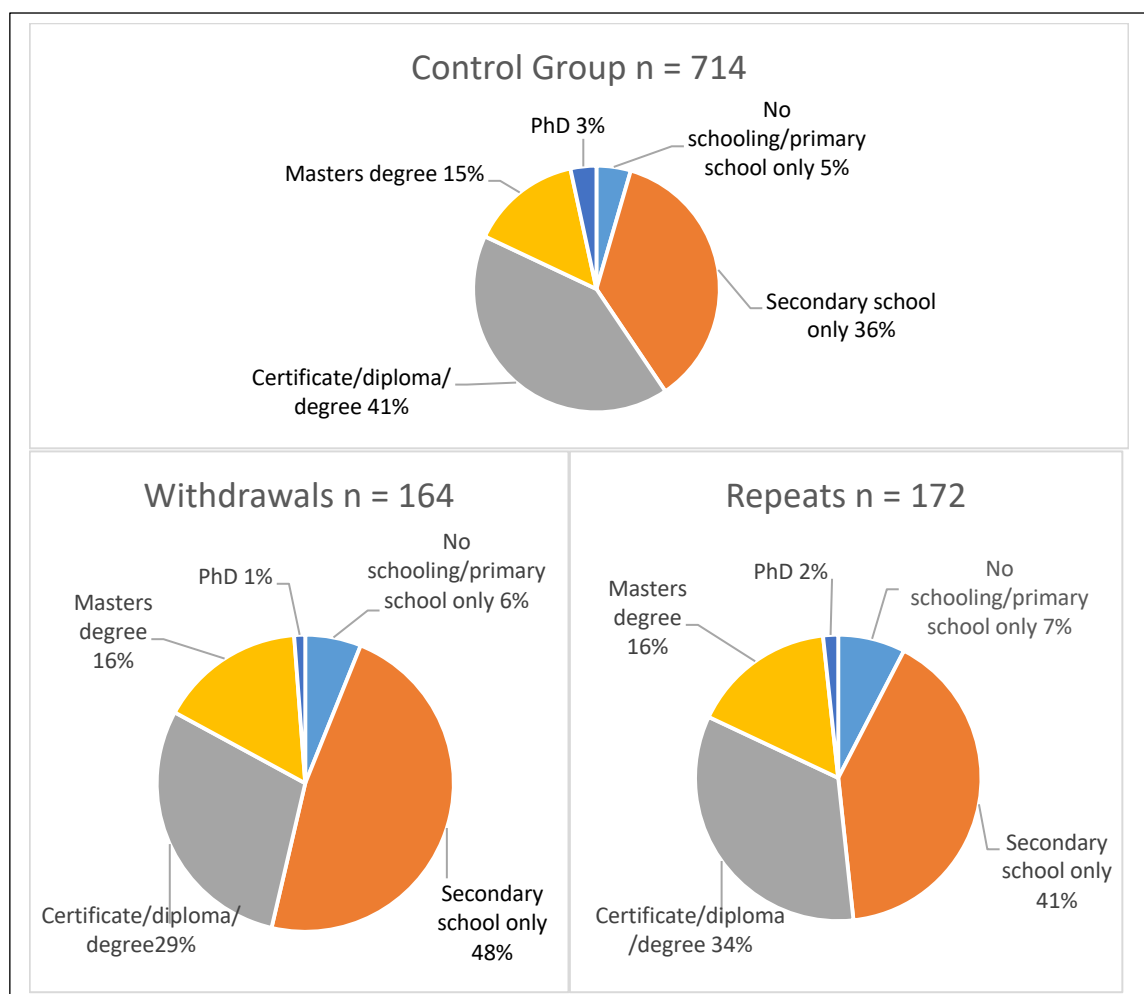


Figure 4.9b - Primary earner educational level of the three study groups

The CDSE scores did not show a statistically significant difference between respondents' parents/guardians' level of education ($P = .07$).

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
No school/primary	175.14	179.28	171.30	167.92
Secondary	180.36	181.71	175.85	180.39
Degrees	178.23	178.10	180.60	176.90
Masters	183.61	182.63	188.92	182.32
PhD	183.69	186.37	190.00	158.00
Total	179.85	180.40	179.21	178.19

Table 4.8 – Parent/guardians' level of education CDSE scores for the three study groups

4.4.7 Question 7: Academic Performance

Five percent (53) of respondents achieved 250 points or fewer in the LC examination. Twenty-eight percent (292) achieved between 251 and 350 points, 41% (435) achieved between 351 and 450 points, 21% (220) between 451 and 550 points, and 1% (5) achieved maximum points of between 551 and 600 points. As international students, four percent (45 participants) did not sit the Irish LC examination²⁷ (figure 4.10a).

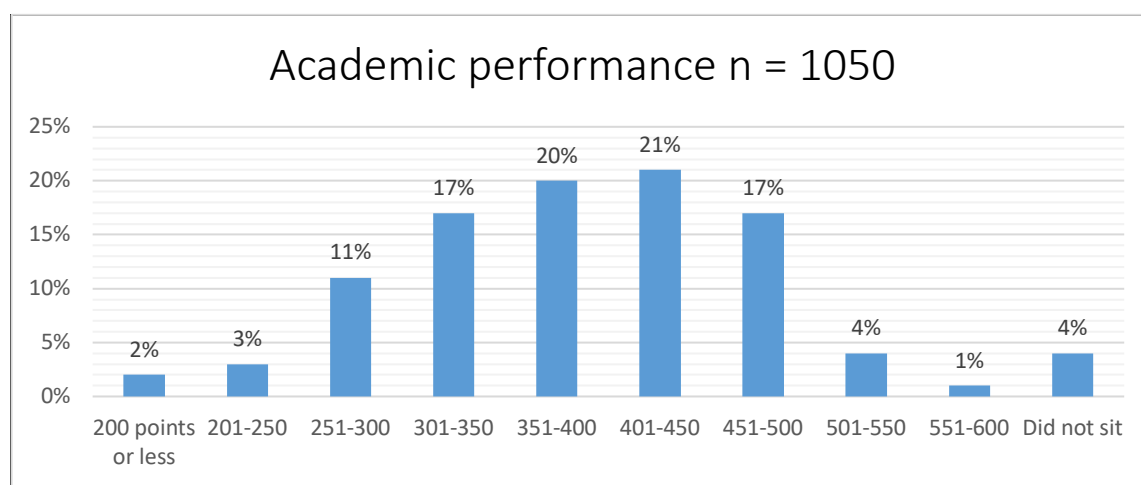


Figure 4.10a – Academic performance (points achieved in the LC examination)

Proportions within the control group were closely aligned with those of the DIT student population, and with the exception of those with 250 points or lower and higher than 550 points, were aligned to national averages (figure 4.10b).

²⁷ Of the 45 students who did not sit the Leaving Certificate, 11% identified as Irish (presumably returning to Ireland for third level education); 29% were Other White; 38% Asian; 11% Black, and 11% Mixed.

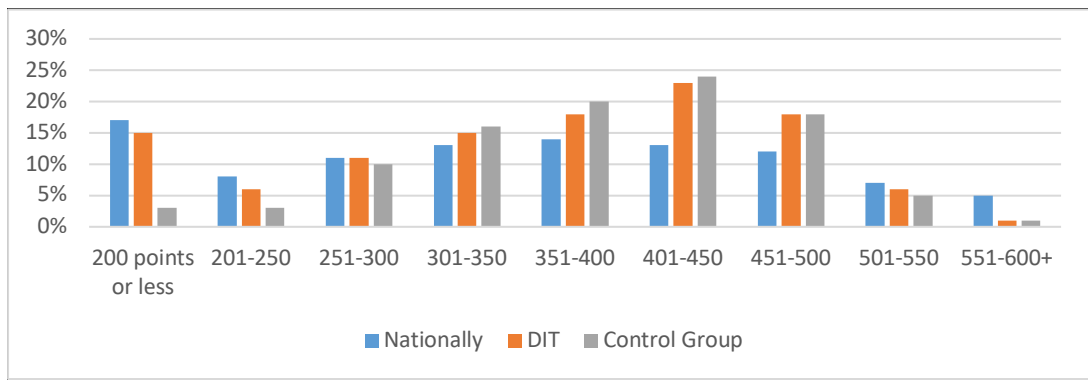


Figure 4.10b – Academic performance comparative to DIT and national averages

Proportions across the two test groups were aligned with the control group (figure 4.10c). Of those who scored higher than 450 points, 49% had taken higher level mathematics, while only 11% of those who had taken the lower mathematics paper scored higher than 450.

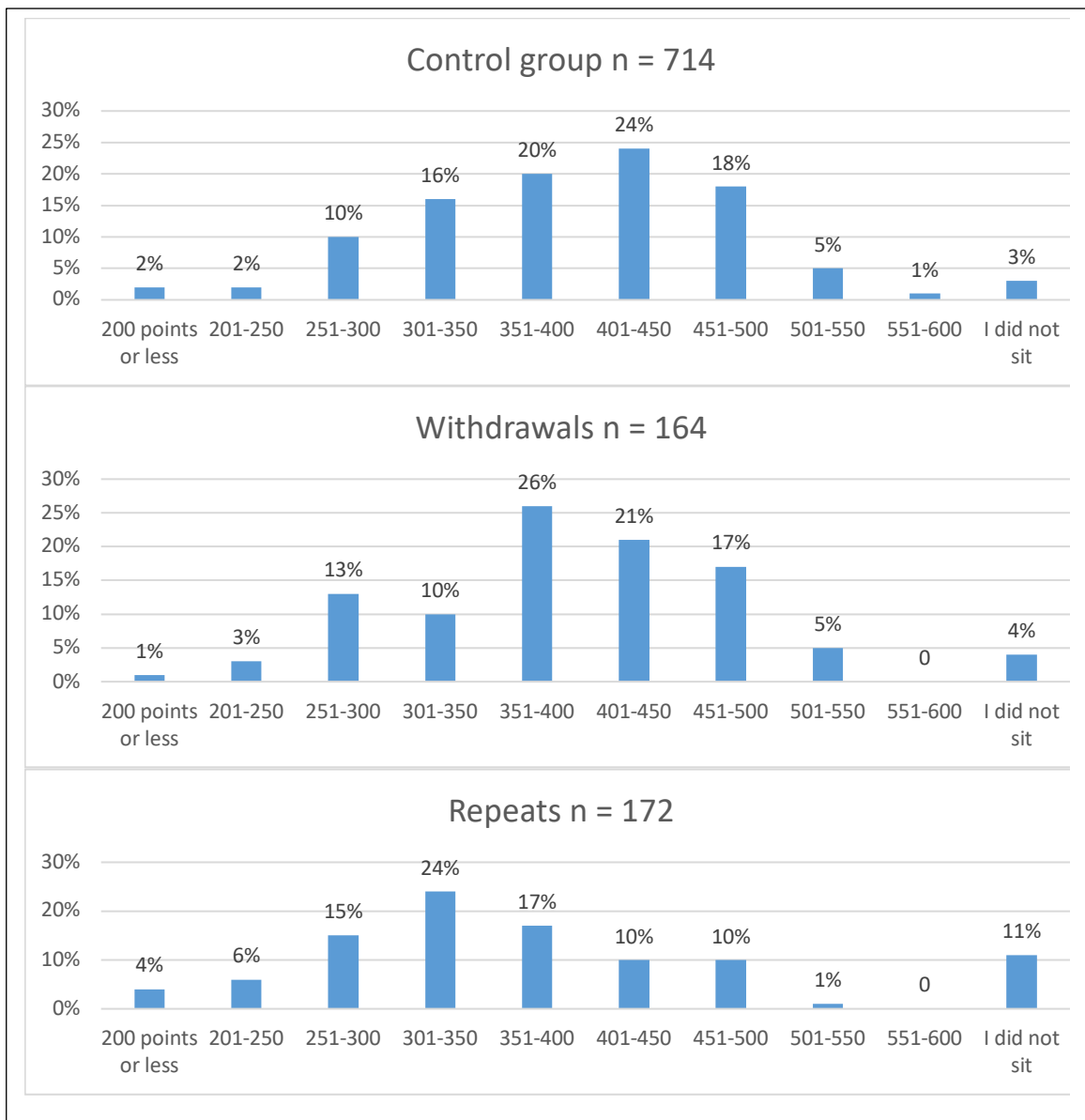


Figure 4.10c – Academic performance by the three study groups

Analysis of other demographic factors in relation to academic performance demonstrated that, students who did not sit the LC examination were over represented amongst the repeat group ($P = .000$). Respondents who performed poorly on the LC examination (<250 points) were overrepresented amongst those who repeated by comparison to the control group ($P = .002$). Older students (21+) were overrepresented amongst those who performed poorly on the LC examination (<250 points) ($P < .001$). There was a greater proportion of students who performed poorly on the LC examination amongst social class E ($P < .001$). Students who did not take higher level mathematics were overrepresented amongst those who performed poorly (200 points or less) ($P = .002$) and 201 to 250 points ($P < .001$) on the LC examination. Students who opted for higher level mathematics were over represented amongst those who performed well on the LC examination (450+ points) ($P < .001$). Students who performed well (501-550 points) on the LC examination were overrepresented amongst those on level eight programmes ($P < .001$). Students who performed poorly on the LC examination (<250 points) were overrepresented on Arts and Tourism courses ($P < .001$) while students who performed well (501-550 points) on the LC examination were overrepresented in Science and Health courses ($P < .001$).

There was a statistically significant relationship between CDSE scores and academic performance ($P = .030$). ANOVA with Bonferroni post hoc testing did not identify significant differences between the groups. The mean CDSE score for students who withdrew having achieved 250 points or less was 144. Amongst those who repeated and scored higher than 500 points had a mean CDSE score of 183, but only accounted for 1% of those who repeated (table 4.9).

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
200 points or less	185.00	184.00	191.00	184.86
201-250	174.90	187.65	143.80	169.36
251-300	177.23	178.96	178.14	171.80
301-350	178.33	179.70	174.00	176.27
351-400	179.49	180.28	177.40	178.73
401-450	177.36	176.82	179.03	179.39
451-500	184.00	183.44	187.93	181.94
501-550	182.60	181.91	185.37	183.00
551-600	189.40	189.40		
Did not sit LC	187.95	188.15	188.67	187.68
Total	179.85	180.40	179.21	178.19

Table 4.9 – CDSE scores by academic performance for the three study groups

4.4.8 Question 8: Higher Level Mathematics

Thirty-one percent (327) of respondents took the higher option mathematics examination, 65% (678) did not. As international students, 4% (45) of respondents did not sit the Irish LC examination (figure 4.11a). These respondents are treated as ‘logical blanks’.

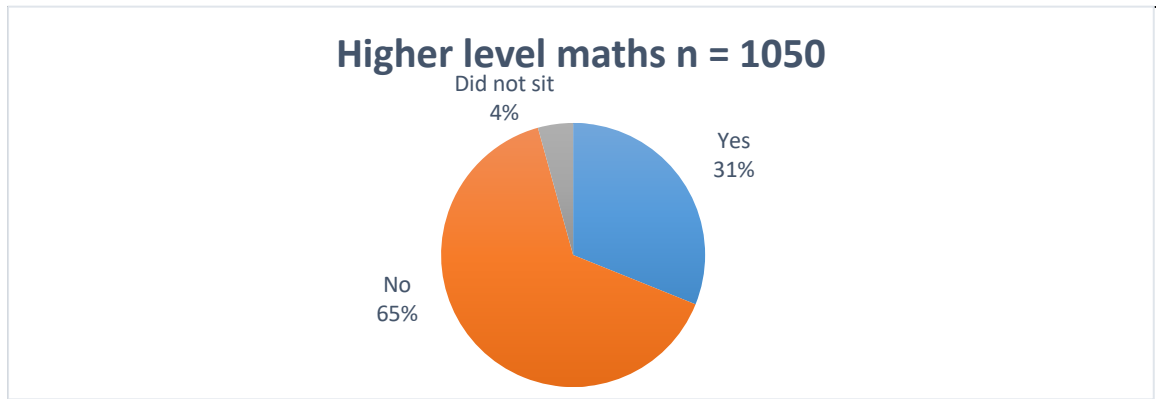


Figure 4.11a – Respondents who took higher level maths

The proportion of respondents who took higher level mathematics within the control group was moderately aligned with that of the DIT student population and national averages (figure 4.11b).

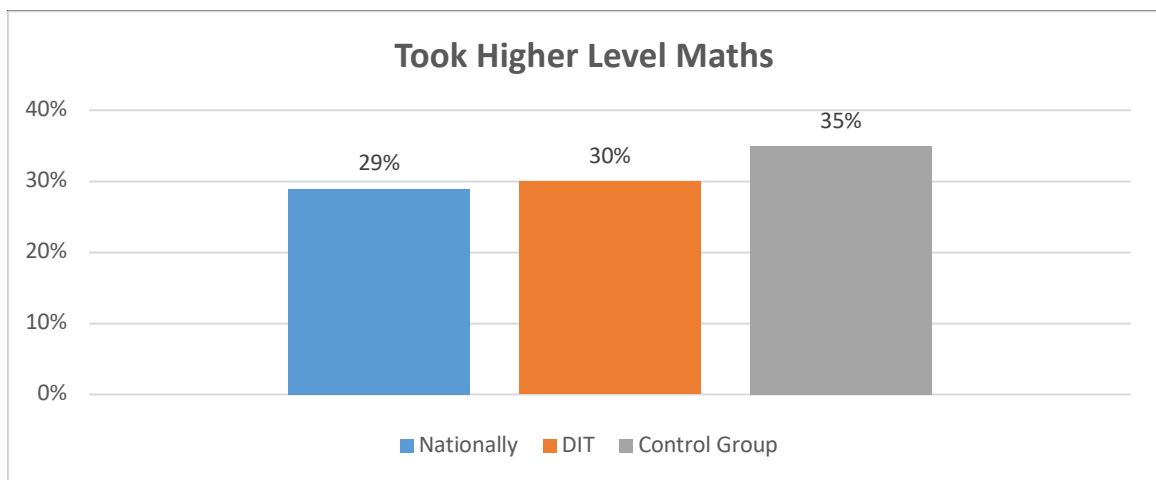


Figure 4.11b – Higher level mathematics by respondents in the control group

Within the control group, 35% of respondents had taken higher level mathematics ($P = .001$). Of those who withdrew only 27% had done so but this did not prove to be statistically significant. Only 20% of those who repeated had taken the higher option ($P = .006$) (figure 4.11c).

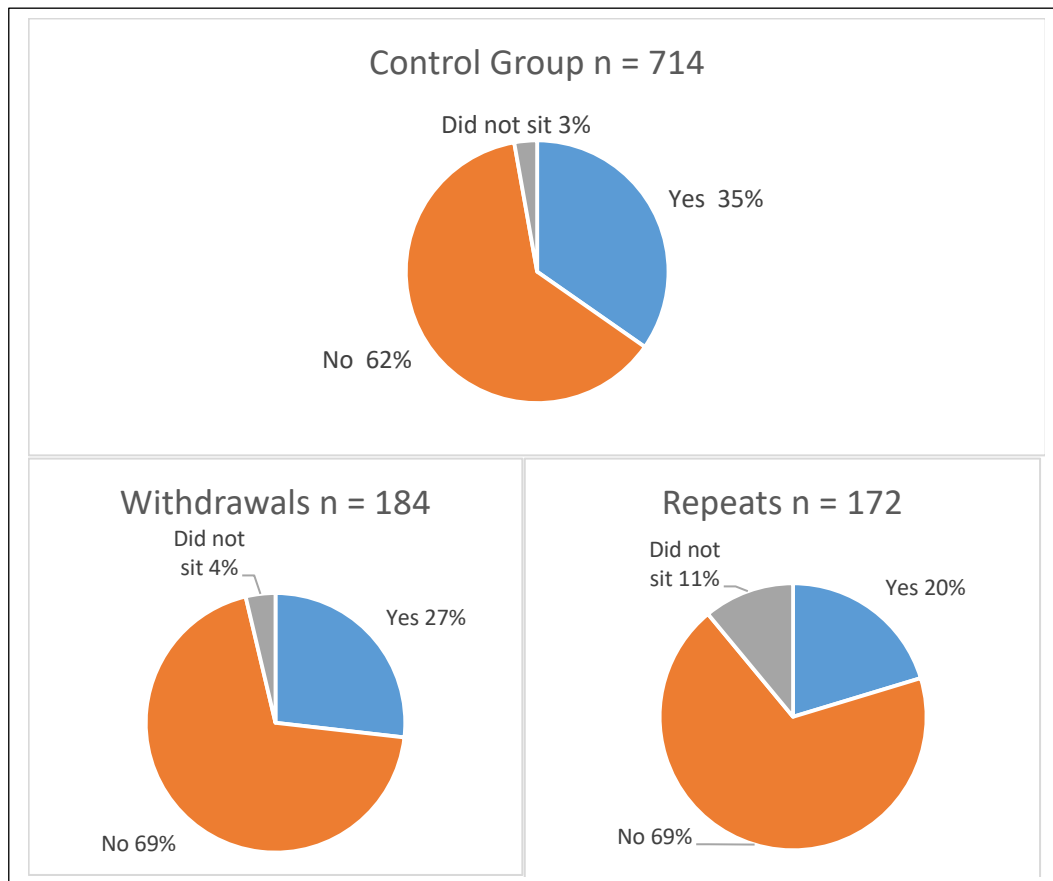


Figure 4.11c – Higher levels maths by respondents for the three study groups

Analysis of other demographic factors in relation to those who took higher level mathematics demonstrated that, 51% were male, with 47% female (2% preferred not to identify). Although amongst those who did not take higher level mathematics females were overrepresented (40% were male with 59% female) this did not prove to be statistically significant. Older students (21+) were overrepresented amongst those who did not take higher level mathematics ($P < .001$). Students who came from households where the primary earner had master's degree level education were over represented amongst those who took the higher option ($P = .002$). Students who took higher level mathematics were overrepresented amongst those students who performed well (>450 points) in the LC examination ($P < .001$). Students who took higher level mathematics were overrepresented amongst students who achieved their first preference in course choice ($P < .001$). A greater proportion of students who did not take higher level mathematics came from families where the highest level of education was primary ($P = .001$).

The CDSE scores showed little difference between those who took higher level mathematics and those who did not (table 4.10). Those students who did not sit the Irish Leaving Certificate had higher CDSE scores ($P = .02$). ANOVA bonferroni post hoc testing demonstrated the difference was with students who did not sit the Leaving Certificate compared to those who did not take higher level mathematics ($P = .03$).

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
Yes	181.16	180.94	186.27	176.34
No	178.68	179.75	176.00	177.21
Did Not Sit	187.96	188.15	188.17	187.69
Total	182.60	182.95	183.48	180.41

Table 4.10 – CDSE scores for higher versus lower mathematics for the three study groups

4.4.9 Question 9: Performance in Higher Level Mathematics

Of the 327 students who took higher level maths, 35% (114) did so in the academic year 2016/17, 65% (213) in 2017/18. Figure 4.12a demonstrates their performance. Results are shown by year due to a change in the grade bands from one year to the next. The new grade bands encouraged 30% more students to attempt higher level mathematics in the second year of the study.

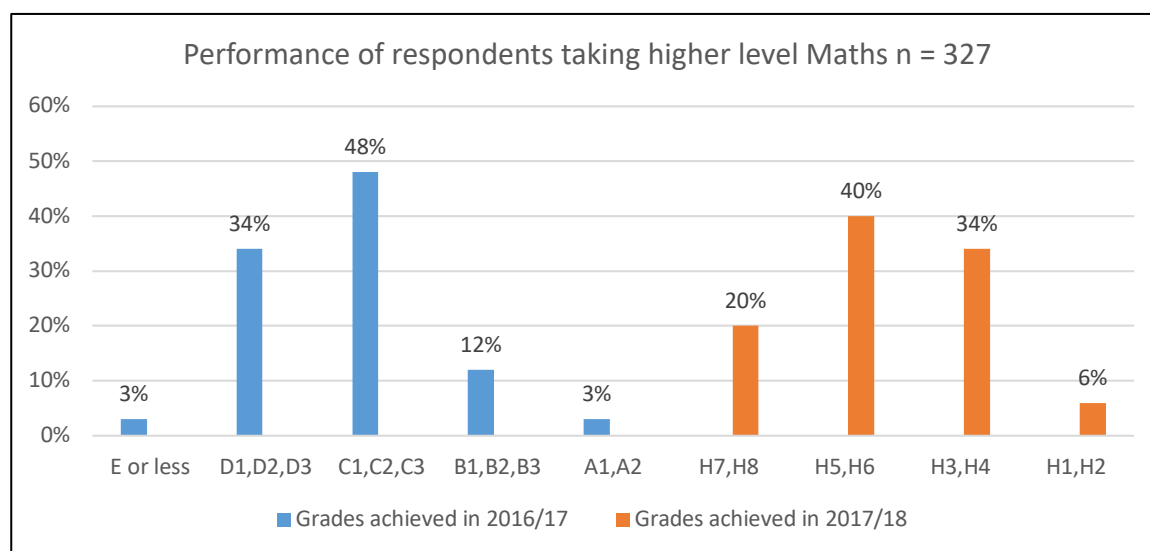


Figure 4.12a – Performance of respondents in higher level mathematics

Within the control group, of those who had taken the higher option, 30% achieved a grade of 60% or higher²⁸ (figure 4.12b). Of those who withdrew (and took the higher option) only 23% had achieved a grade of 60% or higher. Conversely, 77% of students who withdrew scored below 60% on the higher option. Amongst those who returned to repeat (and took the higher option) 54% had

²⁸ A score of 60% or higher in 2016/2017 was a grade of C2, B1, B2, B3, A1 and A2. In 2017/2018 a score of 60% or higher was a grade of H1, H2, H3 and H4.

achieved a mark of 60% or higher, with 46% achieving a mark less than 60%. Analysis of other demographic factors in relation to performance on higher level mathematics demonstrated that, within the control group, participation by females in the higher option dropped between the two years of the study. In the first year (2016/2017) 62% of those taking the higher option were female (32% male). However, in the second year (2017/2018) this had fallen to 38% as the number of males practically doubled to 62%. In the first year (2016/2017) 10% of females scored 60% or higher (21% of males did so), while in the second year (2017/2018) this increased to 31% for females and 42% for males. Due to small proportions these percentages did not prove to be statistically significant and are presented here as indicators that may form the basis for further research.

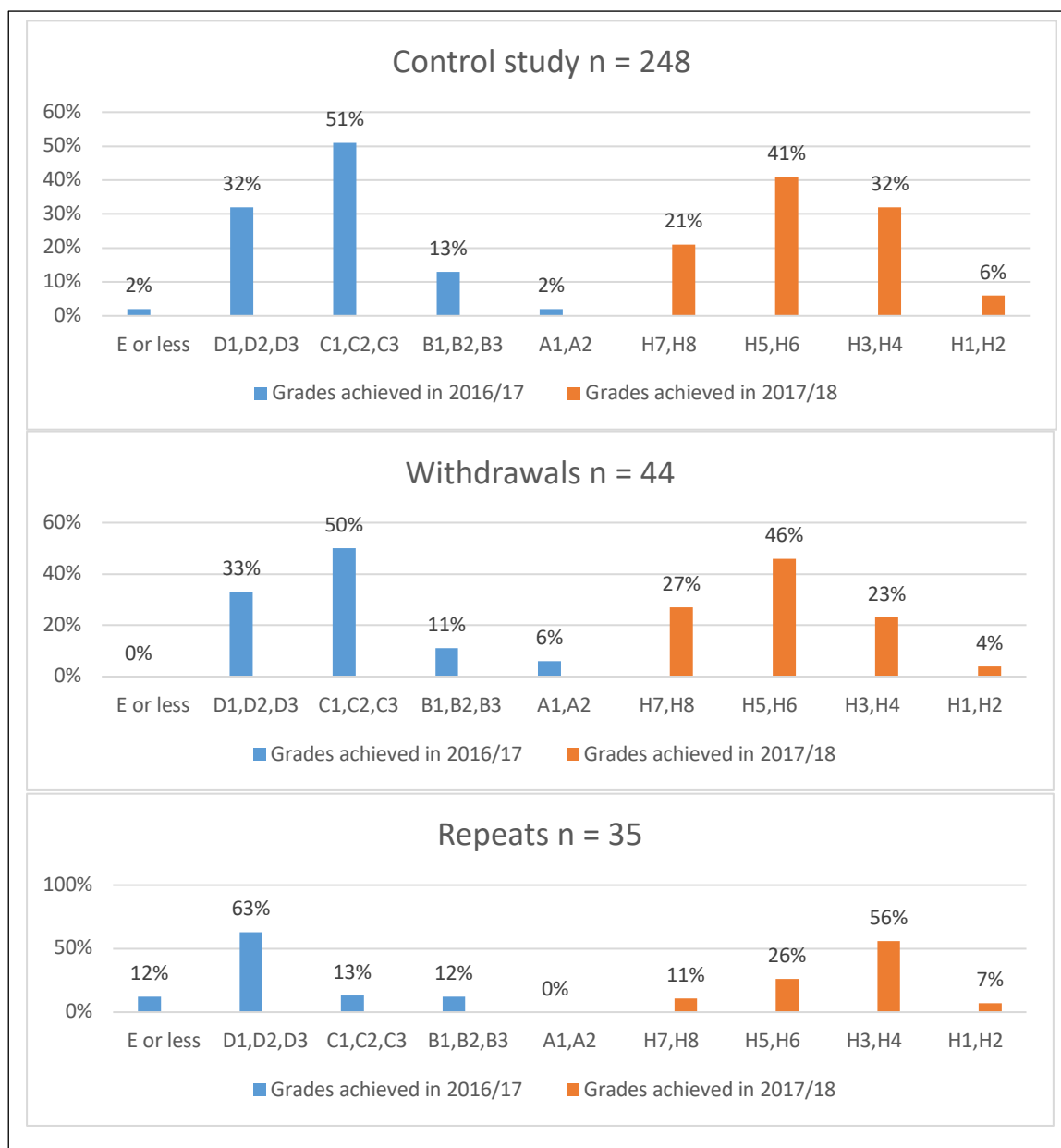


Figure 4.12b – Performance of respondents in higher level mathematics for the study groups

The CDSE scores indicated a difference in scores for academic year 2017/2018 (table 4.11). Those who achieved a grade of 80% or higher on the higher-level mathematics paper had a mean CDSE score of 191, substantially greater than the overall mean score for this study of 180. There appeared to be a correlation between academic achievement (maths) of the control group and CDSE scores in the academic year 2017/2018 (figure 4.12c). However, ANOVA bonferroni post hoc testing did not show CDSE score differences to be statistically significant in the academic year 2016/2017 ($P = .688$) but did so in 2017/2018 ($P = .040$).

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
2016/2017				
Grade E or less	164.67	183.50		127.00
D1; D2; D3	185.28	188.86	179.66	172.00
C1; C2; C3	183.62	179.40	201.89	209.00
B1; B2; B3	181.14	180.27	162.00	229.00
A1; A2	177.67	184.50	164.00	
Total	183.23	182.73	187.94	178.12
2017/2018				
H7; H8	171.33	170.18	172.43	181.33
H5; H6	182.03	180.30	197.83	171.29
H3; H4	181.43	183.71	170.50	178.07
H1; H2	188.46	190.80	209.00	166.50
Total	180.06	179.96	185.11	175.81

Table 4.11 – CDSE scores for higher level mathematics for the three study groups

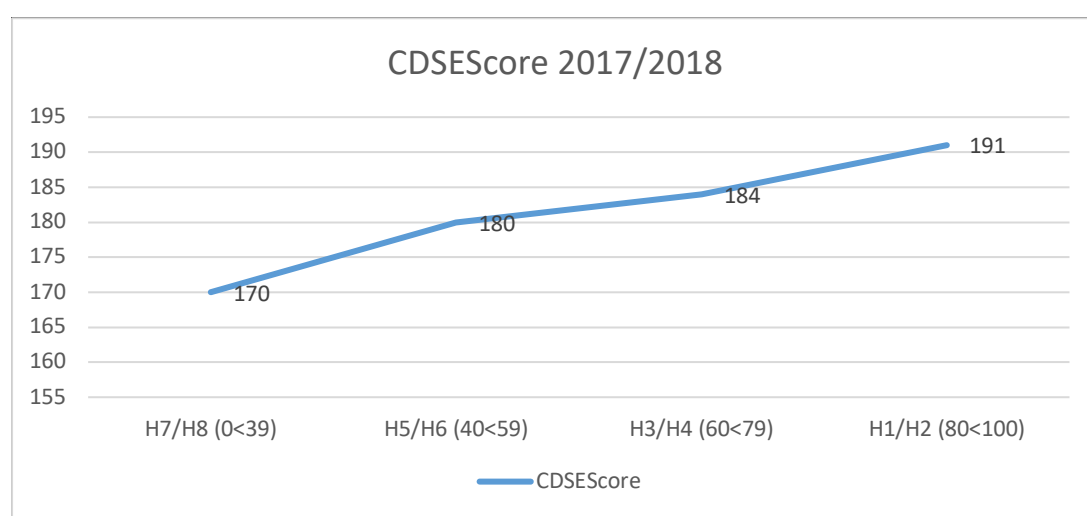


Figure 4.12c – Academic performance (Maths) and CDSE Scores (2017/2018)

4.4.10 Question 10: Higher Level English

Eighty percent (842) of respondents took the higher option English examination, 16% (163) did not. As international students, four percent (45) of respondents did not sit the Irish LC examination (figure 4.13a). These students are treated as ‘logical blanks’.

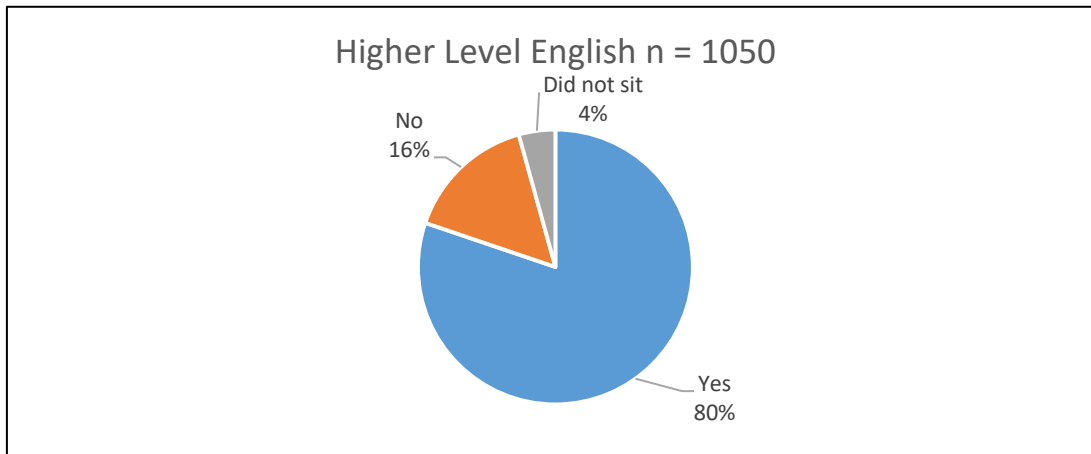


Figure 4.13a – Respondents who took higher level English

The proportion of students who took higher level English within the control group was not aligned with that of the DIT student population and national averages (figure 4.13b).

Amongst those who withdrew, 81% had taken the higher option in English. This is moderately aligned with the control group (figure 4.13c). Of those who repeated, only 62% had taken the higher option ($P < .001$). Conversely, 27% of those who repeated an examination had not taken higher level English ($P < .001$) while only 13% of the control group had not ($P < .001$) (figure 4.13d).

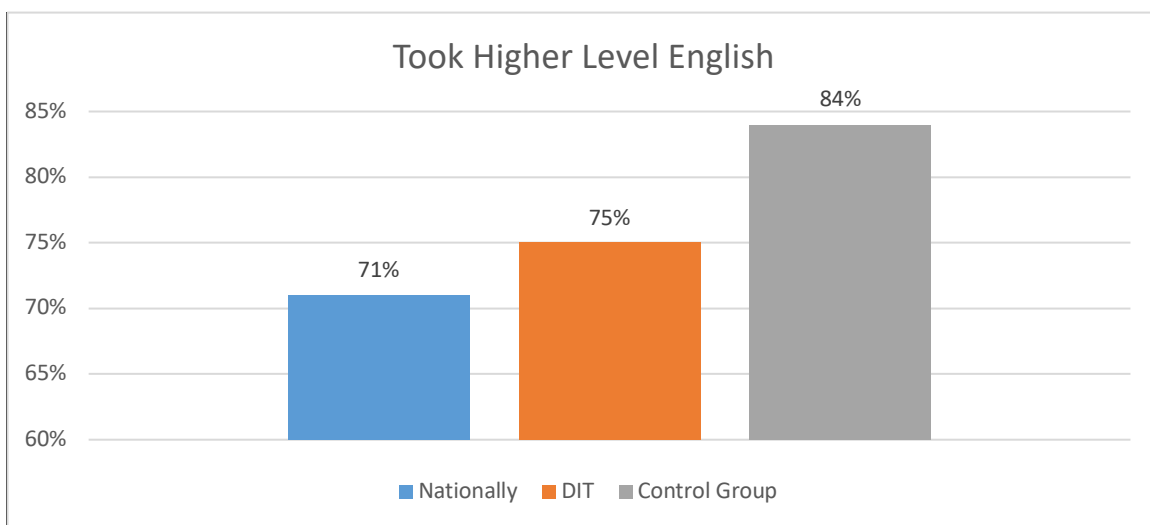


Figure 4.13b – Respondents who took higher English comparative to DIT and nationally

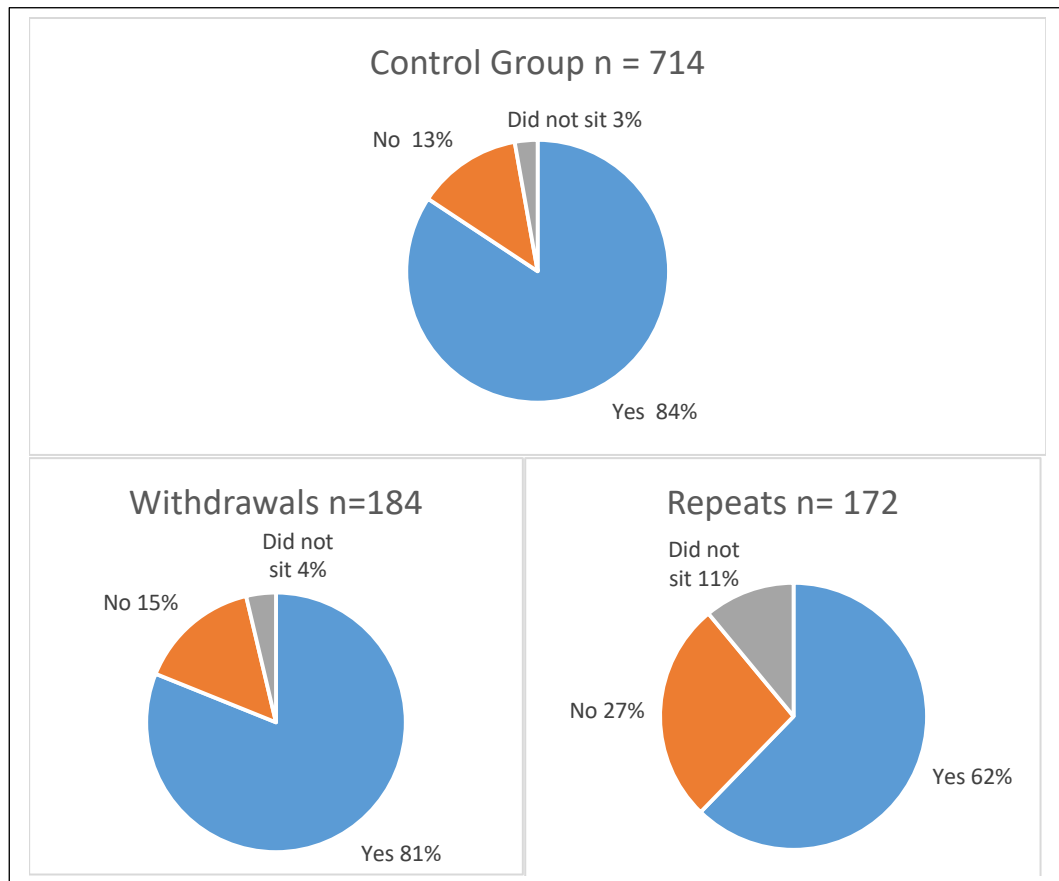


Figure 4.13c – Respondents who took higher level English for the three study groups

Analysis of other demographic factors in relation to those who took higher level English demonstrated that, 42% were male, 57% female (1% preferred not to identify). Amongst those who withdrew and took the higher option, 55% were male, with 45% female. The proportions amongst those who had taken the higher option and repeated was 38% male with 62% female. A greater proportion of those who did not take higher level English are aged 21 and over ($P < .001$). Those who identified as Asian ($P = .005$) and Black ($P = .002$) are overrepresented amongst those who had not taken higher level English. A greater proportion of respondents who did not take higher level English came from family backgrounds where the highest level of schooling was primary ($P < .001$).

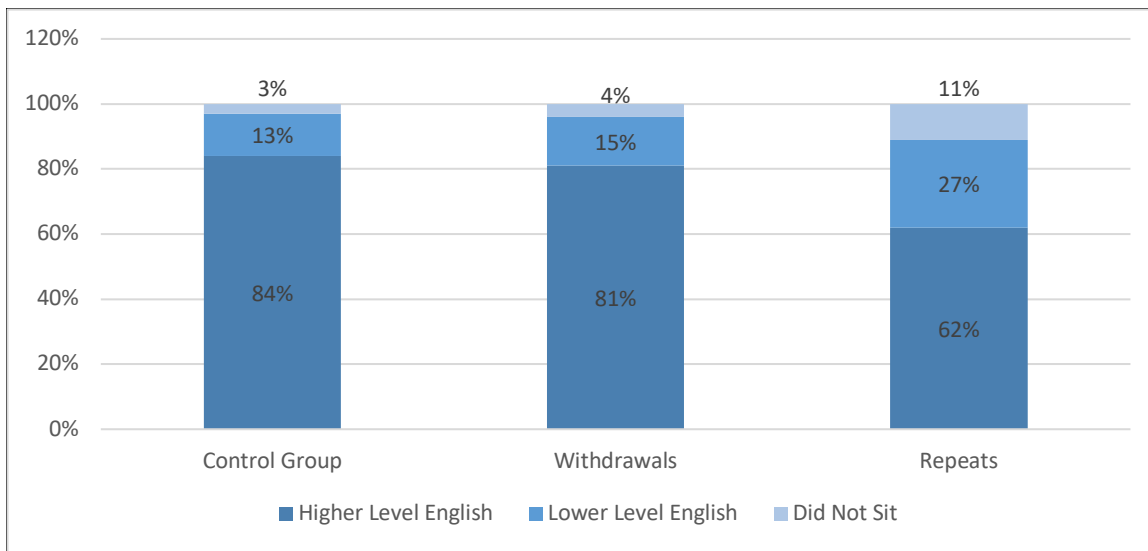


Figure 4.13d – Higher versus lower English

In the control group, the CDSE scores showed little difference between those taking higher level English and those who did not ($P = .094$) (table 4.12). The CDSE mean scores were remarkably close to those for higher level mathematics (figure 4.13e). Of note are the CDSE scores for those who took the lower option for both mathematics and English, with little or no difference between those who opted for the higher papers.

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
Yes	180.05	180.31	180.91	177.55
No	176.59	179.34	168.00	175.76
Did Not Sit	187.96	188.15	188.17	187.69
Total	181.53	180.40	179.03	180.33

Table 4.12 – CDSE scores for higher versus lower English for the three study groups

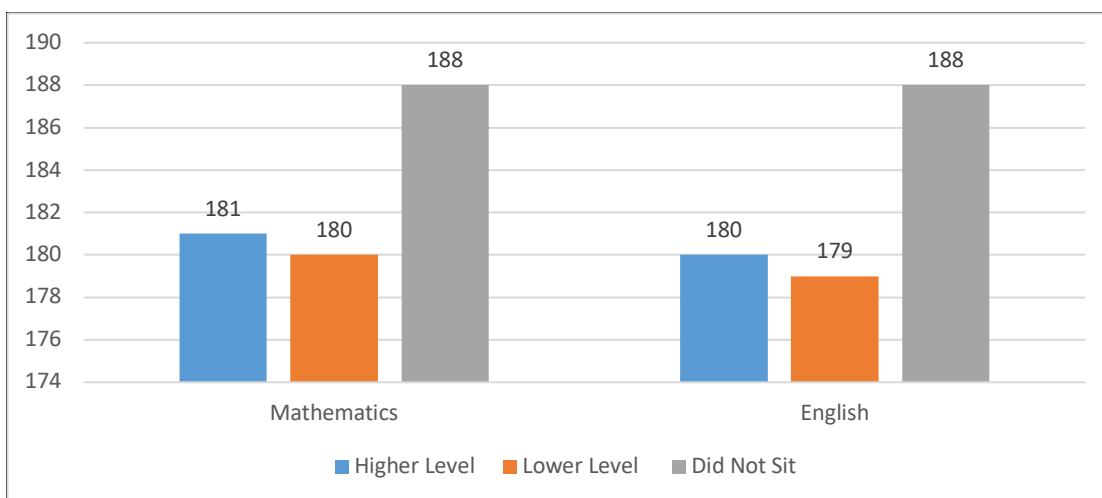


Figure 4.13e – Respondents mean CSDE scores (control group) Mathematics V. English

The CDSE mean scores between the groups showed a significant difference statistically ($P = 0.017$). ANOVA bonferroni post hoc testing demonstrated the difference was between those who did not take the higher option and those who did not sit the Irish LC (international students) ($P = .015$).

4.4.11 Question 11: Performance in Higher Level English

Of the 842 respondents who took higher level English, 43% (362) did so in the academic year 2016/17, and 57% (480) in 2017/18 (figure 4.14a).

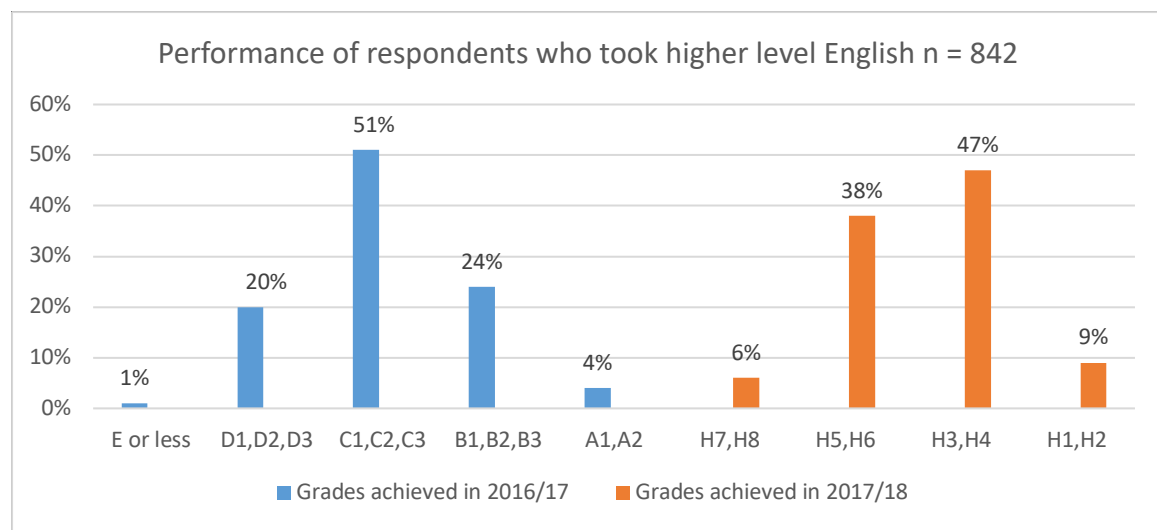


Figure 4.14a – Performance of respondents in higher level English by academic year

In the control group, 84% (604) took higher level English. Thirty-eight percent (229) did so in 2016/2017 and 62% (375) in 2017/2018 (figure 4.14b). The change in the grading bands between the two academic years of the study resulted in a 24% increase in higher level English participation.

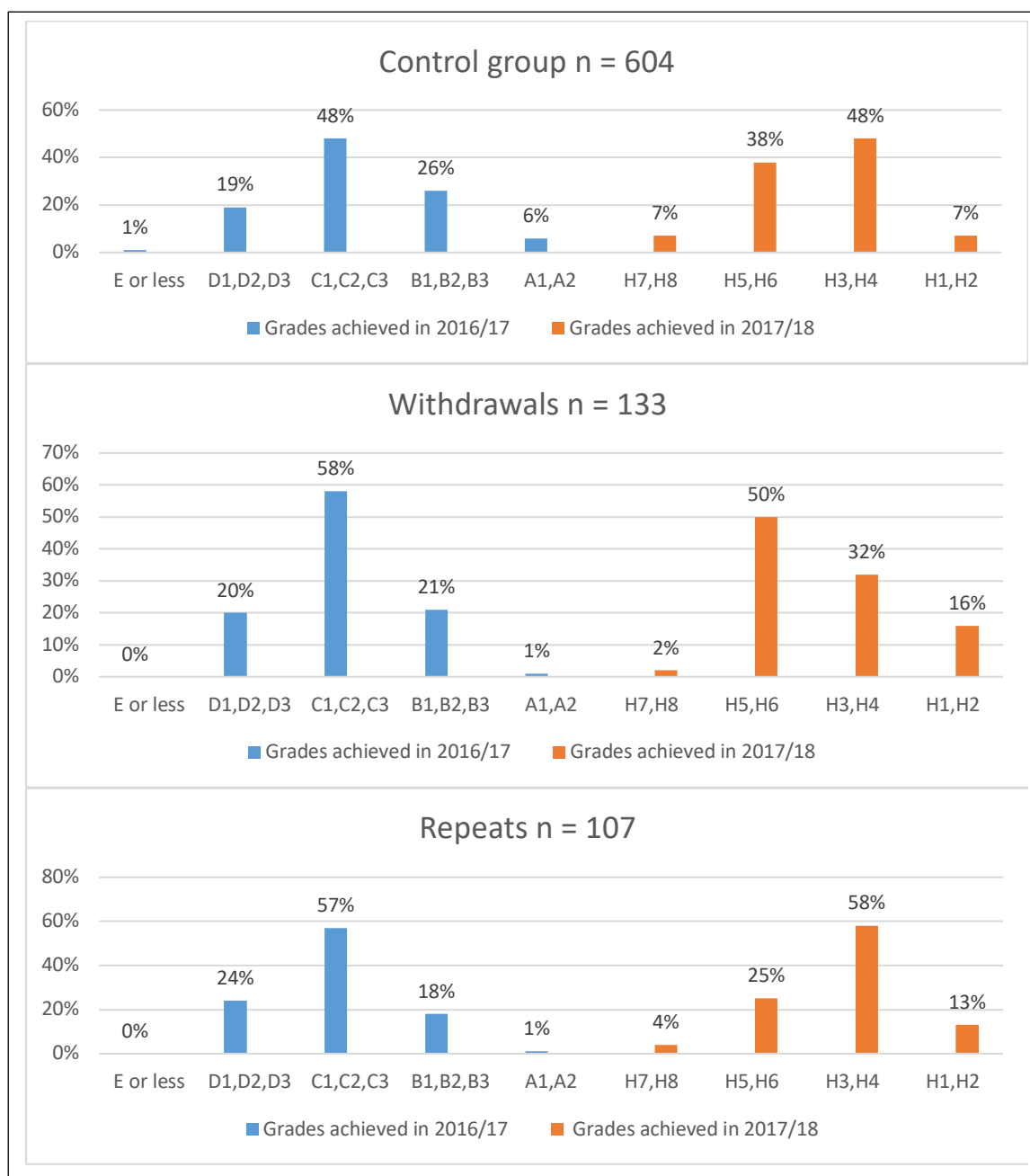


Figure 4.14b – Performance of respondents in higher level English for the three study groups

In the control group, 47% of those who took the higher option achieved a grade of 60% or higher (figure 4.14b). In 2016/2017, 32% of those who took the higher option scored 60% or higher, in 2017/2018 this increased to 55%. Amongst those who withdrew and took the higher option 35% had achieved a grade of 60% or higher, while 41% of those who repeated had done so.

Analysis of other demographic factors in relation to those who took higher level English demonstrated that, in 2016/2017 for the control group, 32% were male, 67% female (1% opted not to identify). In 2017/2018, the proportions were 49% male and 50% female (1% chose not to identify). This resulted in a 17% increase by males and decrease by females of the same percentage (17%).

Amongst those who withdrew and had taken higher English, 55% were male, 45% female. Of those who achieved a grade of 60% or higher, 20% were male with 14% female. Conversely, 80% of males who withdrew from college had achieved a grade of less than 60% on the higher option English paper, with 86% female. In 2016/2017 4% of females who withdrew achieved a grade of 60% or higher, while 18% of males did so. In 2017/2018 this increased to 26% of females and 23% of males.

Amongst those who repeated 62% had taken the higher option English examination.

In 2016/2017, those who performed poorly on the higher option grade E or less, were overrepresented in social class E ($P < .001$). In 2017/2018 those students who performed poorly in higher level English (H7; H8) were overrepresented amongst those who performed poorly in higher Mathematics (H7; H8) ($P = .001$).

The CDSE scores did not show a significantly statistical difference ($P = .061$) (table 4.13). In 2017/2018 there appeared to be a correlation between grades achieved and CDSE scores (figure 4.14c).

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
2016/2017				
Grade E or less	184.50	184.50		
D1; D2; D3	177.99	181.02	177.71	169.33
C1; C2; C3	178.33	178.11	181.24	175.63
B1; B2; B3	185.34	186.27	181.60	185.36
A1; A2	193.50	188.64	230.00	225.00
Total				
2017/2018				
H7; H8	174.59	175.27	174.00	166.00
H5; H6	177.12	177.88	175.48	172.00
H3; H4	181.00	180.70	185.20	179.80
H1; H2	185.96	184.52	186.90	191.33
Total		180.40		

Table 4.13 – CDSE scores for higher level English for the three study groups

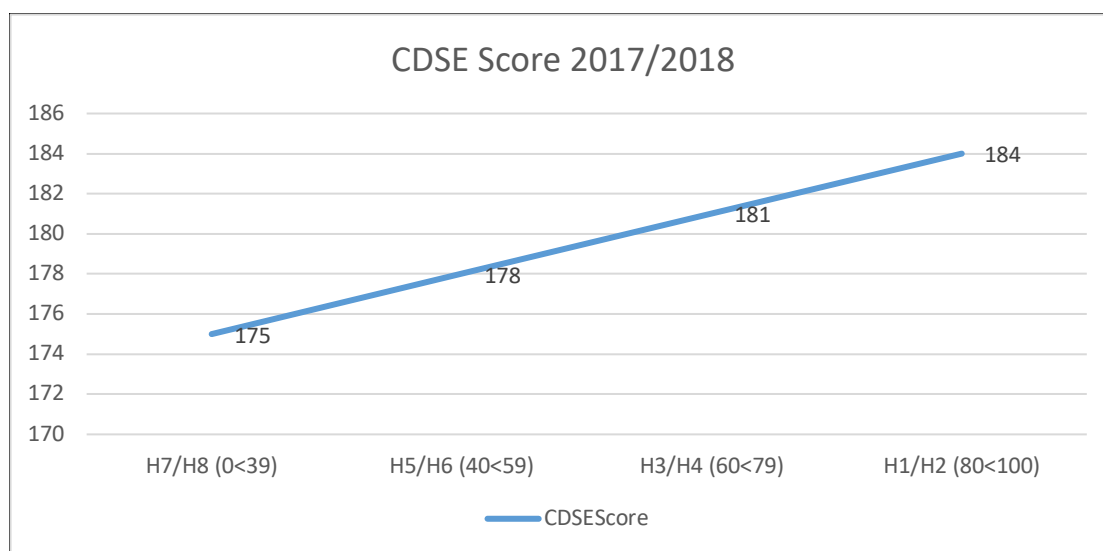


Figure 4.14c – Correlation between academic performance (English) and CDSE Scores

4.4.12 Question 12: Rank of Course Choice

Forty-seven percent (468) of respondents were registered on first choice courses, 18% (184) on second choice courses, 13% (136) on third choice courses, 9% (91) on fourth choice courses, 5% (50) on fifth choice courses continuing in a down word pattern to 1% (6) of students registered on courses of tenth choice (figure 4.15a). Forty-five (4%) of respondents did not answer this question and are treated as logical blanks. Four respondents (0.4%) did not answer this question.

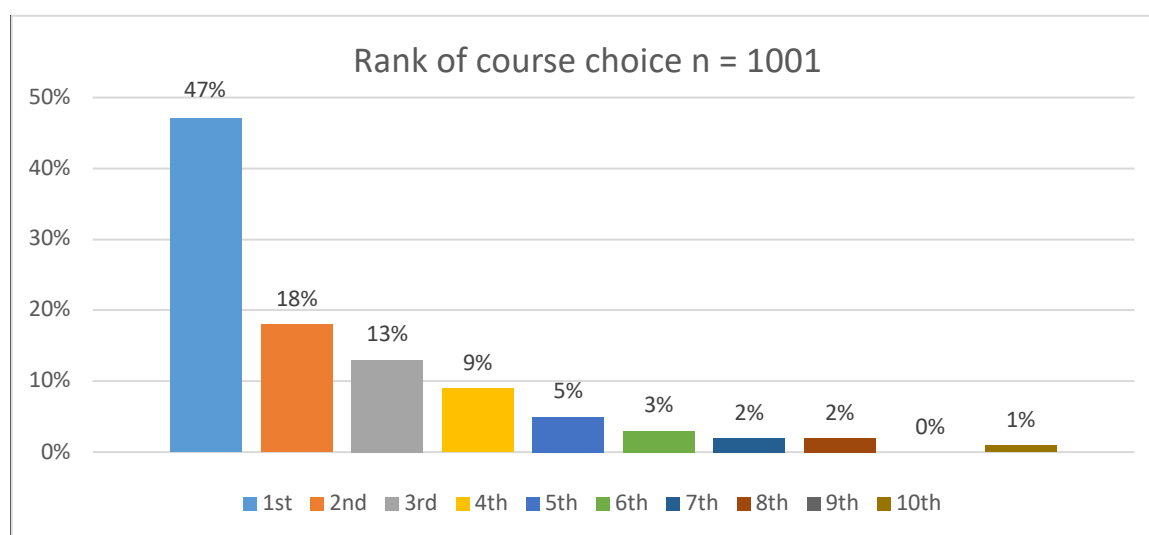


Figure 4.15a – Respondents ranking of course choice first to tenth

Forty-four percent (44%) of the control group were studying on a course of first choice, 56% of those who withdrew and 51% of those who repeated did so from courses of first choice (figure 4.15b). Within the control group 59% of females achieved their first choice, 41% of males did so.

Forty percent (40%) of respondents who were 18 years were registered on a first-choice course, while 74% of those 21 or older were. However, of note is that 80% of those 21 or older withdrew from his/her course of first choice, while only 63% returned to repeat.

Analysis of other demographic factors in relation to course ranking demonstrated that, those participants who choose not to identified a gender, were overrepresented amongst those who were registered on courses of tenth choice ($P < .001$). A significantly large proportion of participants aged 21 and over achieved a first-choice course ($P < .001$). Minority groups were over represented on courses of low choice ranking with those who identified as black ($P < .001$) and mixed ($P < .001$).

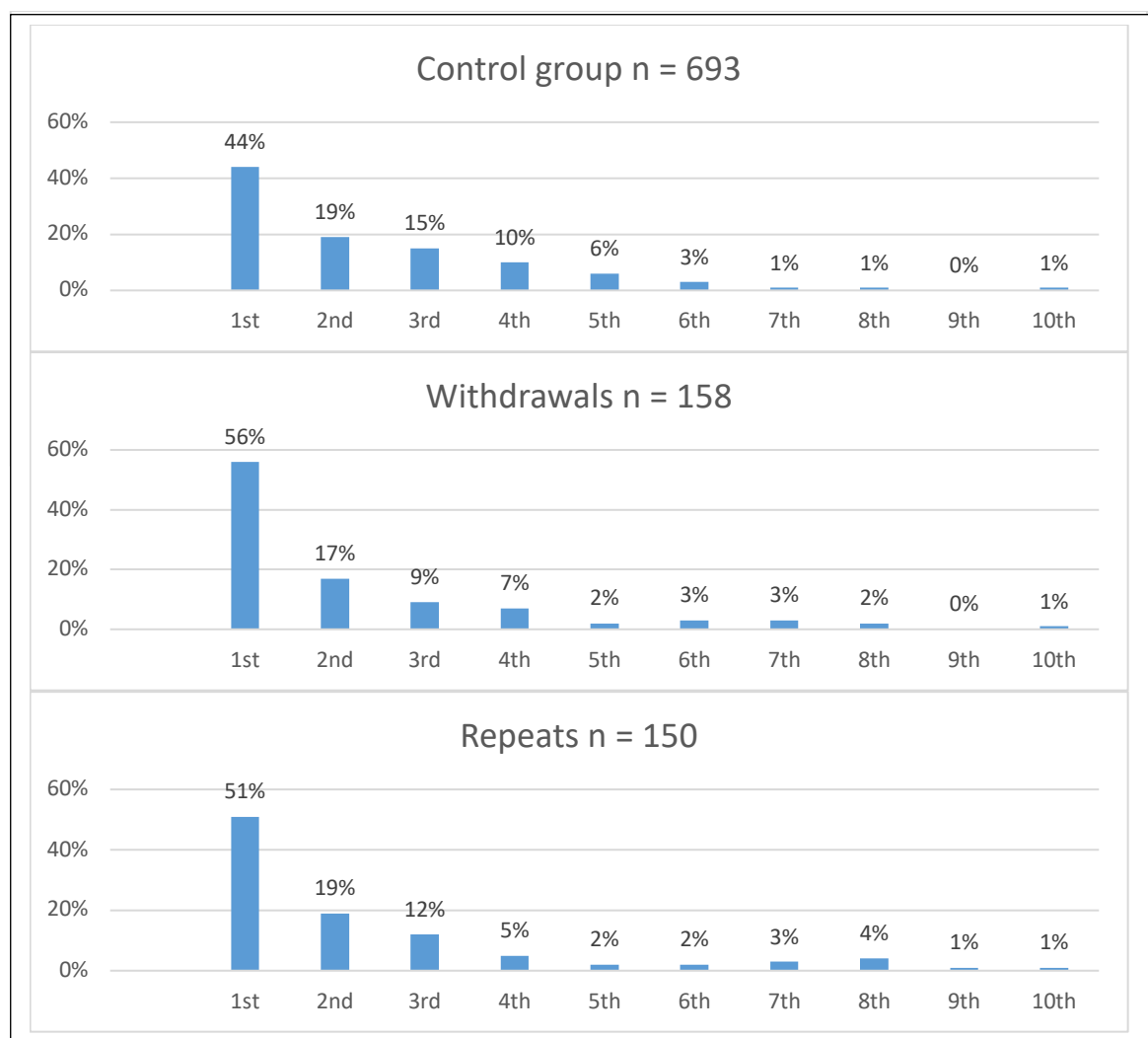


Figure 4.15b – Respondents course choice for the three study groups

The CDSE scores demonstrated that there was not a statistically significant difference between course ranking ($P = .17$) (table 4.14).

Mean CDSE Scores	Overall	Control	Withdrawals	Repeats
1 st	181.52	182.80	176.61	182.10
2 nd	176.33	178.05	176.04	169.03
3 rd	180.86	179.98	190.14	178.79
4 th	174.38	172.99	180.64	178.37
5 th	179.86	182.02	167.50	165.33
6 th	180.15	179.32	203.00	147.33
7 th	178.00	179.11	184.60	167.25
8 th	173.63	168.80	182.33	177.33
9 th	165.50	201.00		130.00
10 th	180.66	191.25	162.00	157.00
Did not sit	187.95	188.15	188.17	187.68
Total	178.08	180.39	179.21	178.05

Table 4.14 – CDSE scores for ranking of course choice for the three study groups

4.4.13 Question 13: Level of course

Twenty-seven percent (280) of respondents were registered on level seven and 73% (763) on level eight courses. One percent (7) did not know on what level course they were registered (figure 4.16a).

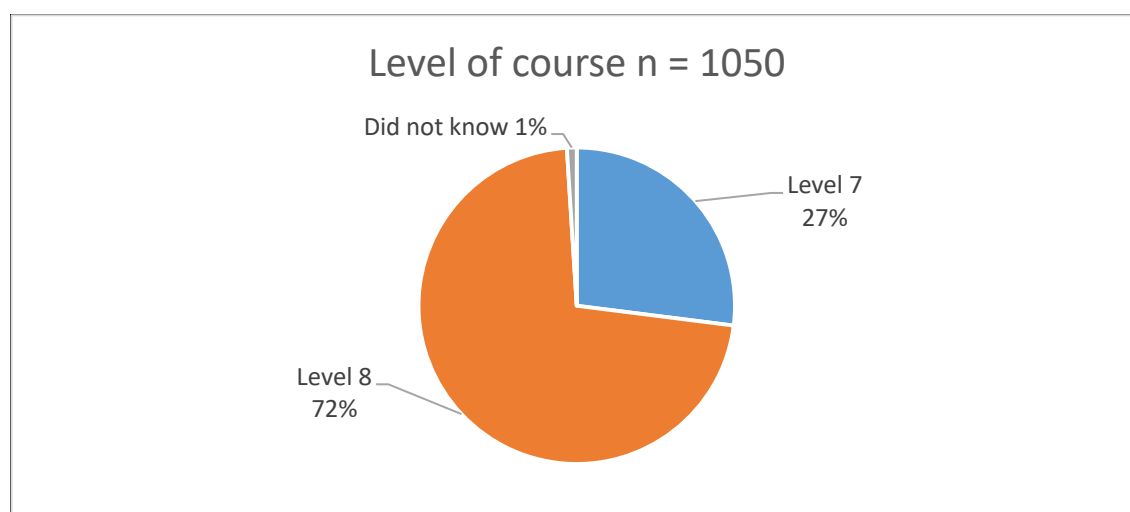


Figure 4.16a – Respondents registered on level of course

The make-up of level of course for the control group was closely aligned with that of the DIT student population and national averages (figure 4.16b). Respondents from level eight courses were overrepresented amongst those in the control group ($P < .001$). The control group is moderately aligned with the withdrawal group and not aligned with the repeat group (figure 4.16c). Four percent (6) of withdrawals did not know what level course he/she were withdrawing from and have an overrepresentation in this group ($P < .001$). Participants from level seven courses were overrepresented amongst those who repeated ($P < .001$) (figure 4.16c).

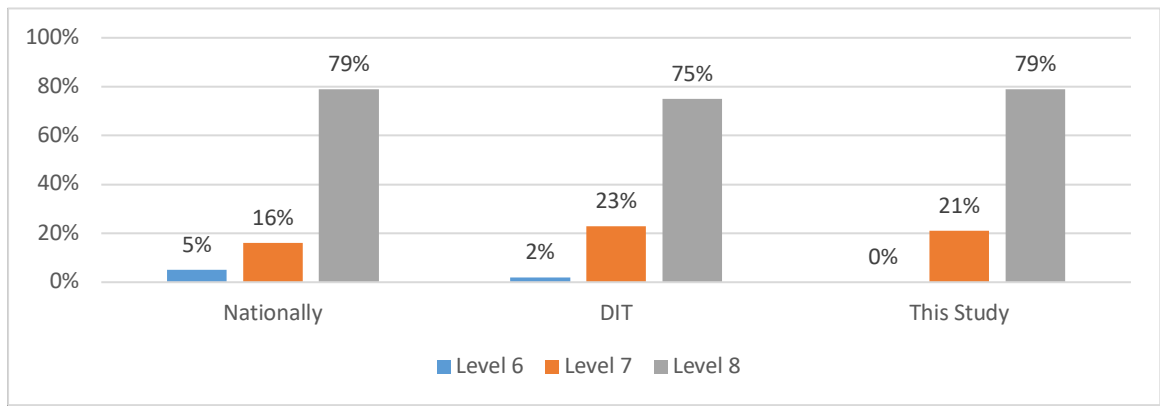


Figure 4.16b – Control group participants by level of course in DIT and nationally

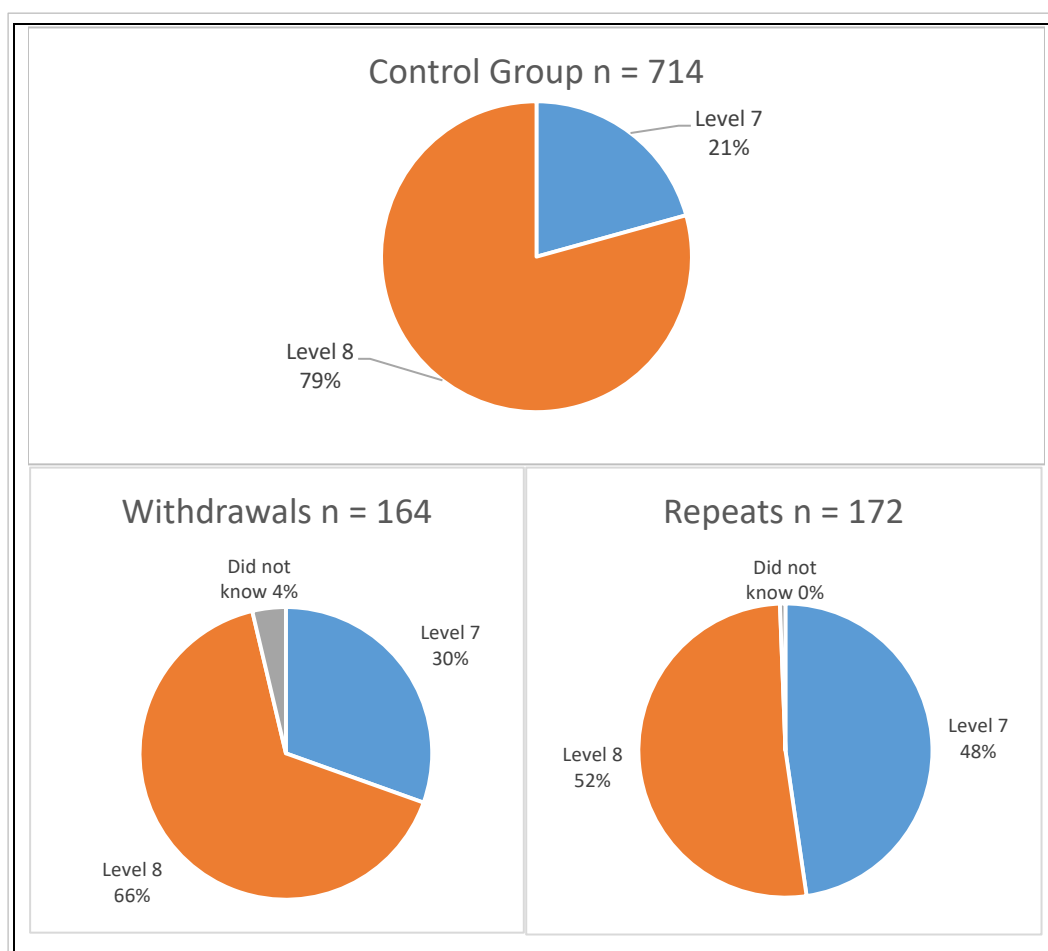


Figure 4.16c – Respondents level of course by study groups

The CDSE scores demonstrated a small difference with the mean scores between level seven and eight courses (table 4.15). There was a notable difference in mean CDSE scores (164) for those who did not know level of course. This did not prove to be statistically significant ($P = .09$).

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
Level 7	178.40	180.03	175.66	177.12
Level 8	180.53	180.50	181.55	179.55
Did Not Know	163.57		166.66	145.00
Total	179.85	180.40	179.21	178.19

Table 4.15 – Mean CDSE scores by level of course

4.4.14 Question 14: Field of Study

Forty percent (416) of respondents were from the college of Arts and Tourism, 21% (225) from Business, 35% (370) from Science and Health, and 3% (30) from Engineering and Built Environment (figure 4.17a). One percent (9) did not know which college they attended/belonged to.

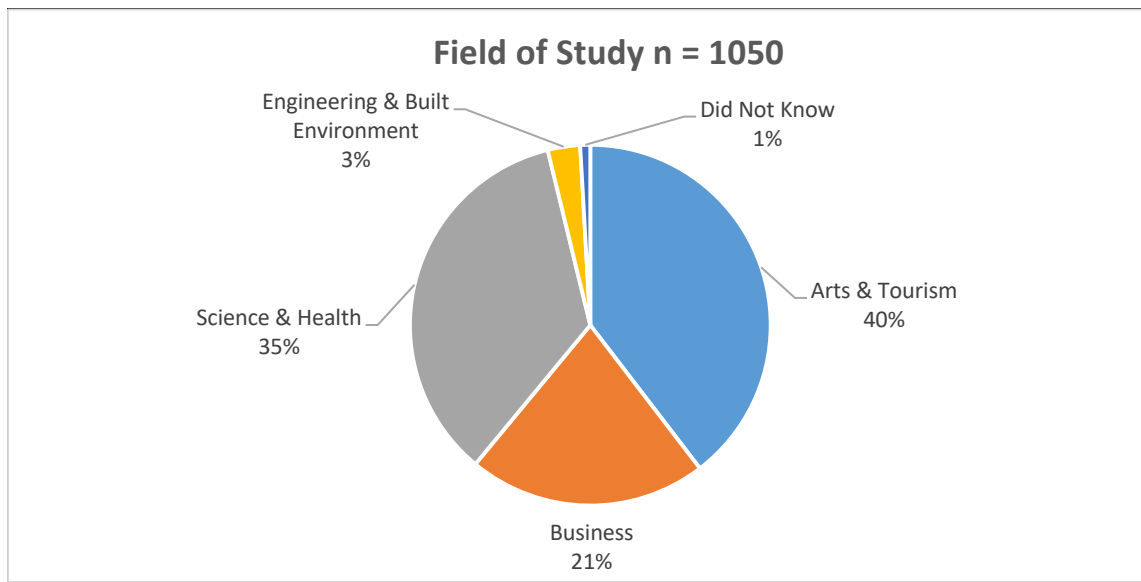


Figure 4.17a – Respondents by field of study/college

Proportions within the control group are moderately aligned with the DIT student population of new entrants and not aligned with national averages (figure 4.17b). Nationally there were 11 fields of study which were collapsed to four in order to align with this study and DIT²⁹.

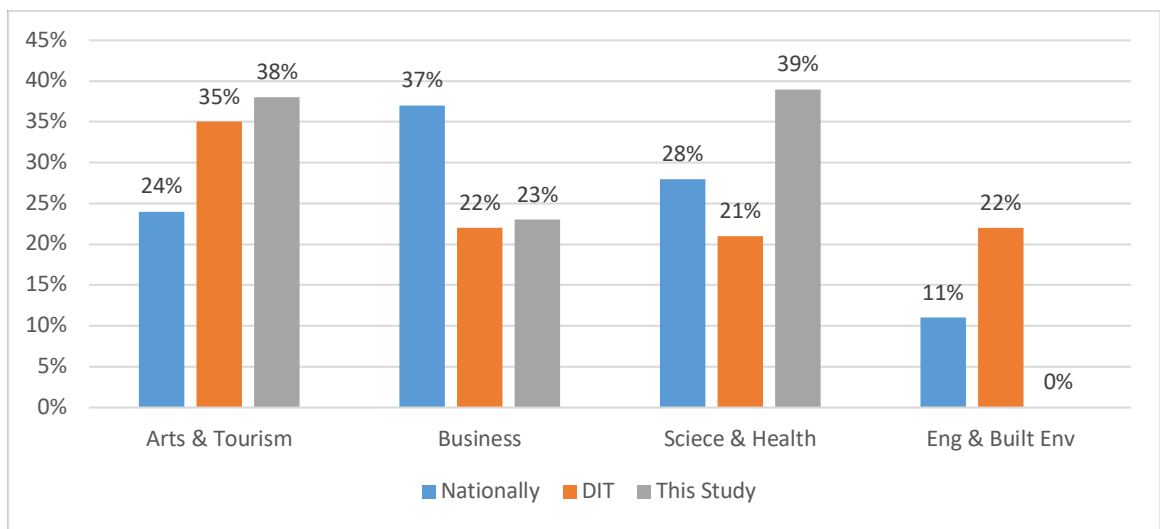


Figure 4.17b – Field of study

The two test groups were not aligned with the control group (figure 4.17c). The control group did not include the college of Engineering and Built Environment as these programmes were not selected initially, the 30 respondents from this college were part of the withdrawal group and were overrepresented here ($P < .001$). All 30 respondents were male.

²⁹ The 11 fields of study available nationally in 2018 were: Arts & Humanities; Natural Sciences, Mathematics & Statistics; Engineering, Manufacturing & Construction; Social Sciences, Journalism & Information; Business, Administration & Law; Agriculture, Forestry, Fisheries & Veterinary; Education; Services; Information & Communications Technology; Health & Welfare; Generic Programmes & Qualifications.

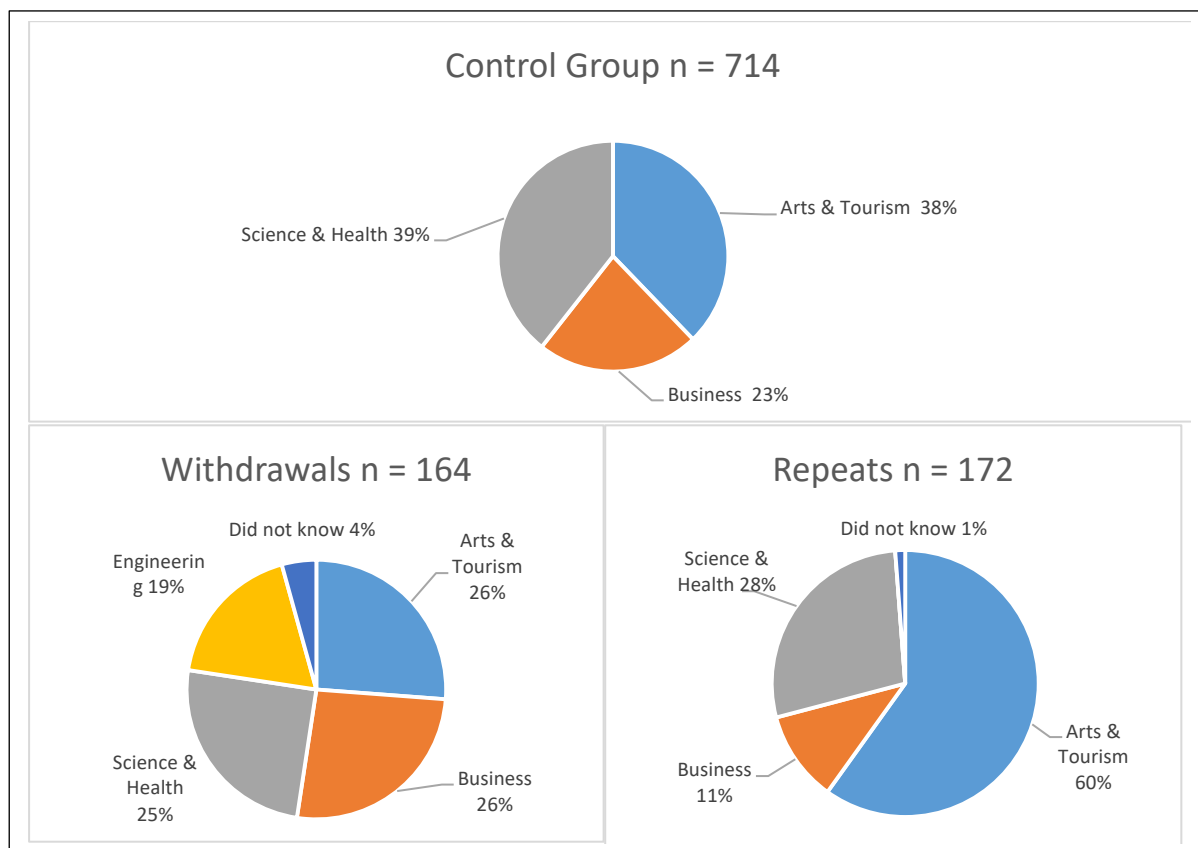


Figure 4.17c - Field of study/college by study groups

Analysis of other demographic factors demonstrated that, respondents from the college of Arts and Tourism were overrepresented amongst the repeats group ($P < .001$). Students from Science and Health are overrepresented amongst respondents from the control group ($P < .001$). Female students are disproportionally represented in the college of Arts and Tourism ($P = .002$). Participants from social class A are overrepresented amongst those in the college of Business ($P < .001$). Participants who did not sit higher level mathematics were overrepresented on courses in the college of Arts and Tourism ($P < .001$) and participants who did sit higher level mathematics were overrepresented on courses in the college of Science and Health ($P < .001$). Participants who did not sit higher English were overrepresented on courses in Arts and Tourism ($P < .001$).

The CDSE scores showed that there was little difference between the three colleges within the control group (table 4.16). However, ANOVA with Bonferroni post hoc testing demonstrated that, amongst those who repeated, a statistical difference between participants on business-related courses and those who did not know college of study ($P = .02$).

Mean CDSE Score	Overall	Control Group	Withdrawals	Repeats
Arts & Tourism	179.82	181.10	175.67	178.22
Business	182.91	181.60	184.00	191.68
Science & Health	178.87	179.04	182.76	174.56
Engineering & BE	175.50		175.50	
Did not Know	159.66		166.57	135.50
Total	179.85	180.40	179.20	178.19

Table 4.16 – Mean CDSE scores by field of study

4.4.15 Question 15: Factors Influencing Career Choice

This question asked respondents to rank, according to a five-point Likert Scale, items which were influential when making their career choices. Respondents were given 14 possible items. Diagrams demonstrating responses are shown in appendix 4. The following chart gives the average scores for each of the 14 variables (figure 4.18). The top five items as ranked by participant were personality, employments prospects, reputation of the course/career, LC points, and reputation of college. The least important item was gender.

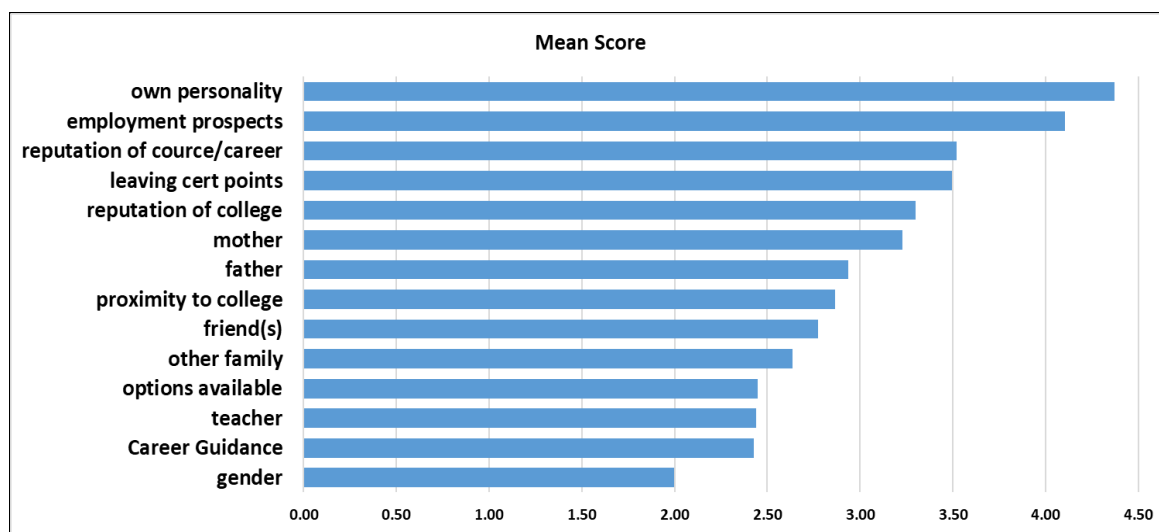


Figure 4.18 – Average scores for influential factors on career choice

A factor analysis was used to analyse the data from this question. The Kaiser-Meyer-Olkin (KMO) test was used which had an overall Measure of Sampling Adequacy (MSA) of 0.73, yielding a verdict of '*middling*'. I deemed this sufficient to conduct a factor analysis (using Principal Axis Factoring) of the influential variables. An initial analysis of the eigenvalues and scree plot suggested that there were three (as opposed to one, two or four) factors that explained variation across students. The three factors were estimated using 'varimax' rotation. Each explained a

roughly equal amount of the variance on influential factors. The factors are given in the following table. The most important influential variables for each factor are highlighted in blue (table 4.17).

	F1 – Career	F2 - School	F3 – Family
Reputation of college/university	0.52	0.26	0.11
Reputation of course/career	0.86	0.14	0.11
Employment prospects	0.52	0.06	0.06
Teacher	0.01	0.53	0.15
Mother	0.01	0.19	0.81
Father	0.00	0.22	0.54
Other family	0.01	0.31	0.36
Guidance counsellor	0.03	0.44	0.06
Friend	0.12	0.48	0.24
Myself/my personality	0.23	-0.03	-0.03
My sex	0.00	0.42	0.16
Proximity to college	0.10	0.21	0.07
LC points	0.05	0.04	0.09
LC options	0.07	0.34	0.13

Table 4.17 – Three *new* factors with individual factors loaded for each

The first factor relates to the student's *career* ambitions. Students who scored highly on this factor were those more likely to emphasise variables relating to their careers: the reputation of the course or career, the employment prospects and the reputation of the university.

The second factor relates to the *school environment*. The students who scored this highly were those more likely to emphasise their teacher, guidance counsellor, friend, sex and leaving certificate options.

The third factor relates to the student's *family*. The students who scored highly on this factor were those that tended to emphasise the influence of a mother, father, or other family members when making the career choice.

4.4.16 Question 16: The Most Influential Parent/Guardian on Career Choice

Sixty-five percent (670) of participants identified mother while 33% (346) identified father as the most influential parent/guardian. Two percent (17) did not answer this question (figure 4.19).

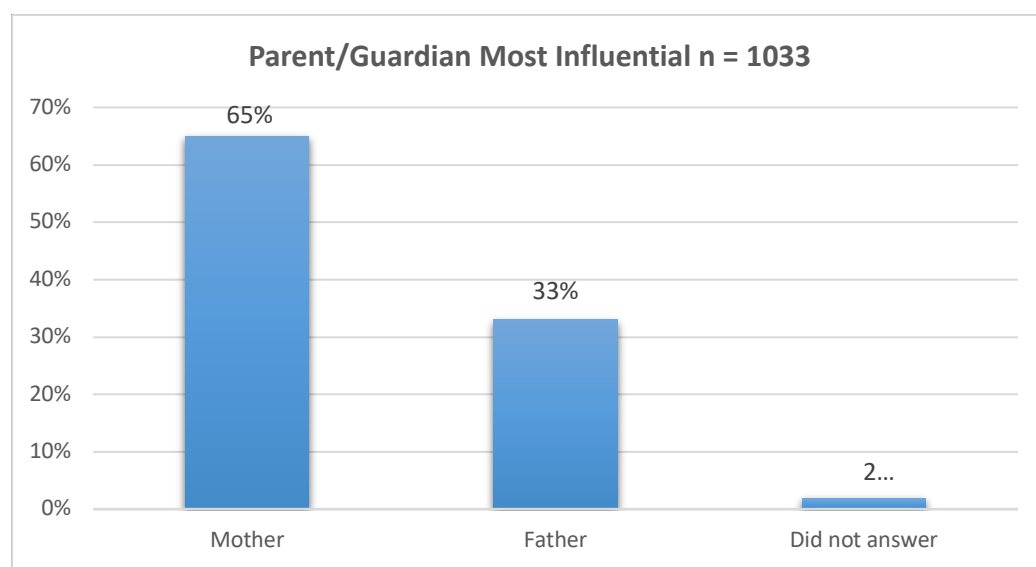


Figure 4.19 – Parent/guardian most influential on career choice

4.4.17 Question 17: CDSE Questionnaire

The findings from the instrument used to measure CDSE scores are presented below (table 4.18). The baseline data demonstrate the CDSE scores for all respondents (n = 1050), the control group (n = 714), the withdrawal group (n = 164) and the repeat group (n = 172). CDSE scores are also presented for the five sub-groups (self-appraisal; occupational information; goal selection; planning; problem-solving). Mean, median, standard deviations, minimum and maximum scores are presents for the three groups and the instruments five sub-groups. The mean scores for each question are presented in appendix 7.

N = 1050	Mean	Median	St. Dev.	Minimum	Maximum
CDSE Score	179.85	180.00	24.141	96	246
Self-appraisal	37.37	38.00	5.550	19	50
Occupational Info.	36.89	37.00	5.789	14	50
Goal Selection	36.00	36.00	5.474	15	50
Planning	35.70	36.00	5.942	15	50
Problem-solving	33.90	34.00	5.993	14	50

Control N = 714	Mean	Median	St. Dev.	Minimum	Maximum
CDSE Score	180.40	181.00	23.009	96	242
Self-appraisal	37.96	38.00	5.307	19	50
Occupational Info.	37.09	38.00	5.672	14	50
Goal Selection	35.96	36.00	5.330	15	50
Planning	35.78	36.00	5.906	15	49
Problem-solving	33.62	34.00	5.906	17	49

Withdraw N = 164	Mean	Median	St. Dev.	Minimum	Maximum
CDSE Score	179.21	178.00	27.96	102	240
Self-appraisal	36.03	36.50	6.182	21	50
Occupational Info.	36.36	36.00	6.347	18	50
Goal Selection	35.97	36.00	5.894	20	50
Planning	35.36	35.00	6.096	20	48
Problem-solving	35.47	36.00	6.345	17	50

Repeats N = 172	Mean	Median	St. Dev.	Minimum	Maximum
CDSE Score	178.19	179.00	24.858	100	246
Self-appraisal	36.20	37.00	5.531	19	48
Occupational Info.	36.55	37.00	5.697	19	49
Goal Selection	36.18	36.00	5.671	20	50
Planning	35.70	36.00	5.963	20	50
Problem-solving	33.56	34.00	5.803	14	50

Table 4.18 – Base statistics for the three study groups

The following boxplot shows the mean scores with the range of CDSE scores for the three groups.

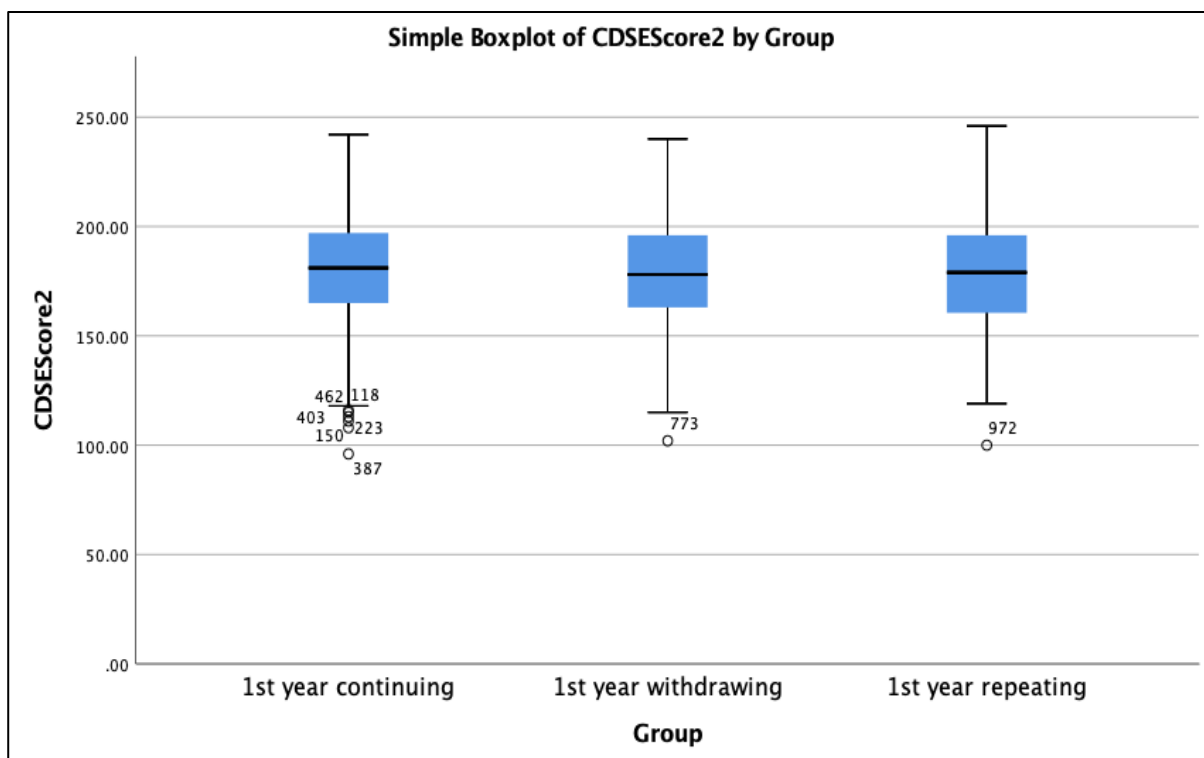


Figure 4.20 – Boxplot of respondents CDSE scores

‘One-way ANOVA’ demonstrated that there was no statistically significant difference between the mean CDSE scores for the three study groups ($P = .523$) (figure 4.21).

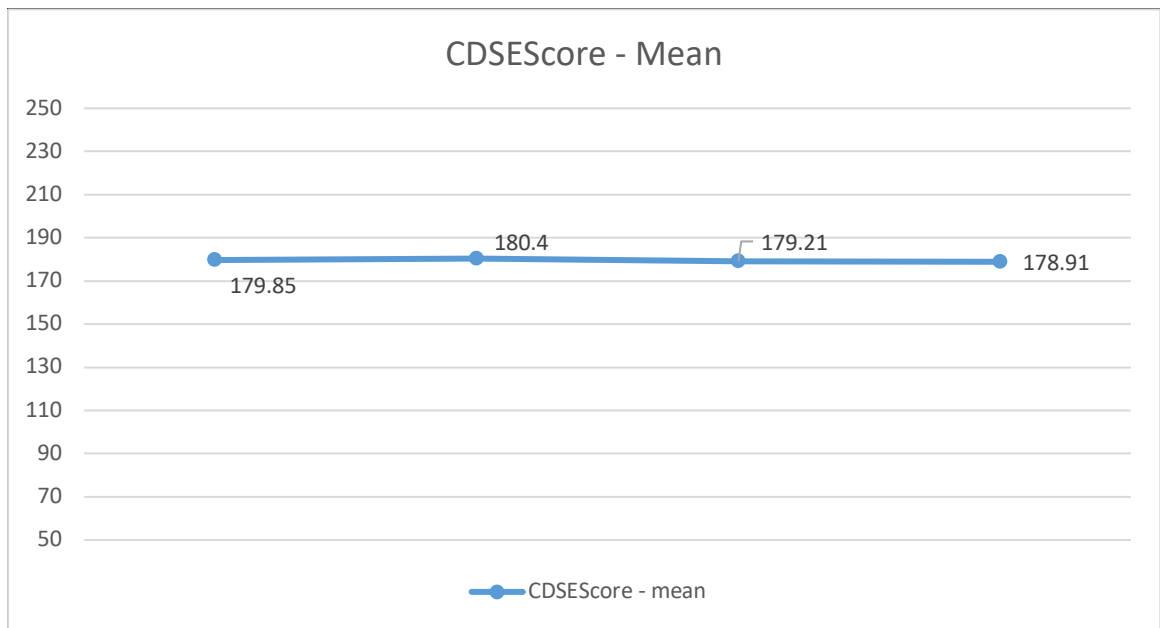


Figure 4.21 – Mean CDSE score for the study groups

The CDSE scale contained five subscales. One-way ANOVA demonstrated that the difference between the mean CDSE scores for self-appraisal is statistically significant ($P = .001$) (figure 4.22).

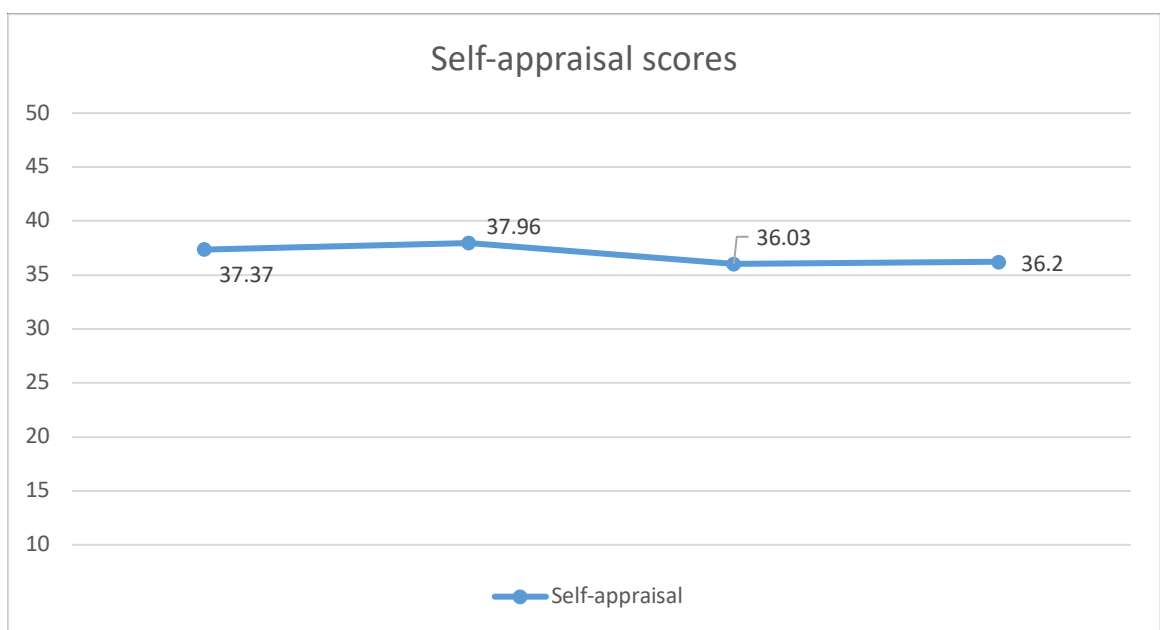


Figure 4.22 – Self-appraisal mean CDSE scores

One-way ANOVA demonstrated that the difference between the mean CDSE scores for occupational information is statistically insignificant ($P = .248$) (figure 4.23).

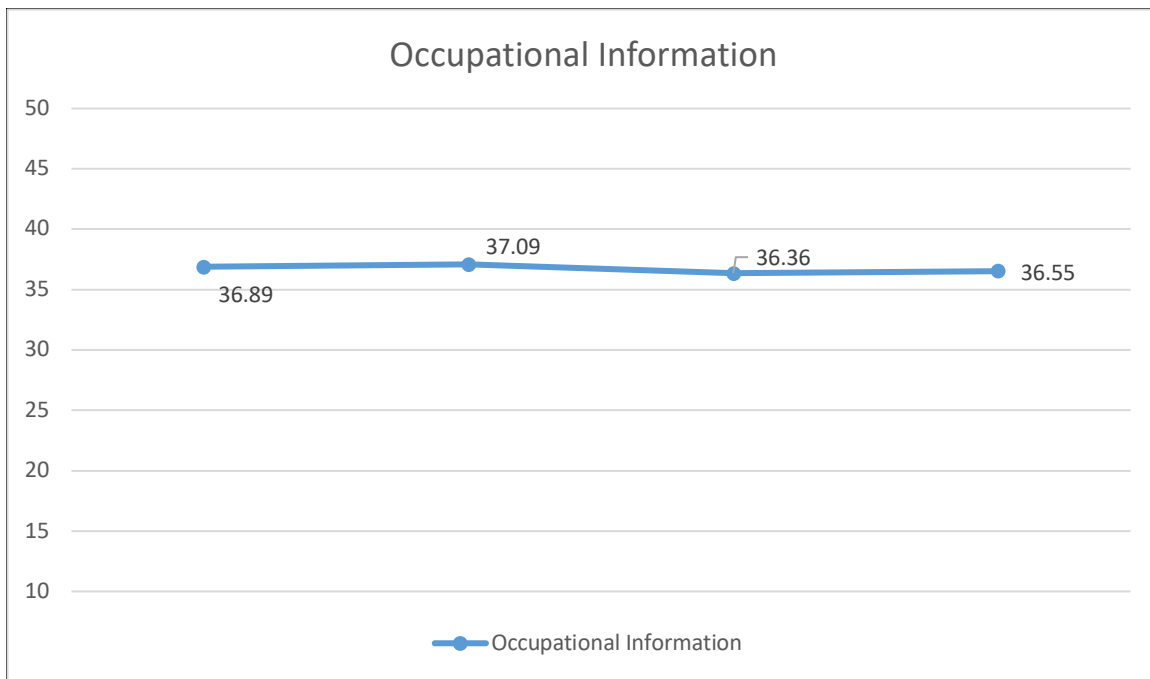


Figure 4.23 – Occupational information mean CDSE scores

One-way ANOVA demonstrated that the difference between the mean CDSE scores for goal selection is statistically insignificant ($P = .895$) (figure 4.24).

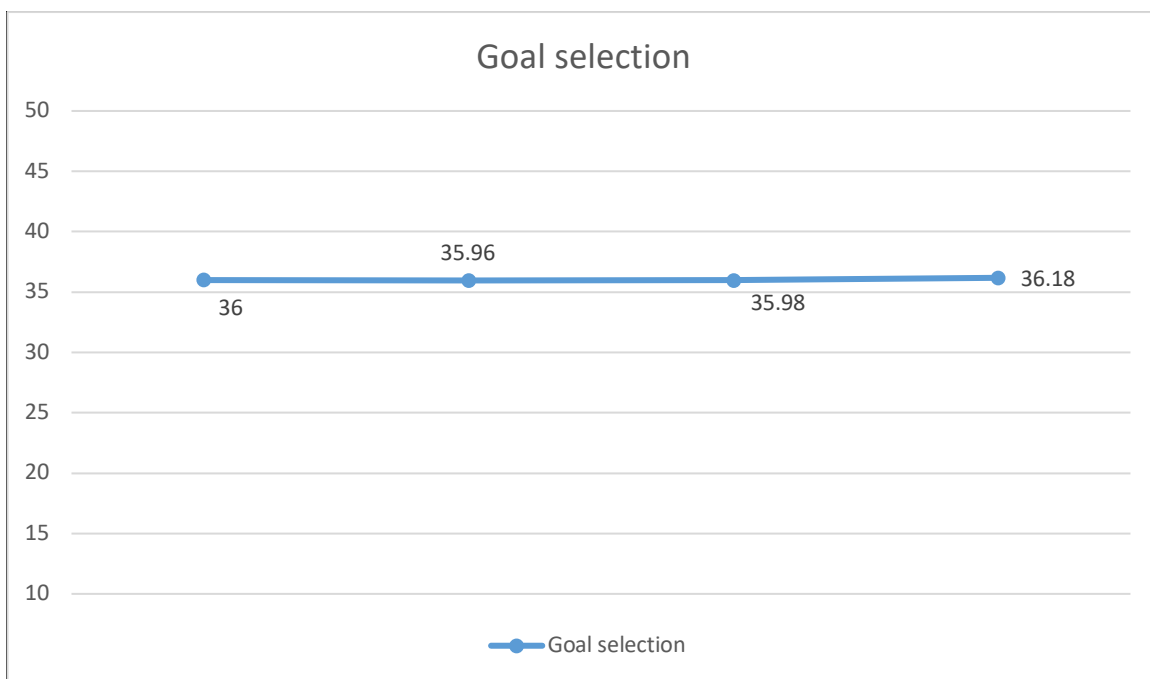


Figure 4.24– Goal selection mean CDSE scores

One-way ANOVA demonstrated that the difference between the mean CDSE scores for planning is statistically insignificant ($P = .724$) (figure 4.25).

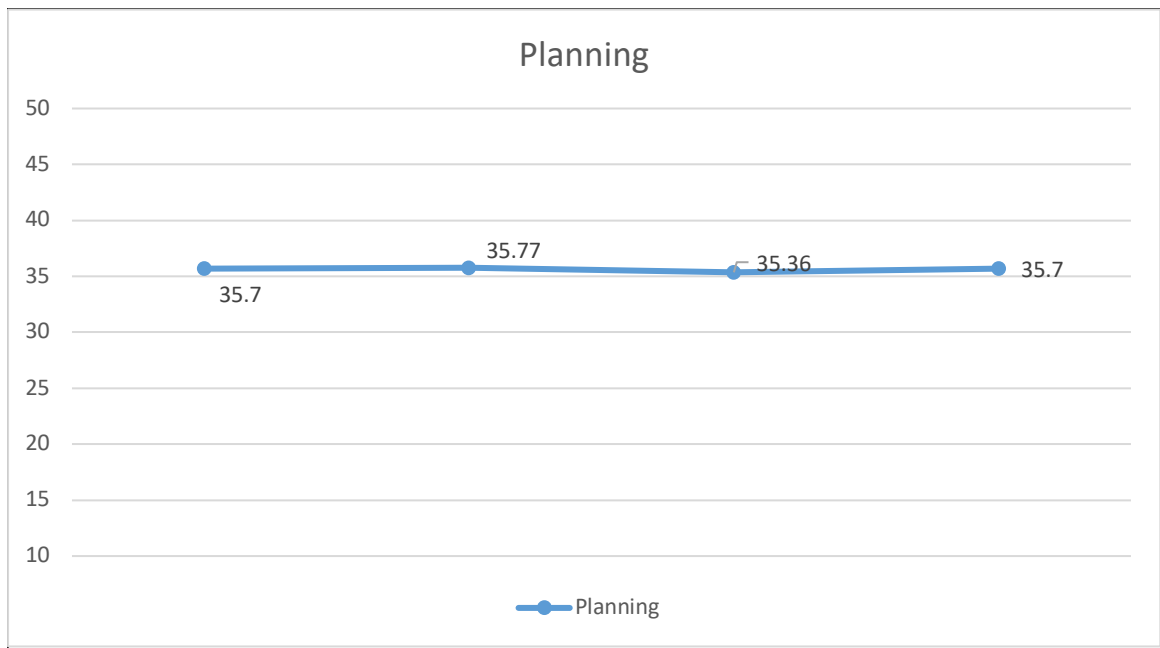


Figure 4.25– Planning mean CDSE scores

One-way ANOVA demonstrated that the difference between the mean CDSE scores for problem-solving is statistically significant ($P = .001$) (figure 4.26).

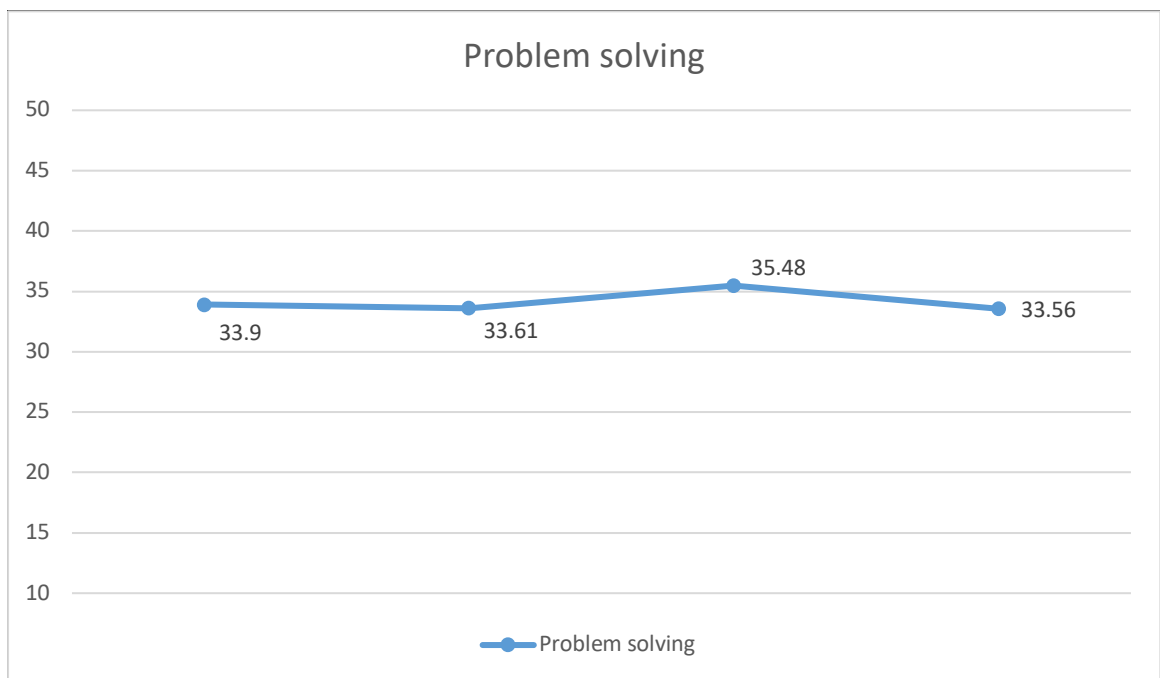


Figure 4.26 – Problem-solving mean CDSE scores

4.4.17.1 Regression Analysis

It was decided that a multi-variable linear regression analysis with backwards elimination was most appropriate to investigate the data and establish relationships between the demographic variables and the CDSE scores for the three study groups.

The following table gives the results of the regression analysis. It highlights the significance of Q1 (Group), Q3 (Age), Q4 (Ethnicity), Q5 (Social Class), EA (Educational Achievement - whether they took Higher Maths and Higher English), and Q12 (ranking of course in terms of choice).

	Estimate	Std. Error	P-Value	
Intercept	184.116	6.431	0.000	***
Q1 - 1st year withdrawing	-1.669	2.086	0.424	
Q1 - 1st year repeating	-6.672	2.190	0.002	**
Q2 – Female	-0.491	1.501	0.744	
Q2 - Prefer not to say	-9.918	7.699	0.198	
Q3 - 19 years	1.446	1.744	0.407	
Q3 - 20 years	9.720	2.527	0.000	***
Q3 - 21+ years	11.885	2.638	0.000	***
Q4 - Other white	5.802	2.672	0.030	*
Q4 – Asian	-8.634	3.301	0.009	**
Q4 – Black	5.173	4.016	0.198	
Q4 – Mixed	3.707	4.991	0.458	
Q5 - Class B	-4.770	3.111	0.126	
Q5 - Class C1	-8.569	3.502	0.015	*
Q5 - Class C2	-7.577	3.699	0.041	*
Q5 - Class D	-2.306	4.016	0.566	
Q5 - Class E	-7.845	5.138	0.127	
Q6 - Secondary School	4.514	3.478	0.195	
Q6 – Degree	1.280	3.599	0.722	
Q6 - Master's	4.496	4.106	0.274	
Q6 – PhD	3.995	6.147	0.516	
EA - Higher Both	-0.053	4.373	0.990	
EA - Higher Eng, Lower Math	-2.496	4.208	0.553	
EA - Higher Math, Lower Eng	-4.135	5.874	0.482	
EA - Lower Both	-7.782	4.442	0.080	.
Q12 - 2 nd	-4.563	2.078	0.028	*
Q12 - 3 rd	-0.083	2.356	0.972	
Q12 - 4 th	-6.072	2.757	0.028	*
Q12 - 5 th	-0.793	3.552	0.823	
Q12 - 6th or lower	-3.296	3.029	0.277	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				

Table 4.19 – Regression analysis for demographic variables and CDSE

An F-test compares the full model with a model without the variable being tested, and determines whether the added variable significantly improved the model, thereby determining its overall significance. The following table (4.20) reports the F-tests for each variable, that is the significance of each variable. The Group, Age, Ethnicity and Educational Achievement variables are all significant with respect to CDSE self-efficacy. Some aspects of social class and higher-level mathematics/English are significant, but overall it does not appear to be a statistically significant variable. Gender, Parents' Education and Ranking of Course Choice do not appear to be significant.

	F	P-Value	
Q1 – Group	4.654	0.009	**
Q2 – Gender	0.846	0.429	
Q3 – Age	9.898	< 0.001	***
Q4 – Ethnicity	3.993	0.003	**
Q5 - Social Class	2.041	0.071	.
Q6 - Parents Education	1.275	0.278	
EA - Higher Level Maths/English	2.430	0.046	*
Q12 – Choice	1.801	0.110	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1			

Table 4.20 – F-test

The graph below shows those who are first year repeating students have significantly lower CDSE scores than first year continuing students. This indicates that in a multivariate model the variable Group shows significance, when adjusted by other variables such as Age, Ethnicity, and Educational Achievement.

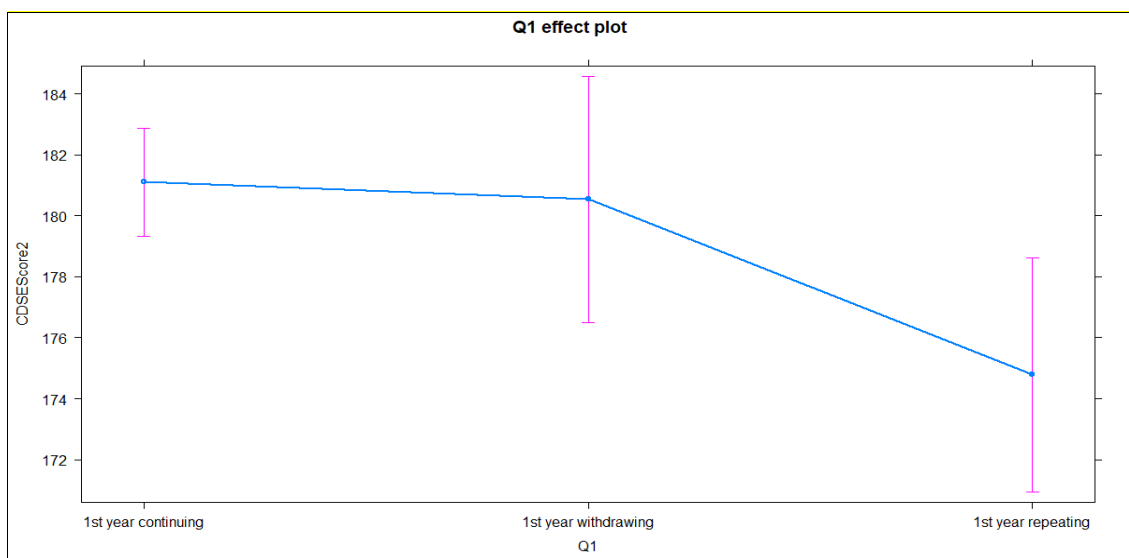


Figure 4.27 – CDSE score effects plot (3 study groups)

4.4.17.2 Extended Regression Analysis with New Factors on CDSE

A second linear regression model which included the three *new* factors identified in the factor analysis of influential factors on CDSE (table 4.21). It shows the strong relationship between the first factor (career); respondents who scored comparatively higher in mentioning their potential careers, the reputation of the university, and themselves.

	Estimate	Std. Error	P-Value	
Intercept	184.517	6.372	<2e-16	***
Q1 - 1st year withdrawing	-0.043	2.117	0.984	
Q1 - 1st year repeating	-5.702	2.190	0.009	**
Q2 – Female	-1.322	1.508	0.381	
Q2 - Prefer not to say	-8.636	7.630	0.258	
Q3 - 19 years	1.245	1.728	0.471	
Q3 - 20 years	9.657	2.501	0.000	***
Q3 - 21+ years	10.712	2.628	0.000	***
Q4 - Other white	5.937	2.647	0.025	*
Q4 – Asian	-9.494	3.278	0.004	**
Q4 – Black	5.881	3.985	0.140	
Q4 – Mixed	2.550	4.946	0.606	
Q5 - Class 2	-3.697	3.090	0.232	
Q5 - Class 3	-7.337	3.478	0.035	*
Q5 - Class 4	-6.263	3.677	0.089	•
Q5 - Class 5	-2.122	3.998	0.596	
Q5 - Class 6	-6.700	5.098	0.189	
Q6 - Secondary School	3.803	3.444	0.270	
Q6 – Degree	0.790	3.564	0.825	
Q6 - Master's	3.912	4.070	0.337	
Q6 – PhD	2.979	6.105	0.626	
QEM - Higher Both	-0.836	4.334	0.847	
QEM - Higher Eng, Lower Math	-3.140	4.167	0.451	
QEM - Higher Math, Lower Eng	-4.889	5.815	0.401	
QEM - Lower Both	-8.288	4.397	0.060	•
Q12 - 2 nd	-4.484	2.058	0.030	*
Q12 - 3 rd	0.558	2.342	0.812	
Q12 - 4 th	-6.090	2.731	0.026	*
Q12 - 5 th	-1.050	3.517	0.765	
Q12 - 6th or lower	-1.803	3.031	0.552	
F1_Career	3.186	0.671	0.000	***
F2_School	0.754	0.558	0.177	
F3_Family	0.796	0.624	0.203	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				

Table 4.21 – Regression analysis with *new* factors

The following three marginal effect plots reveal the relationship between the three *new* influential factors identified (career; school; family) and the career decision self-efficacy score.

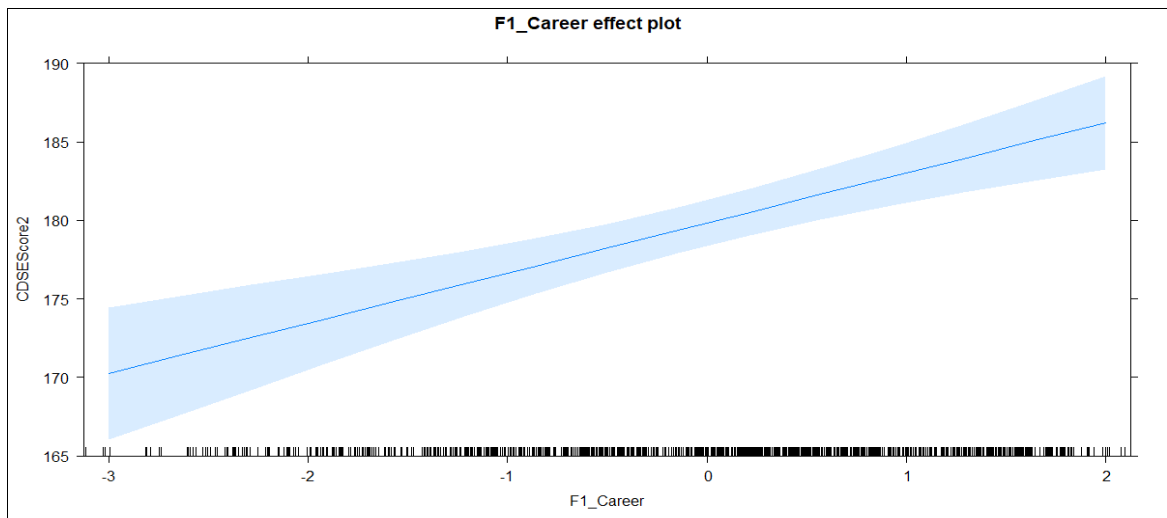


Figure 4.28 – Career effects plot

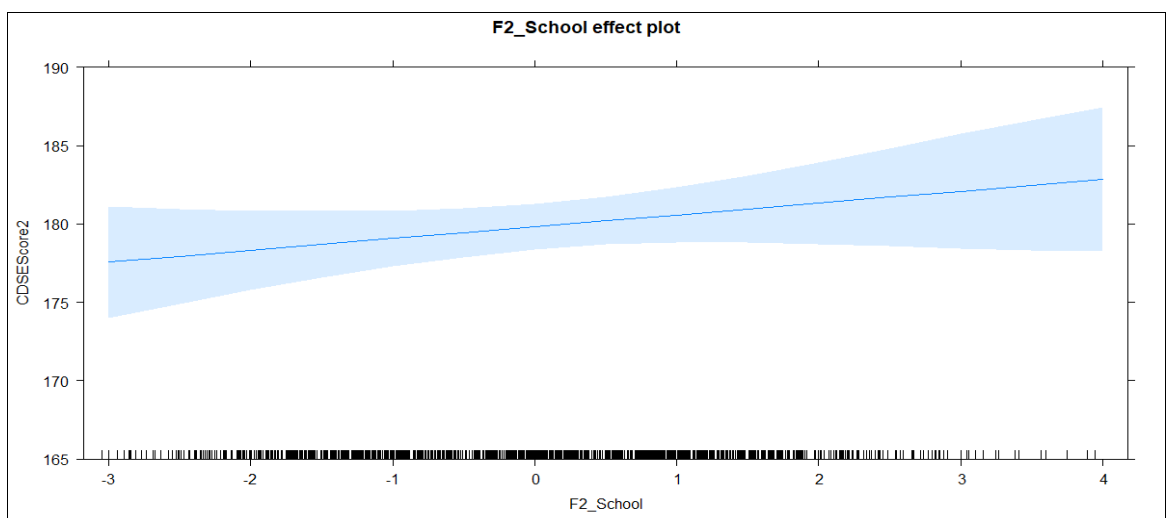


Figure 4.29 – School effects plot

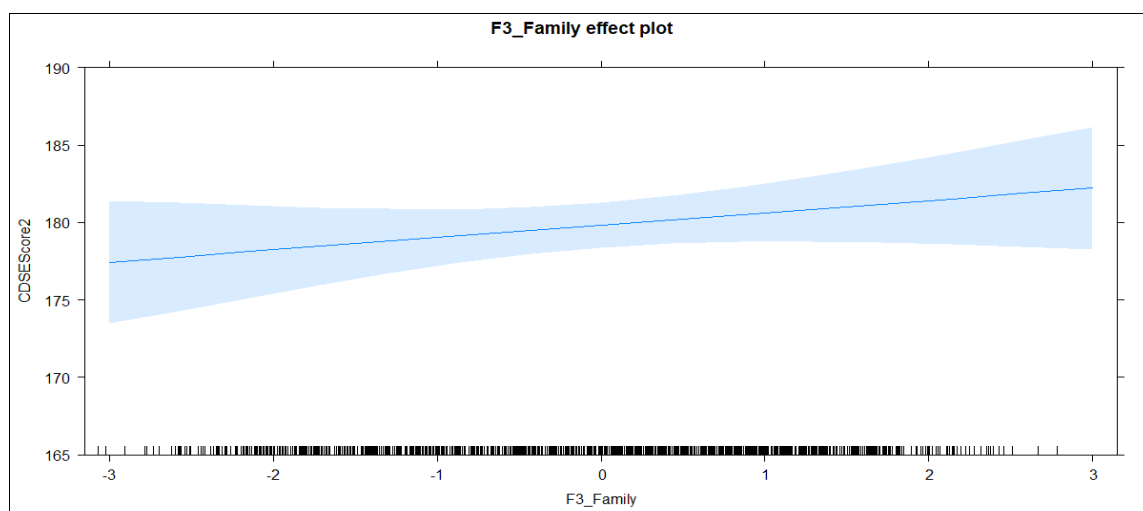


Figure 4.30 – Family effects plot

4.4.17.3 The Five Sub-Scales for CDSE

In-depth regression analysis for the *self-appraisal* subscale suggested Group, Age, Ethnicity, Social Class, Ranking of Course Choice, and the *new* career influential factor were all significant. Those who withdrew tended to have a lower score than the repeating or control group. Gender was not significant. Females were marginally, although not significantly, more likely to have lower scores. Those that were older (aged 20 as opposed to 18) were significantly more likely to have higher scores. Those classified as Other White and Black were significantly more likely to have higher scores. Asians were almost significantly more likely to have lower scores. In terms of social class or grade, those in the highest social class/grade were likely to have higher levels of self-appraisal. Those who were studying on first choice courses were significantly more likely to have a higher self-appraisal score compared with those on their second, third or fourth choice. Those for whom career was a comparatively stronger influential factor were also more likely to have higher self-appraisal scores.

When it came to the subscale *goal selection*, Age, Ethnicity, Ranking of Course Choice and the *new* career influential factor were all significant. There was not a significant difference between the control group or the withdrawal or the repeating groups for goal appraisal. Older students were again more likely to have a higher score. Those of Asian ethnicity were more likely to have lower scores. Those with a career focus were again more likely to have higher scores.

In relation to the subscale *occupational information*, those who were repeating were significantly more likely to have lower scores while there was no difference between those withdrawing and the control group. Age was a particularly strong predictor of the occupational information score, with older students having a much higher score for this subscale. Whether it was a first choice or otherwise it was an important predictor again with those for whom it was their lower choice tending to have lower scores. The career influential factor was the strongest of all predictors again.

In relation to the *planning* subscale, those who were repeating were likely to have a lower score. There did not appear to be any difference between those that were withdrawing and the control group. Those that were older tended to have a higher score for this subscale. Those of Asian ethnicity tended to have lower scores. Social class appeared to be a stronger positive predictor of the planning score. Here all three *new* influential factors were highly significant. The career factor was the more important, but the other factors were also important. Those who tended to have scored highly on the planning subscale tended to score themselves highly across the influential factors in relation to their choices.

In relation to the *problem-solving* subscale, those who were withdrawing tended to score higher not only than those that were repeating but also than the control group. Those who were repeating also scored significantly lower than those in the control group (perhaps those withdrawing had developed problem solving skills that they were able to reveal/enhance by the very act of withdrawing?). Age was a very important feature in relation to problem-solving. Older respondents tended to have a higher score for this subscale. In terms of ethnicities Asian students tended to score lower while Other Whites tended to score higher than Irish students. The *new* career factor priority was again significant although it was not as significant as for the other subscales.

	Self-Appraisal		Goal-Selection		Occupational Information		Planning		Problem-Solving	
	Est (Std Err)	P- Value	Est (Std Err)	P- Value	Est (Std Error)	P- Value	Est (Std Error)	P- Value	Est (Std Error)	P- Value
Intercept	40.249 (1.519)	< 2e-16 ***	36.252 (1.554)	< 2e-16 ***	37.555 (1.621)	< 2e-16 ***	37.77 (1.661)	< 2e-16 ***	32.878 (1.677)	< 2e-16 ***
Q1 - 1st year withdrawing	-1.309 (0.484)	0.007 **	-0.049 (0.495)	0.921	-0.256 (0.517)	0.621	-0.314 (0.530)	0.553	2.012 (0.535)	0.000 ***
Q1 - 1st year repeating	-2.274 (0.616)	0.000 ***	-0.810 (0.630)	0.198	-1.538 (0.657)	0.019 *	-1.693 (0.673)	0.012 *	-1.299 (0.680)	0.056 .
Q2 – Female	-0.488 (0.357)	0.172	-0.324 (0.365)	0.375	-0.035 (0.381)	0.926	0.004 (0.390)	0.992	-0.169 (0.394)	0.668
Q2 - Prefer not to say	-2.008 (1.74)	0.249	-1.922 (1.781)	0.281	-1.779 (1.857)	0.338	-2.464 (1.903)	0.196	-0.859 (1.922)	0.656
Q3 - 19 years	0.196 (0.400)	0.624	0.270 (0.410)	0.511	0.375 (0.427)	0.380	0.306 (0.438)	0.483	0.385 (0.442)	0.383
Q3 - 20 years	1.172 (0.598)	0.050 .	1.259 (0.612)	0.040 *	2.101 (0.638)	0.001 **	2.027 (0.654)	0.002 **	2.660 (0.660)	0.000 ***

	Self-Appraisal		Goal-Selection		Occupational Information		Planning		Problem-Solving	
	Est (Std Err)	P- Value	Est (Std Err)	P- Value	Est (Std Error)	P- Value	Est (Std Error)	P- Value	Est (Std Error)	P- Value
Q3 - 21+ years	0.090 (0.626)	0.886	1.781 (0.641)	0.006 **	2.050 (0.668)	0.002 **	2.841 (0.685)	0.000 ***	3.666 (0.692)	0.000 ***
Q4 - Other white	1.616 (0.626)	0.01 *	0.434 (0.640)	0.497	1.205 (0.668)	0.072 .	1.000 (0.684)	0.144	1.861 (0.691)	0.007 **
Q4 – Asian	-1.236 (0.771)	0.109	-2.218 (0.789)	0.005 **	-1.433 (0.823)	0.082 .	-2.668 (0.843)	0.002 **	-2.240 (0.852)	0.009 **
Q4 – Black	1.934 (0.971)	0.046 *	0.152 (0.993)	0.878	1.634 (1.036)	0.115	0.031 (1.062)	0.977	0.909 (1.072)	0.397
Q4 – Mixed	0.546 (1.249)	0.662	-0.497 (1.278)	0.697	0.844 (1.333)	0.527	-0.393 (1.366)	0.774	-0.156 (1.380)	0.910
Q5 - Class 2	-1.191 (0.728)	0.102	-0.097 (0.745)	0.896	-0.508 (0.777)	0.513	-1.412 (0.796)	0.076 .	0.300 (0.804)	0.709
Q5 - Class 3	-1.735 (0.819)	0.034 *	-0.495 (0.838)	0.555	-1.398 (0.874)	0.110	-2.166 (0.896)	0.016 *	-0.967 (0.904)	0.285
Q5 - Class 4	-1.429 (0.863)	0.098 .	-0.502 (0.883)	0.570	-1.000 (0.920)	0.277	-2.141 (0.943)	0.023 *	-0.550 (0.952)	0.564
Q5 - Class 5	-0.948 (0.944)	0.316	0.691 (0.966)	0.475	-0.289 (1.008)	0.774	-1.192 (1.033)	0.249	-0.068 (1.043)	0.948
Q5 - Class 6	-1.830 (1.203)	0.129	0.481 (1.231)	0.696	-1.322 (1.284)	0.303	-2.756 (1.316)	0.036 *	-0.088 (1.329)	0.947
Q6 - Secondary School	0.475 (0.816)	0.560	0.888 (0.835)	0.288	0.154 (0.871)	0.859	1.141 (0.892)	0.201	-0.330 (0.901)	0.715
Q6 – Degree	-0.048 (0.840)	0.954	0.362 (0.860)	0.674	-0.231 (0.897)	0.797	0.512 (0.919)	0.578	-0.545 (0.928)	0.557
Q6 - Master's	0.844 (0.960)	0.379	1.349 (0.982)	0.170	0.492 (1.024)	0.630	0.963 (1.049)	0.360	-0.005 (1.060)	0.996
Q6 – PhD	0.360 (1.437)	0.802	1.137 (1.470)	0.439	1.000 (1.533)	0.514	1.401 (1.571)	0.373	1.069 (1.587)	0.501
QEM - Higher Both	-0.405 (1.06)	0.702	-0.316 (1.085)	0.771	0.080 (1.131)	0.943	-1.447 (1.159)	0.212	1.323 (1.171)	0.259
QEM - Higher Eng, Lower Math	-1.689 (1.014)	0.096 .	-0.562 (1.038)	0.588	-0.169 (1.082)	0.876	-1.214 (1.109)	0.274	0.293 (1.120)	0.793
QEM - Higher Math, Lower Eng	-0.503 (1.412)	0.721	-0.589 (1.445)	0.684	-1.093 (1.507)	0.469	-2.761 (1.545)	0.074 .	-0.153 (1.560)	0.921

	Self-Appraisal		Goal-Selection		Occupational Information		Planning		Problem-Solving	
	Est (Std Err)	P- Value	Est (Std Err)	P- Value	Est (Std Error)	P- Value	Est (Std Error)	P- Value	Est (Std Error)	P- Value
QEM - Lower Both	-3.009 (1.072)	0.005 **	-1.089 (1.097)	0.321	-1.284 (1.144)	0.262	-2.035 (1.172)	0.082 .	-1.033 (1.184)	0.383
Q12 - 2nd	-0.984 (0.483)	0.042 *	-0.907 (0.495)	0.067 .	-0.697 (0.516)	0.177	-1.330 (0.529)	0.012 *	-0.185 (0.534)	0.729
Q12 - 3rd	0.467 (0.557)	0.401	-0.684 (0.570)	0.230	0.168 (0.594)	0.777	-0.135 (0.609)	0.825	0.472 (0.615)	0.443
Q12 - 4th	-1.489 (0.631)	0.018 *	-2.019 (0.646)	0.002 **	-1.360 (0.673)	0.044 *	-1.193 (0.690)	0.084 .	-0.326 (0.697)	0.641
Q12 - 5th	0.172 (0.809)	0.831	-0.038 (0.829)	0.963	-1.528 (0.864)	0.077 .	-0.585 (0.885)	0.509	0.298 (0.894)	0.739
Q12 - 6th or lower	0.546 (0.723)	0.450	-0.452 (0.740)	0.541	-0.304 (0.772)	0.694	-0.331 (0.791)	0.675	-0.842 (0.799)	0.292
F1_Career	0.885 (0.158)	0.000 ***	0.400 (0.162)	0.013 *	1.031 (0.168)	0.000 ***	0.642 (0.173)	0.000 ***	0.372 (0.174)	0.033 *
F2_School	0.117 (0.131)	0.372	0.100 (0.134)	0.47	0.186 (0.140)	0.176	0.374 (0.144)	0.009 **	0.134 (0.145)	0.357
F3_Family	0.128 (0.146)	0.380	0.060 (0.155)	0.690	0.171 (0.156)	0.275	0.492 (0.160)	0.002 **	0.106 (0.162)	0.512
	RSE: 5.279; R-Squared: 0.1326; F: 4.52		RSE: 5.401; R-Squared: 0.0605; F: 1.90		RSE: 5.63; R-Squared: 0.1011; F: 3.326		RSE: 5.771; R-Squared: 0.1048; F: 3.462		RSE: 5.829; R-squared: 0.09725; F: 3.185	

Table 4.22 – Sub-scales CDSE scores for demographic variables

4.4.17.4 Low versus High CDSE

The mean CDSE score of 179.9 (180) was closely aligned or identical to the median (180) demonstrating that, the data set is normally distributed as depicted in the histogram (figure 4.31). The survey produced a minimum and maximum CDSE score of 96 and 246, respectively. The first quartile of 164 demonstrated that 25% of those in the lower range are below 164. The third quartile of 197 demonstrated that 25% of those that scored high are above 197. The box plot below (figure 4.32) indicates that there are some outliers but too few to have an impact on the distribution. Based on this, I decided to define those with low CDSE as respondents who scored 164 or below, and those with high CDSE 197 or above (table 4.23).

Min	1 st Quartile	Median	Mean	3 rd Quartile	Max	St. Dev.
96	164	180	179.9	197	246	24.1

Table 4.23 – Respondents high and low CDSE scores

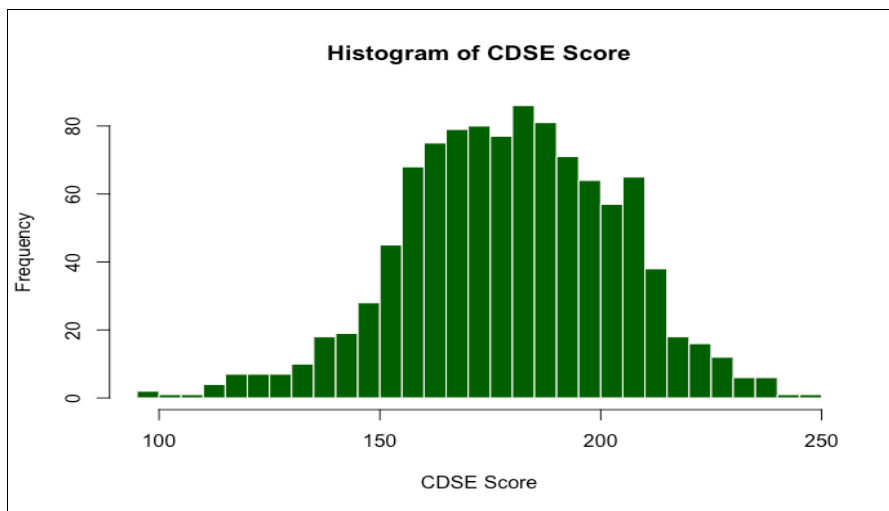


Figure 4.31 – Histogram of CDSE scores

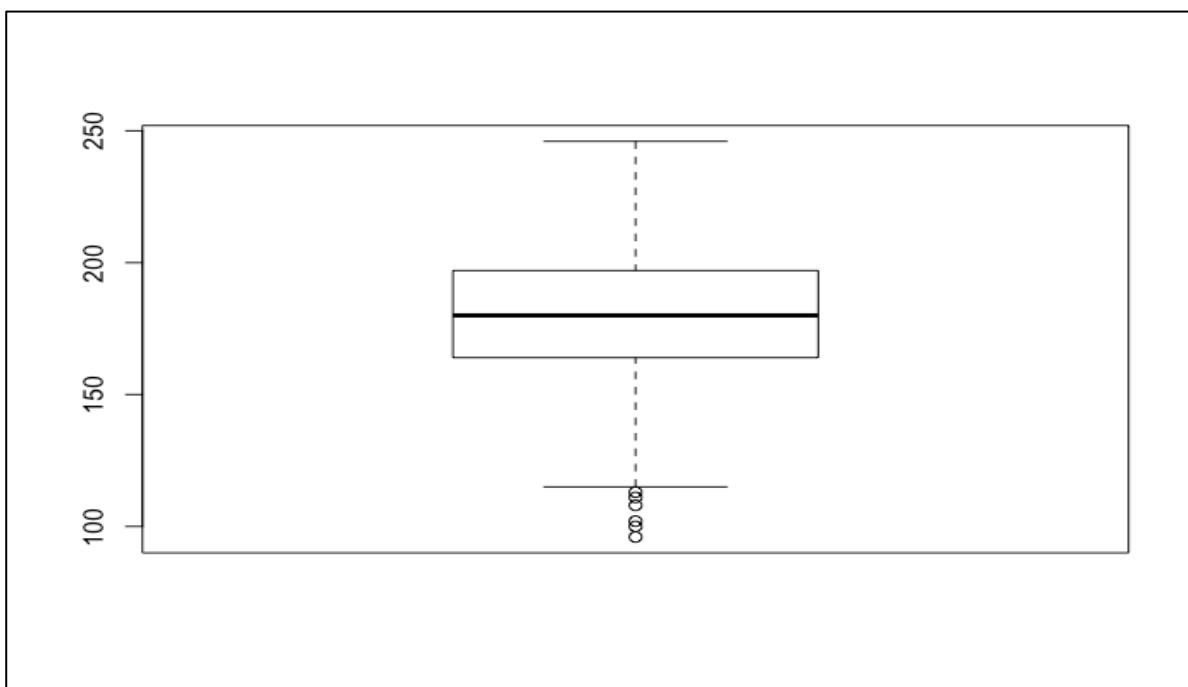


Figure 4.32 – Boxplot of CDSE scores

The logistic regression below seems to explain the factors influencing career choice on respondents with low and high CDSE (table 4.24). Two hundred and seventy-seven respondents had low CDSE, while 270 had high CDSE. *Personality* proved to be highly influential in career choice for respondents with high CDSE ($P < .001$) with 96% (260) indicating it to be quite or very influential compared to 76% (211) of respondents with low CDSE. *Proximity to college* proved to be

influential ($P = .004$) for respondents with low CDSE with 47% (130) indicating it to be quite or very influential, only 37% of those with high CDSE (100) did so.

4.4.17.5 Logistic Regression Analysis Low and High CDSE Scores

			P-Value	
Intercept				
Q15 – Mother			.975	
Q15 – Father			.082	
Q15 – Other Family Member			.842	
Q15 – Career Guidance C.			.260	
Q15 – Teacher			.071	
Q15 – Friend			.609	
Q15 – Personality			.000	***
Q15 – Personality (not very)			.015	*
Q15 – Personality (neutral)			.001	**
Q15 – Personality (quite)			.000	***
Q15 – Personality (very)			.000	***
Q15 – Gender			.334	
Q15 – Proximity to College			.004	**
Q15 – Proximity (not very)			.037	*
Q15 – Proximity (neutral)			.369	
Q15 – Proximity (quite)			.006	**
Q15 – Proximity (very)			.000	***
Q15 – LC Points			.035	*
Q15 – Options Available			.238	
Q15 – Reputation of College			.185	
Q15 – Reputation of Course			.400	
Q15 – Employment Prospects			.234	
<i>Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1</i>				

Table 4.24 – Logistic regression analysis for low versus high CDSE

4.4.18 Question 18: Level of Programme

The following three questions were *only* for respondents who withdrew from DIT. Thirty-four percent (55) of respondents who withdrew did so from level seven and 65% (107) did so from level eight courses. One percent (2) did not know the level of course from which he/she withdrew (figure 4.33).

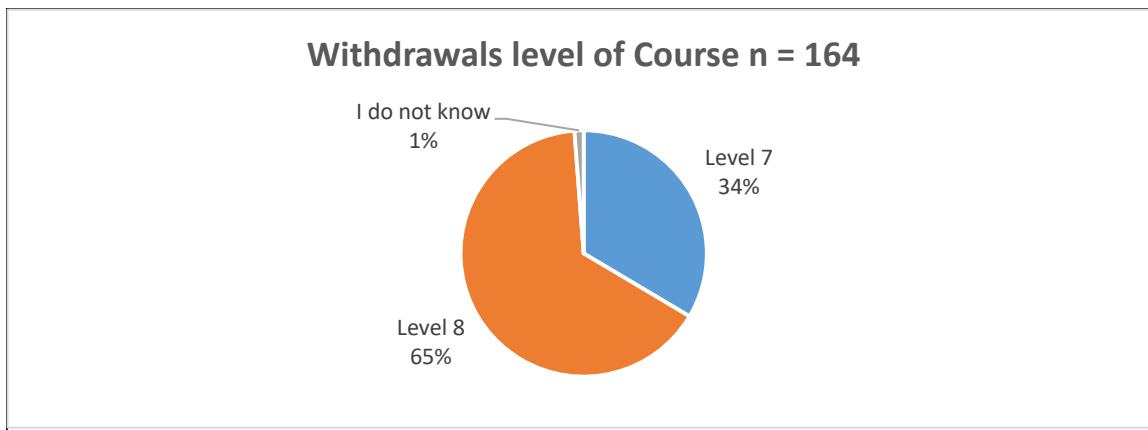


Figure 4.33 – Level of course from which respondents withdrew

The difference in the CDSE scores did not prove to be statistically significant ($P = .196$) (table 4.25).

Q. 18	Mean CDSE Score
Level 7	173.65
Level 8	182.00
I do not know	182.50
Total	179.21

Table 4.25 – CDSE scores for those withdrawing by level of course

4.4.19 Question 19: Expectations of Course

Thirty-two percent (52) were happy with the content of the course from which he/she withdrew, 68% (112) were not (figure 4.34).

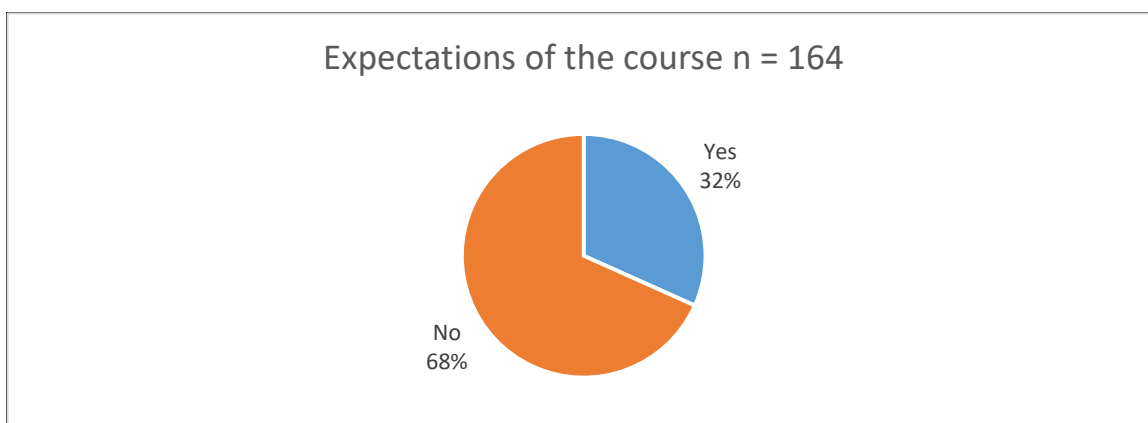


Figure 4.34 – Content of the course matched expectations

The difference in the CDSE scores did not prove to be statistically significant ($P = .105$) (table 4.26).

Q19	Mean CDSE Score
Yes	184.40
No	196.79
Total	179.21

Table 4.26 – CDSE scores for expectations of course content for those withdrawing

4.4.20 Question 20: Factors Influencing Withdrawal

Respondents were asked to rank, according to a five-point Likert Scale, eight items that may have been influential when making the decision to withdraw from college. Diagrams demonstrating responses to the eight variables are available in appendix 5.

The dominant reason for withdrawal was course or programme of study not being the correct choice (figure 4.35).

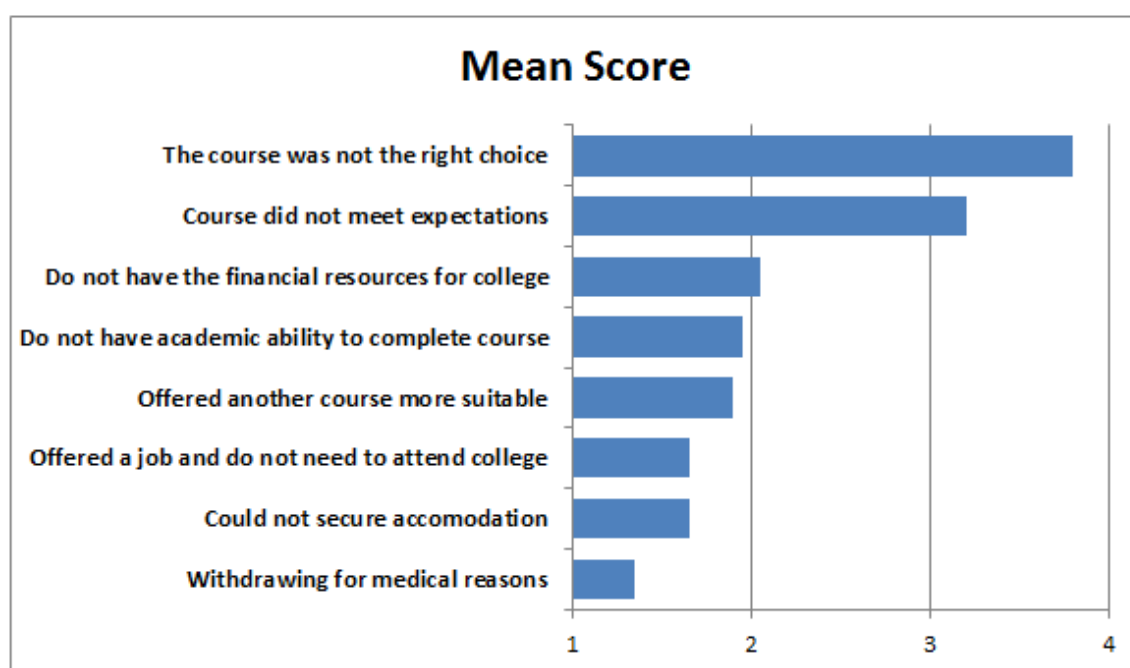


Figure 4.35 – Factors influencing withdrawal from DIT

4.4.20.1 Principal Components Analysis

The Kaiser-Meyer-Olkin was 0.53, considered the ‘miserable’ range, suggested that the responses were only marginally suitable for a factor analysis. A Scree test and analysis of eigenvalues also suggested that a factor analysis would be inadequate. Instead, a principal components analysis was performed (table 4.27).

The principal components analysis revealed a unidimensional space in which some of those who were withdrawing focused on finance, the cost of accommodation, and, to a lesser extent, medical issues and whether the student concerned had secured a job. Whereas for others the motivation

was likely to be misconception about the course and the course itself not being a good fit. As expected this separated the positive reasons from the negative.

	<i>PCI</i>
<i>Finance</i>	0.74
<i>Accommodation</i>	0.64
<i>Medical</i>	0.27
<i>Secured a job</i>	0.26
<i>My ability</i>	0.03
<i>Another Course</i>	-0.01
<i>Misconception</i>	-0.57
<i>Course</i>	-0.65

Table 4.27 – Principle component analysis on factors influencing withdrawal from DIT

4.4.20.2 Regression Analysis – Withdrawals

A logistic regression model, including the three *new* career choice factors, sought to explain withdrawals (table 4.28). The dependent variable was whether or not the respondent withdrew from his/her course. Gender, Ranking of Course Choice, and above all, the *new* factors of Career and Schooling were the influential factors. Males were more likely to withdraw. Ranking of course choice was somewhat significant in that those with lower choices were marginally less likely to withdraw compared with those for whom it was his/her first choice.

	Estimate	Std. Error	P-Value	
(Intercept)	-1.915	0.682	0.005	**
Q2 – Male	-0.538	0.186	0.004	**
Q3 - 19 years	-0.321	0.213	0.132	
Q3 - 20 years	0.160	0.296	0.588	
Q3 - 21+ years	0.169	0.307	0.582	
Q4 - Other white	-0.685	0.388	0.077	
Q4 – Asian	0.094	0.393	0.811	
Q4 – Black	-0.412	0.583	0.475	
Q4 – Mixed	-0.857	0.782	0.273	
Q5 - Class 2	0.716	0.463	0.121	
Q5 - Class 3	0.630	0.496	0.204	
Q5 - Class 4	0.745	0.511	0.145	
Q5 - Class 5	0.569	0.562	0.311	
Q5 - Class 6	0.878	0.641	0.171	
Q6 - No University	0.357	0.204	0.081	
QEM - Higher Both	0.021	0.560	0.970	
QEM - Higher Eng, Lower Math	0.184	0.535	0.731	
QEM - Higher Math, Lower Eng	0.078	0.749	0.917	
QEM - Lower Both	-0.097	0.560	0.862	
Q12 - 2 nd	-0.370	0.253	0.145	
Q12 - 3 rd	-0.938	0.325	0.004	**
Q12 - 4 th	-0.499	0.362	0.168	
Q12 - 5 th	-1.075	0.555	0.053	
Q12 - 6th or lower	-0.202	0.360	0.563	
F1 Career	-0.424	0.080	0.000	***
F2 School	0.220	0.069	0.001	***
F3 Family	0.049	0.077	0.524	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				

Table 4.28 – Regression analysis of factors influencing withdrawal from DIT

The dominant determinant of whether a respondent withdrew was the *new Career* influential factor. Those who were more likely to score highly on this factor (that is, career was an important influential factor in determining college choices) were far less likely to withdraw. Those with the lowest scores have a one in three chance of withdrawing from his/her course, while those with a high score have a one in 20 chance of withdrawing (figure 4.36).

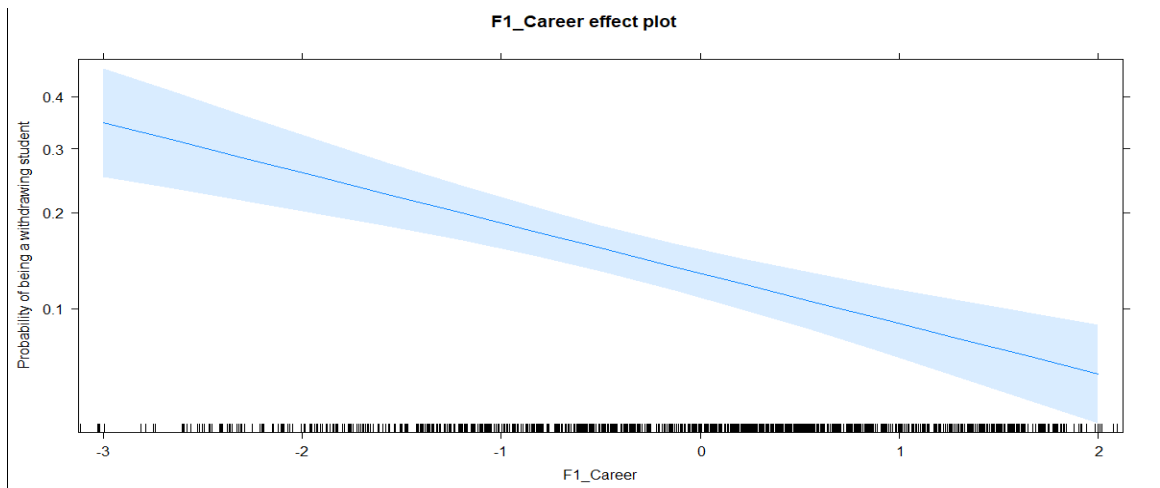


Figure 4.36 – Career effect plot

Those for whom the *new Schooling* factor was influential were significantly more likely to withdraw than those for whom school was not a factor (figure 4.37).

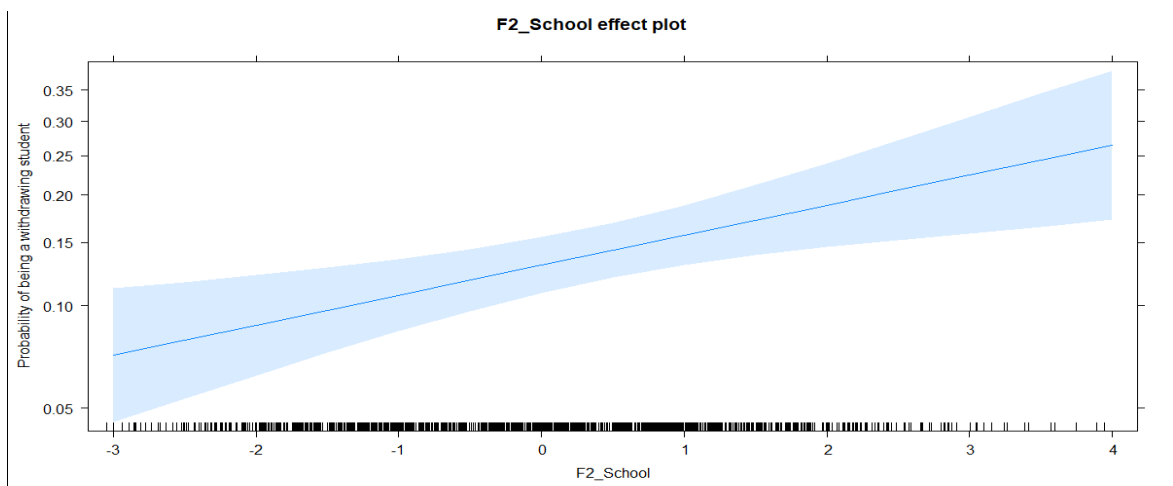


Figure 4.37 – School effect plot

The *new Family* factor as influential had no bearing on the likelihood to withdraw (figure 4.38).

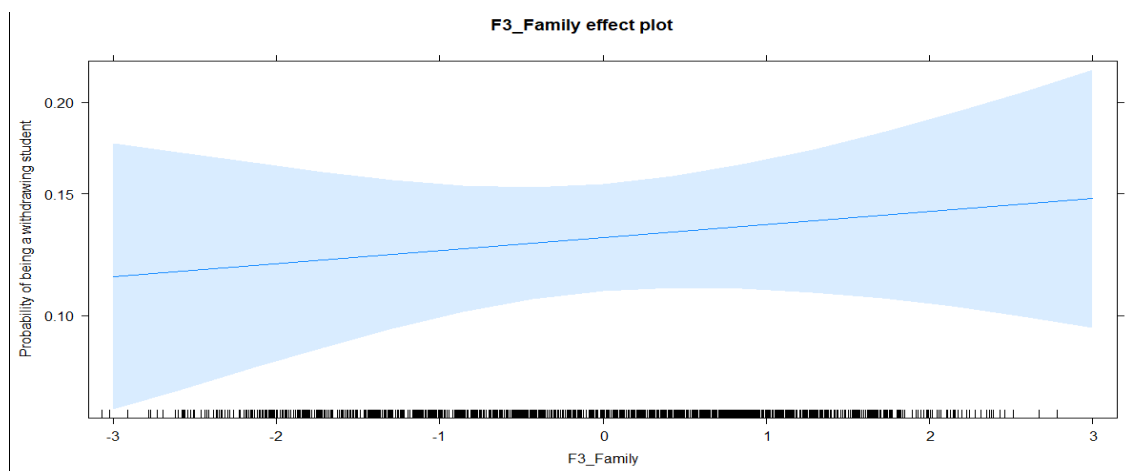


Figure 4.38 – Family effect plot

4.4.21 Question 21: Primary Reason for Withdrawal

This was an open-ended question and asked respondents to write the most influential reason for withdrawal. Seventeen respondents did not answer. A review of responses produced the following groupings (figure 4.39).

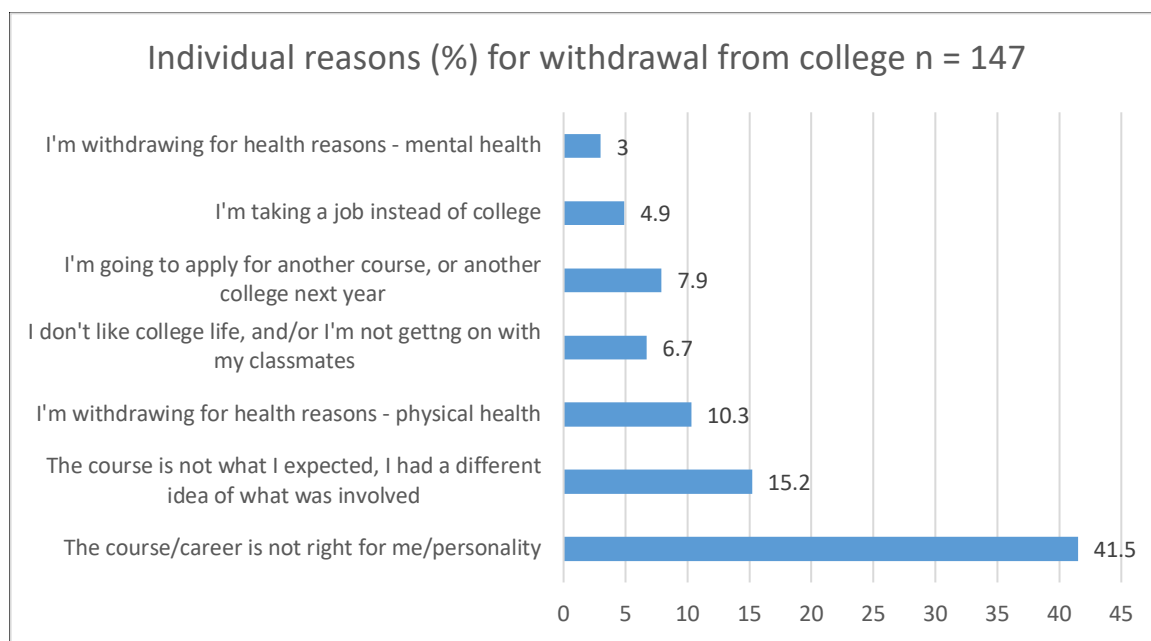


Figure 4.39 – Individual reasons for withdrawal from DIT

4.4.22 Question 22: Number of Modules to Repeat

This question, and the following two questions, were *only* for respondents who repeated an examination in August in order to enter the second year of a course. Forty-eight percent (82) failed one module, 23% (40) failed two modules, 16% (28) failed three modules, five percent (8) each failed four and five modules, and 3% (6) respondents failed six or more modules (figure 4.40).

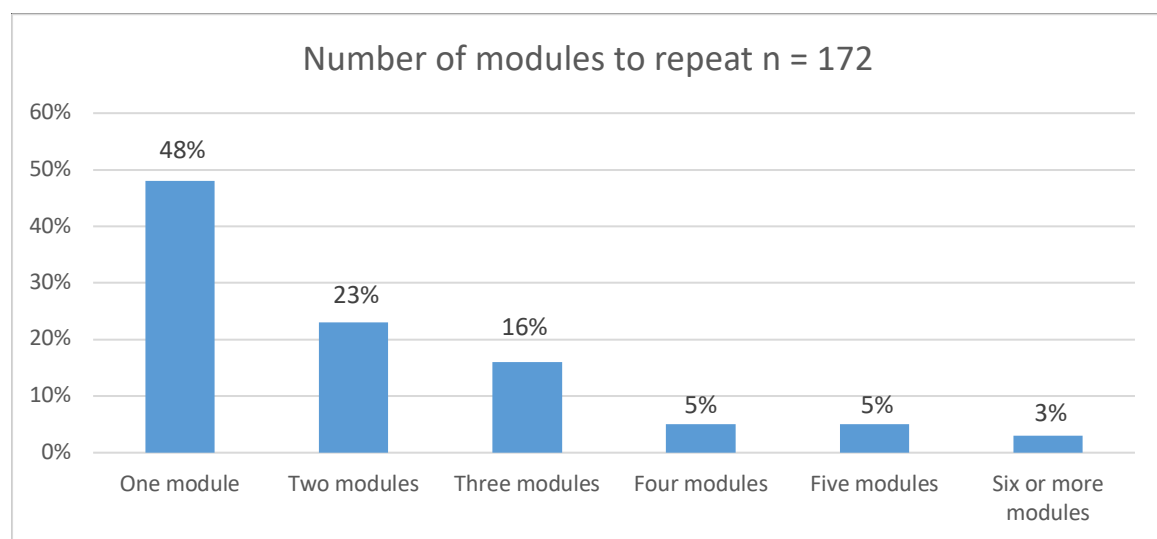


Figure 4.40 – Number of first year modules repeated

The difference in the CDSE scores did not prove to be statistically significant ($P = .931$) (table 4.29).

Q22.	Mean CDSE Score
One module	179.54
Two modules	175.90
Three modules	178.57
Four modules	177.62
Five modules	181.25
Six modules or more	170.00
Total	178.19

Table 4.29 – CDSE scores for those repeating examinations/number of modules repeated

4.4.23 Question 23: Repeat Subject on Day of Survey

Six percent of the respondents (10) repeated an industry specific module, 25% (43) repeated a management/human resource management module, 8% (14) a communications module, 4% (6) an IT module, 28% accounting/finance/economics related module, 1% (2) a language module and 28% (48) individual modules across the courses at DIT (figure 4.41).

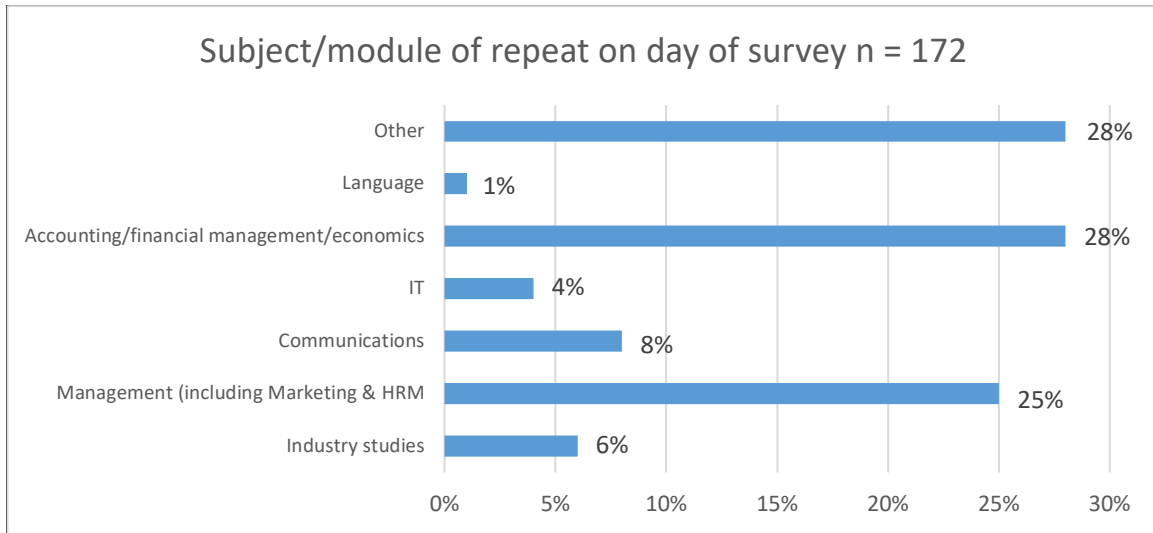


Figure 4.41 – Subject/module respondent repeated on day of survey

The difference in the CDSE scores did not prove to be statistically significant ($P = .092$) (table 4.30).

Q23	Mean CDSE Score
Industry Studies	179.70
Management/HRM/Marketing	182.00
Communications	164.28
Information Technology	165.00
Accounting/Financial Mgmt/Economics	181.86
Language	150.00
Other	177.60
Total	178.19

Table 4.30 – CDSE scores for subject/module type repeated

4.4.24 Question 24: Rate Performance on the Repeat Examination

Using the Likert Scale, respondents were asked to rate their performances on the repeat examination (although such self-assessment may not be entirely accurate). Three percent of the respondents (5) indicated very badly, 18% (31) quite badly, 38% (66) neutral, 34% (58) quite well, and 7% (12) respondents performed very well (figure 4.42).

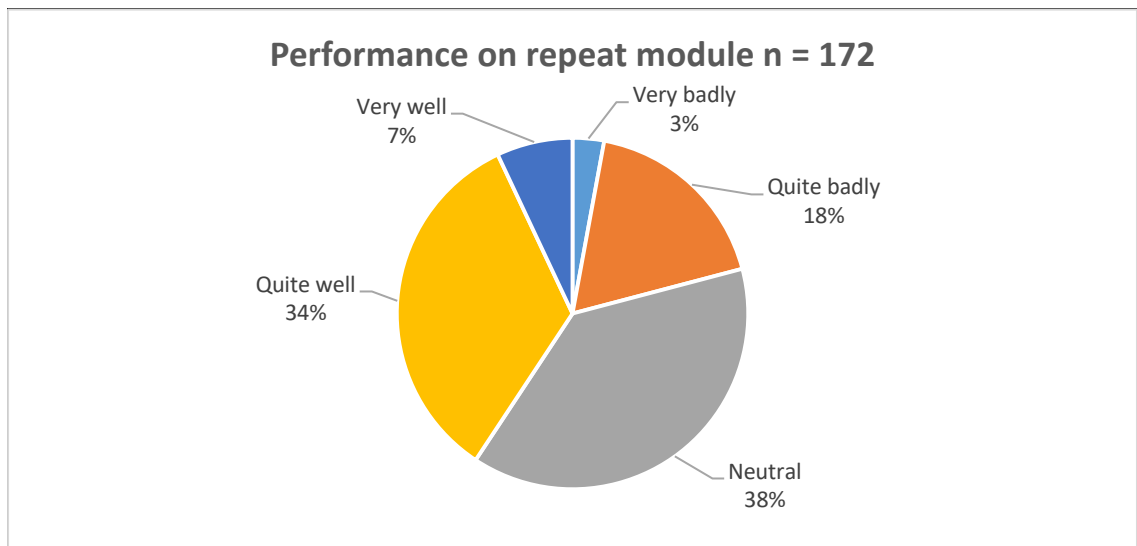


Figure 4.42 – Self-evaluation of performance on repeat module

The difference in the CDSE scores did not prove to be statistically significant ($P = .075$) (table 4.31).

Q24	Mean CDSE Score
Very badly	173.20
Quite badly	169.52
Neutral	177.70
Quite well	180.96
Very well	192.00
Total	178.19

Table 4.31 – CDSE scores for self-evaluation of performance

4.4.24.1 Regression Analysis - Repeats

A regression analysis examined repeat respondents to understand whether there was any relationship between his/her perceived performance on the repeat examination and responses to those questions specific to repeat students (table 4.32). Self-evaluation of performance did not have a significant effect, although interestingly even within the group for whom career had been an influential factor there was a significant effect on CDSE.

	Estimate	Std. Error	P-Value	
(Intercept)	159.138	18.705	0.000	***
Number of Modules Failed	1.192	2.054	0.565	
Exam Self Appraisal Score (1-5)	2.809	3.006	0.352	
Q2 – Female	2.865	5.516	0.605	
Q3 - 19 years	-1.939	11.951	0.871	
Q3 - 20 years	0.647	12.212	0.958	
Q3 - 21+ years	13.123	11.651	0.263	
Q6 - No University	-1.149	5.309	0.829	
QEM - Higher Both	5.098	12.859	0.693	
QEM - Higher Eng, Lower Math	2.323	8.920	0.795	
QEM - Higher Math, Lower Eng	-6.401	28.560	0.823	
QEM - Lower Both	-3.824	9.143	0.677	
F1_Career	4.926	2.433	0.048	*
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				

Table 4.32 – Regression analysis for repeat respondents

The effect was not significant in the range of values as shown in the following effects plot.

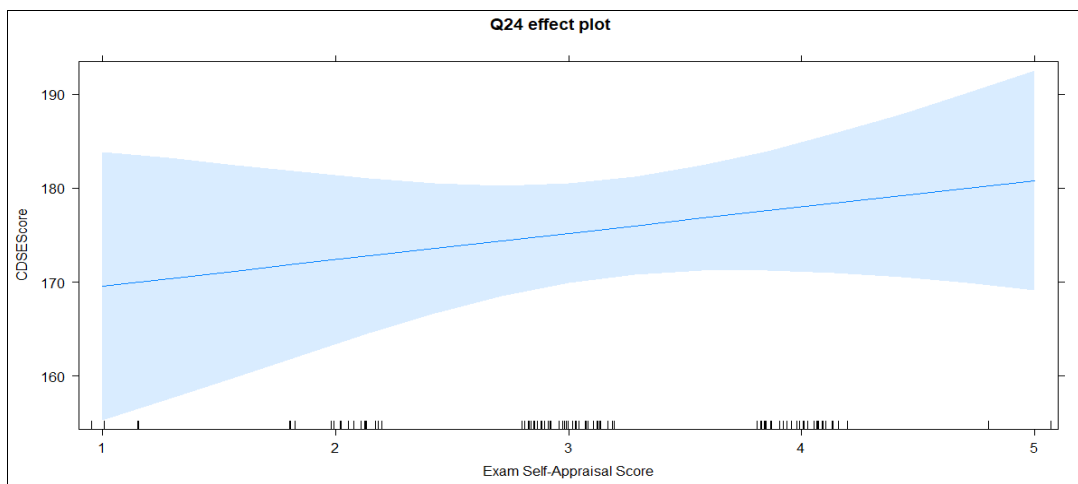


Figure 4.43 – Examination self-appraisal effect plot

Career was a much stronger effect and indeed remains significant even when accounting for the weak effect of exam self-evaluation. The effect ranges from approximately 165 to 185 compared with the narrower range of approximately 171 to 179.

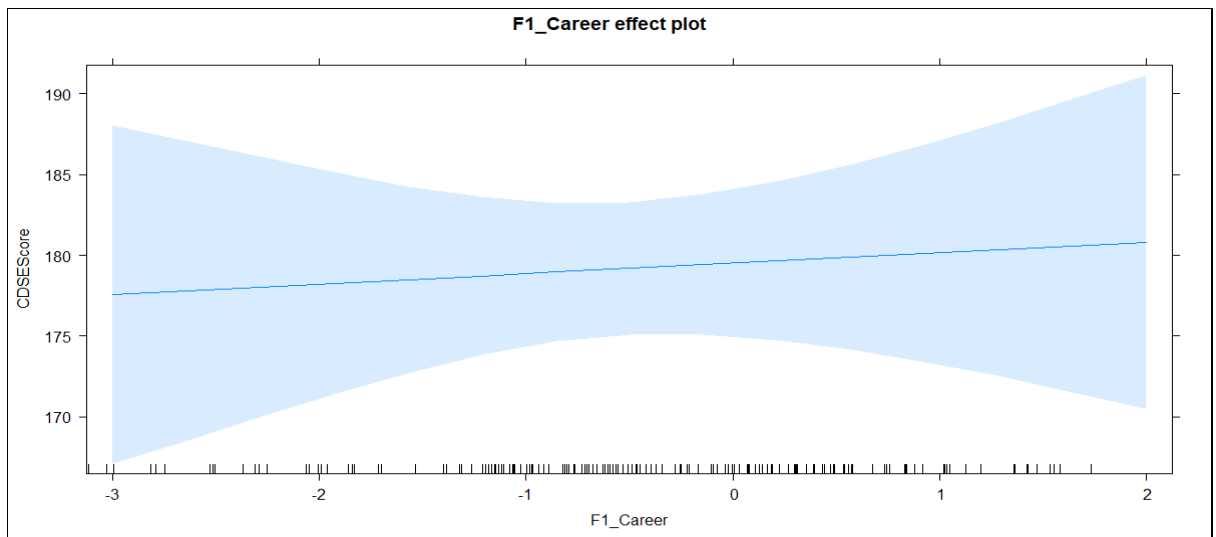


Figure 4.44 – Careers effect plot

4.5 Conclusion

The overall CDSE instrument used for the collection of data proved to be valid and reliable in the cultural domain of Ireland but the validity and reliability of the five subscales might not be as robust as imagined. The findings indicate that the population was representative of the student population at DIT and nationally. The demographic section of the survey was presented first, using visual aids such as pie charts and bar charts coupled with descriptive commentary. The findings from CDSE instrument were presented next, using in-depth statistical analysis such as regression models. This was followed by analysis of the two groups, those who withdrew and those who repeated. Comparative analysis was conducted between these two groups and the control group in order to explore possible differences with CDSE amongst them. Unexpectedly, overall it would appear that the repeat students have lower CDSE than those in the control and withdrawing groups.

5.1 Introduction

This chapter presents analysis of the findings laid out in the previous chapter. I discuss only findings pertaining to the objectives of the study. As noted several times already, the purpose of this study was to investigate the four questions. The first two questions were as follows.

- 1 What factors influenced young people when making a career choice in Ireland at the beginning of the twenty-first century?
- 2 What factors contribute to college withdrawal rates amongst undergraduate first-year students in Ireland and have those who withdraw lower levels of CDSE?

These questions led to or provided two more.

1. What demographic factors contributed to CDSE amongst undergraduate first-year students in Ireland at the beginning of the twenty-first century?
2. Were those with lower CDSE more influenced by external considerations when making career choices (e.g. parents or career guidance counsellors) at the expense of internal or cognitive factors?

I present answers to these questions below, although not in the order set out above. I present the questions in descending order of importance beginning with demographic factors contributing to CDSE. The chapter is divided into eight sections; an introduction and conclusion, analysis of the instrument used to measure CDSE, and one section for each of the four questions. A summary of each question is included before proceeding to the next. In qualifying my finding(s) I use literature already presented in chapter two, but also include other research not already covered as this became necessary as I analysed the findings.

5.2 The Instrument – Analysis

Use of Cronbach's alpha test showed the total scale to be highly reliable while the subscales showed moderate reliability. Values of internal consistency ranged from .67 to .76 for the subscales and .92 for the total score (table 5.1). A minimum acceptable value of .70 was suggested by Nunnally (1978). The alpha value, or internal reliability coefficient, of .92 suggests a highly homogeneous general construct. In terms of internal consistency, these results compare favourably with other studies. Miguel et al. (2013) in their summary of several studies concluded that the typical level of internal consistency was adequate when analysing the pattern of responses for all items regardless of the cultural background or level of education of the participants being accessed.

However, as in this study, when examining the results at the subscale level, the reliability estimates were much more variable between the studies and generally of lower quality with some reporting scores of below .7 (Miguel et al., 2013).

The following table shows the results of the alpha tests on the entire scale and subscales compared with the original Taylor and Betz (1983) normative study.

Scale & Subscales	Cronbach Alpha	Taylor & Betz (1983)
Overall Scale	.92	.97
Sub-scale Self-appraisal	.71	.88
Occupational Information	.76	.89
Goal Selection	.67	.87
Planning	.74	.89
Problem Solving	.69	.86

Table 5.1 – Internal consistency reliability test results

Although it was not the aim of this study to assess the factor structure of the CDSE score, I decided to conduct a factor analysis to test the five career choice competency areas in order to validate the scale for use in the cultural domain of Ireland.

Gati et al. (1994) found that, when certain problematic items were eliminated, the five-factor structure did emerge in such analyses, although these findings should come with a cautionary note as they used a 30-item version of the original 50-item instrument. Taylor and Betz (1983) in their testing of the scale (and subscales) concluded that the proposed factor structure was questionable. They suggested that the CDSE instrument might be “more appropriately viewed as a means of accessing self-efficacy expectations with regard to the general domain of career decision-making tasks and behaviors” (Taylor & Betz, 1983, pp. 79-80). This was also suggested by Robbins (1985) in his testing of the instrument’s reliability and validity. Later, Taylor and Popma (1990) performed a principal components factor analysis on the 50 items of the scale and concluded that the scale is best used as a global measure of career self-efficacy expectations.

Furthermore, a component analysis by Peterson and del Mas (1994; 1998) derived two major factors from the scale. These they titled *decision-making* and *information gathering*. Later, this was supported by Betz and colleagues who also identified two similar factors. In their two-factor solution, the decision-making factor pulled the self-appraisal, planning and goal selection items, while the information gathering factor pulled the problem-solving and occupational information items (Betz et al., 1996).

In the twenty-first century CDSE attracted much research across a wide variety of cultures (e.g. Australia; China; Hungary; Italy; Korea; Portugal; South Africa) with some researchers attempting to resolve the paradox of unidimensional or multidimensionality. However, these authors, using a variety of methods (including exploratory and confirmatory factor analysis and Rasch model approach),³⁰ focused on the short-form of the scale and so are not referenced in detailed here. For a comprehensive review of these studies see Torok et al. (2017). Suffice to say that the five-factor structure remains a paradox for both the long and short forms. Several works (e.g. those of Creed et al., 2002; Nam et al., 2010; Jin et al., 2012) have suggested the instrument is more suited as a general career self-efficacy measurement. Torok et al. (2017, p. 767) concluded that “the use of a single, career decision self-efficacy factor would be more adequate than the multi-factor solution” as the score items did not load on their respective factors in a way that was consistent with the theory.

It would appear that the five-factor structure is not supported by the data in this study either. A one-factor structure appeared to be more accurate. Heppner et al. (2007) suggested that it is recommended to use the total score that reflects a global rating of the participants career self-efficacy as an alternative to using the subscales as “subscale scores should never be used if there is not persuasive evidence that they are measuring distinct constructs” (Heppner et al. 2007, p. 294). The data for this study showed the one factor solution accounted for 21.40% of the total variance. Factor one had a total variance of 21.40% while factor two had a variance of 4.97%. This fits the criteria as proposed by Reckase (1979), which has been widely used to assess the multidimensionality of measures. These findings support the existence of a dominant first factor. I propose that a unidimensional structure is the one that best fits the data for Irish college-level students. For present purposes I title this factor *career self-efficacy*. In fact, this was the term first used by several researchers (Betz & Hackett, 1986; Lent & Hackett, 1987).

In summary, in the years following the development of the instrument, several studies and reviews document the usefulness and contribution of the scale to the field of career decision-making (e.g. Betz & Taylor, 1994; Luzzo, 1993; Robbins, 1985; Taylor & Popma, 1990). The five career choice competencies structure provides a useful framework of the knowledge and skill components, as well as the stages of the career decision-making process. Although this has not been completely supported by factor analyses, it may be deemed of both “theoretical and applied (i.e. counselling) utility” (Betz et al., 1996, p. 48). The present study confirmed the Irish version of the CDSE scale

³⁰ The use of alternative methods of psychometric analysis has been recommended for assessing the dimensionality of scales. These include Item Response Theory (IRT) using Rasch modelling (Betz & Turner, 2011; Silva et al., 2009). It has been suggested that these methods address some weaknesses in Classical Test Theory (CTT). Supposedly, the primary weakness with CTT methods is the presumption of the existence of linear relationships between the variables and factors which is questionable for the majority of scales used in psychosocial investigations (Miguel, 2013). I did not use IRT methods here as the primary focus of this study was not assessing the dimensionality of the instrument.

as a valid tool for assessing the expectations of career self-efficacy in a population of first-year college/university students in the Irish third level educational system.

5.3 Research Question One

What demographic factors contribute to CDSE amongst undergraduate first-year students in Ireland at the beginning of the twenty-first century?

Guided by Social Cognitive Career Theory (Lent et al., 1994, 2000) section A of the questionnaire included 14 demographic-related questions regarding considerations such as age, gender, ethnicity, socioeconomic background and educational achievement. In order to investigate the relationship between these variables and CDSE I conducted a regression analysis. This analysis highlighted the significance of Group, Age, Ethnicity, Socioeconomic Background, Academic Achievement (whether respondents took higher mathematics and higher English), and Ranking of Course by career choice. Gender was insignificant in determining CDSE score.

I examined the relationships further by using an F-test to compare the full regression model with a model without the variable being tested to determine whether the added variable significantly improved the model, thereby determining its overall significance (see page 159). Group, Age, Ethnicity and Academic Achievement variables were all significant with respect to CDSE. Some aspects of social class and higher-level mathematics/English were also significant, but overall it did not appear to be a statistically significant variable. However, along with gender, I include these variables in the analysis below.

5.3.1 Group

Membership of a *group* proved to be a significant predictor of CDSE. Unexpectedly, the difference demonstrated that, respondents from the repeat group had significantly lower CDSE scores than those from the control group. This is a contradiction of self-efficacy theory which suggests that people who persevere and overcome barriers (examination failure) in pursuit of a (career) goal should have higher self-efficacy (Bandura, 1977; 1986; Betz & Hackett, 1981;1986). As such, it was expected that respondents who withdrew ought to have lower CDSE compared with those who repeated. The theory suggests that students who withdraw reveal a lack of persistence and resilience and do not demonstrate the ability to stay the course. Conversely, those who overcome the barrier of examination failure and persist in the face of failure ought to have higher levels of CDSE. However, the findings from this study did not support that theory.

An acceptable explanation for this might be found in the difference between the two types of withdrawals. The first type, and examined in this study, are those students who view withdrawal as a positive step; he/she is doing so as part of a bigger plan for better career development in the long term. These students have the confidence to make the decision to withdraw, a step ordinarily looked on in a negative light. Perhaps staying in college, but registered on an unsuitable course, *is* the barrier for these respondents. The higher CDSE amongst these students affords them the ability to overcome this hurdle or barrier and *formally* withdraw from college, secure in the knowledge that a change from the original direction is not a negative. By withdrawing a student demonstrates the confident in his/her own ability to successfully management a change in direction. Thus, it might be said that, contrary to the negative connotations associated with withdrawing from college, for some, *leaving is not losing*. The second type of withdrawal, those who *drop out*, simply walking away from college without communication with institutional or course management, are not examined in this study. If examined, members of this group of students may reveal an inability to overcome barriers associated with the first-year college experience; such as integration, financial strains and perceived lack of academic ability. These students may register lower CDSE. If this did transpire to be the case, it would certainly fit the theory.

As this study found, students who repeated one or more examination had lower CDSE. By 2019 repeat students in third level education in Ireland had not attracted much attention by way of career interventions. It may be that these students have the academic ability to progress, judged by the LC points system, but fail examinations as a result of poor effort or related issues. However, if this study is representative of what is actually the case, repeat students merit attention and interventions designed to help increase their levels of self-efficacy and more specifically CDSE. This, in turn, may improve a student's ability to execute goals associated with career decisions or development, such as successfully completing required examinations.

5.3.2 Age

The findings demonstrated a strong positive relationship between the age of a student and his/her CDSE. Analysis of the CDSE scores showed an upward trajectory associated with age. That is, as a student got older his/her CDSE score increased suggesting that older students were more career self-efficacious. This study found that, respondents aged 20 and over had higher CDSE than those aged 19 or younger. Thus, it can be stated that age is a significant variable in determining CDSE amongst the student population at Irish third level institutions.

An explanation for the higher CDSE scores of an older student might be that he/she has spent some time engaged in other things such as working, travelling or another course of study. The *traditional* first year student in third level education in Ireland tends to be aged 18 or 19; the normalised age of progression from second to third level education. If a student registered on a first-year course is older, the assumption is that he/she has gained some life experience since finishing second level education and has now decided to enter, or re-enter, third level education. Presumably, these other life experiences have contributed to higher CDSE. In other words, *life lived* leads to higher CDSE. This supports Bandura (1977; 1986) who theorised that self-efficacy is influenced by four things (previous successes; vicarious learning and modelling; levels of anxiety, and encouragement and support from others). It is reasonable to assume older students have had more opportunities to experience these sources in the years following secondary education and entering/re-entering third level education. For example, if a student has worked during the intervening years he/she may have gained confidence from the successes experienced with that job, helping build his/her self-efficacy. He/she may have become more self-efficacious from observing others in the workplace, such a manager who acted as a role-model. He/she may have developed coping strategies to deal with stress or anxiety experienced in the world of work. Or, something I have personal experience with in the hospitality industry, a person, through constant encouragement or praise by a manager, builds positive self-efficacy. It is not uncommon for an older student embarking on the first year of a course in hospitality management to say something along the lines of: ‘I am here because of encouragement from my manager who told me I have the potential to be a great manager but need formal qualifications’.

This finding concerning age and CDSE has some support in the literature. For example, Bacanlı (2012) demonstrated age to be an important factor affecting CDSE of university students in Turkey. Kelly and Hatcher (2013) in a study of students at a south eastern urban community college in the USA found age to be a significant predictor of CDSE. Guan et al. (2016) found that age as a demographic variable influences general career aspirations of university students in a national university in China. In a study of preservice special education teachers in Cyprus, Baglama and Uzunboyulu (2017) found age to be significantly related with career decision self-efficacy; that is, older respondents had higher CDSE. Earlier studies investigating correlations between CDSE and broader demographic variables found a significant relationship between CDSE and age (Creed et al., 2003; Smith & Betz, 2002), although other studies have reported no such correlation (Creed et al., 2002; Hampton, 2006). However, as acknowledged by Baglama and Uzunboyulu (2017), there are few studies examining the relationship between age and CDSE. The expectation is that the result here, and elsewhere, will provide a new perspective for this field of study in matters of theory and practice.

Analysis concerning age and the three study groups proved interesting. Within the control group 36% of respondents were 18 while only 9% were 21 and over. Within the repeat group 9% were 18, while 36% were 21 and over; this amounted to complete reversal of distributions. The age proportions for the withdrawal group were in-line with those in the control group. Thus, it can be said, if a younger student (18) fails an examination he/she is less likely to return for repeat examinations than somebody older (21 or over). This is in line with research on progression by the HEA which found that, in the IOT sector, mature students were more likely to progress than those who were younger (HEA, 2018b). This has implications for third level institutions. This finding suggests that, if a younger student fails an examination, there is a strong possibility that he/she will not repeat the examination in an effort to progress to the second year of study. The implication for third level education providers is that interventions deployed in order to improve progression rates should be concentrated towards younger students in order to gain maximum benefit from such measures.

5.3.3 Ethnicity

Ethnicity proved significant as a predictor of CDSE in some cases. Asian students had lower levels of self-efficacy compared to the other students, that is, Irish, Other White, Black and Mixed students. Thus, it may be said that Asian students, by comparison to their peers in third level education in Ireland, have lower career decision self-efficacy. In line with the present finding, a study by Lewis et al. (2018) found Asian-American first-year college students presented lower levels of career self-efficacy than comparable White or African-American students.

It has been suggested that Asian students may encounter complex challenges in pursuit of career goals (e.g. Kim et al., 2019). Such challenges may include pressure to fulfil parents' desires, conflicting cultural values, racial inequality in the employment market, and limited social support for pursuing non-traditional career paths (Ma et al., 2014). These challenges can limit the ability of Asian college students to explore diverse occupations and choose careers (Shen, Liao, Abraham & Weng, 2014).

An explanation for the difference in CDSE scores may be found in the cultural differences between ethnic groups. For example, in Asian cultures parents, and the broader family, are much more influential on the decision-making of younger people. As a result an Asian person's decision-making skills, to include whatever skill(s) may be involved in making decisions about a career, may not be as developed. This has been documented in the literature. For example, Hofstede (1980) first measured the individualism-collectivism dimension found in different cultures as an important factor influencing career choice. Individualistic cultures (those from western countries such as the United Kingdom, United States and Australia) show a tendency for people exclusively to consider their own interests, view themselves as independent of organisations, and place a higher

value on self-reliance and individual action. Collectivist cultures (typically eastern countries such as Japan, China, Taiwan, and India) have more of an inclination to view their members as interdependent and part of a larger group. In 2008 Agarwala suggested cultural values were likely to have an impact on career choice, where *culture* is an important influence on how people think and behave; while *values* are broad tendencies to prefer certain states-of-affairs over others.

Other literature concerning CDSE and ethnicity also supports this finding. For example, Hackett et al. (1992) reported some ethnic differences with Anglo students expressing higher levels of career self-efficacy than Mexican-American students. Creed et al. (2002) in a cross-cultural study of Australian and South African students found that South African students consistently scored higher than their Australian counterparts. They suggested this difference may be attributed to national school policies such as the older starting age (of South Africans) and broader range of option subjects available (for Australians). However, later, Choi et al. (2012) in their meta-analysis of CDSE and relevant variables did not find race/ethnicity to be a significant effect. They did add a cautionary note suggesting that the nonsignificant effect may not necessary indicate race (and also gender) is/are irrelevant to CDSE but rather imply that the relationship(s) are “indirect, mediated, or moderated by various learning experiences as indicated by the SCCT model” (Choi et al., 2012, p. 451).

My findings pertaining to ethnicity and CDSE were timely for Ireland as it changed from a homogeneous society to one more diverse, comprising different races and ethnicities. If, as a country, it is to offer the same career development opportunities to all, ‘official’ Ireland must understand the perceived challenges or barriers some may find restrictive. Further research concerning CDSE and minority ethnic groups in Ireland is called for here. Such research may help shape interventions that could prevent career inequalities that exist elsewhere in the world.

Analysis of other demographic factors in relation to ethnicity found that the ethnic make-up of those in the withdrawal group did not differ from those in the control group. However, the proportion of those who identified as Irish in the repeat group was significantly less than the control group. Other White respondents were overrepresented in the repeat group, accounting for 18% compared with 9% of the control group. Those who identified as Black and Mixed also doubled their participation in the repeat group. However, this did not prove to be statistically significant and may only be considered an indicator deserving of further research.

Of further interest is the distribution of ethnic groups in the social classes and levels of education. Social classes A and B comprised 74% and 85% Irish respectively even though only 18% of Irish respondents came from families with education to masters or PhD level. Respondents who identified as Black came from families where 28% had masters or PhD qualifications but only

made up 5% of social class A and 3% of members of social class B. Furthermore, despite the educational levels of respondents' families who identified as Black, no respondent in this category control group achieved 500 points or higher in the Leaving Certificate. This is in marked contrast to Irish participants, with 87% of those who achieved points of 500 or more being Irish. This can be explained by those who have become known as the 'new Irish'. In other words, ethnic minorities coming to the country and gaining Irish citizenship. They tend to be highly educated but, it would appear, not afforded the same employment opportunities as those born ethnically/legally Irish. As social class has become a proxy for career choice it is a source of concern that those considered ethnic minority might be caught in a cycle of poverty that does not afford similar opportunities to those identifying as Irish.

5.3.4 Socioeconomic Background

I used socioeconomic status (SES) as an indication of family status or circumstances. The regression model demonstrated a weak relationship in relation to socioeconomic status but in the expected direction. That is, respondents from the higher social classes tended to have higher CDSE. For example, respondents from social classes C1 and C2 had statistically significant lower levels of CDSE compared with their peers in social class A. I asked in a separate question about parental education, a further indication of family status. Parental education is also significantly and positively related to the educational aspirations parents set for their children. In fact, one of the most consistent predictors of children's level of educational attainment is their parents' level of educational attainment (Mangione & Speth, 1998; Mayer, 1997; Scott-Jones, 1995). Both questions were included as I believe SES and parental educational achievement are interdependent. Although the effect of educational achievement on CDSE was in the expected direction, overall it was a weak relationship. Findings from this question did not prove to be statistically significant, of note was that a disproportionate number of respondents who came from families where the highest level of education was primary school were represented in the lower social classes (classes C2-E).

One possible explanation for the present finding may be that, in the years immediately prior to the study students in Ireland from the higher social classes had had the opportunity to engage in private career guidance counselling. There is anecdotal evidence to suggest that the private career guidance sector had grown substantially in the years following 2012, when the then Minister for Education, Ruairi Quinn, withdrew funding for career guidance counselling in Irish second level schools. The impact was felt most in state-funded secondary schools. Many fee-paying schools maintained their career guidance services through private funding. Undoubtedly this was a retrograde step for career guidance counselling and detrimental to students from families of lower SES. These students risked losing most, as those from families with greater resources could engage the services of private career guidance counsellors. Of interest with the present finding is

that the overall relationship between socioeconomic background and CDSE was weak and only statistically significant between social classes C1/C2 and A.

It is widely accepted in sociology literature that the career behaviours of young people are related to family circumstances. Such identifying variables include socioeconomic status, family structure (e.g., single parent status), parent occupational and educational attainment, role modelling, support, family interaction style, and parent expectations for achievement (Penick & Jepsen, 1992; Schultheiss, Kress, Manzi & Glasscock, 2001; Whiston & Keller, 2004; Schultheiss, 2006). The literature outlines the ways in which personal factors such as social class and socioeconomic status interact with contextual factors (e.g., social support) to influence the development of career interests, the selection of career goals, and career behaviours. It is thought that personal and contextual variables do not determine an individual's career interests and goal activities, but set the stage for the experiences that influence the career development process. For example, as noted above, it was historically not uncommon for sons to follow fathers into family businesses and children of doctors/lawyers/police officers to enter these occupations. Gottfredson (1981) suggested that children begin, early in their lives, to circumscribe their career options based on the information they get from their environments. Furthermore, opportunities afforded to those with higher SES brings greater access to the resources needed to finance education and guidance counselling, provide special learning experiences, and offer exposure to role models that have high prestige occupations (activities considered to contribute to higher CDSE levels). Conversely, socioeconomic status can result in bias and structural barriers that negatively affect aspirations and expectations (educational and occupational) of those from lower socioeconomic backgrounds (Friesen, 1986; Furlong & Cartmel, 1995). Schoon and Parsons (2002) reported that children from lower socioeconomic backgrounds performed less well in school and had lower educational aspirations than children from higher socioeconomic backgrounds. Kean (2005) examined the impact of socioeconomic status, especially parents' education and income on children's academic achievements. These factors were found to be associated with children's academic attainments. Rojewski (2007) also established positive correlations between socioeconomic status and occupational aspirations. Adolescents with higher socioeconomic status aspire to, expect and attain more education and more prestigious occupations than those from lower class backgrounds. Factors such as parental education (often a proxy for parental resources, such as ability to help their children with schoolwork) and ethnicity (often a proxy for beliefs about the possibility of upward mobility) may be important antecedents (Spera et al., 2009).

Hackett and Betz (1995) were among the first to observe the gap in career psychology concerning SES and career development.³¹ Since, literature in the field of vocational psychology, and more specifically Social Cognitive Career Theory (SCCT), suggests that the associations of social class with various social cognitive career theory-related variables are mixed (Flores et al., 2017). For example, McWhirter et al. (1998) found growing up in a family with low socioeconomic status was associated with lower levels of career-related self-efficacy, and lowered expectations for educational attainment. Metheny and McWhirter (2013) in their research found that the relationship between differential status identity (DSI) and positive CDSE was, although weak, statistically significant. They found that family of origin's socioeconomic status had a small indirect relationship with career decision self-efficacy via its relations with subjective social status and perceived family support. Furthermore, they reported that family of origin's socioeconomic status had only a small indirect relation with career outcome expectations via both subjective social class and CDSE. It is important to note that social status only had a moderate direct relationship with career decision self-efficacy but was found to be indirectly related to career outcome expectations via its relationship with CDSE (Flores et al., 2017). Earlier, Thompson and Subich (2006) found that, with college students enrolled at an American midwestern university comprising mostly first generation college students, social status (economic resources; social prestige; social power) related to higher levels of CDSE, but that these three facets did not contribute incrementally to CDSE. In addition, social status was related to career choice certainty, but this relationship was fully mediated by CDSE. Austin (2010) in a study of African-American high school students, found that of various background variables (e.g. age; gender; SES; GPA) only socioeconomic status had a significant influence on CDSE. In contrast, Tang, Fouad, and Smith (1999) found that family socioeconomic status had no significant impact on Asian-American college students' self-efficacy. Later, Ali et al. (2005) found socioeconomic status was not a significant predictor of vocational or educational self-efficacy or vocational outcome expectations.

As is evident from the above there is a lack of consistency in vocational literature on the relationship concerning socioeconomic status and CDSE. If social status is a defining variable on CDSE in Ireland it would be reasonable to expect a strong relationship and one that was evident with all the classes surveyed in this study. The present finding does not allow me to declare socioeconomic status as a determining factor on CDSE amongst first year students in third level

³¹ In response to criticism in the vocational psychology literature that, in the past, social status has been treated as a sociological variable (focusing on objective measurement of education level, income, and occupational status) instead of a psychological one, research at the beginning of the twenty-first century began to focus on social status and its impact on personal identity. For example, Fouad and Brown (2000) presented the concept of differential status identity (DSI) to help explain the influence of both race and class on psychological and identity development, based on the recognition that these two contributors to social standing are inextricably interlinked.

education in Ireland. However, the finding should be used as an indicator as to the possibility such a relationship exists. As a result, rather more concentrated research on socioeconomic status and indeed other broader family contextual variables such as family structure³², family interaction styles and family role modelling (parents; siblings) in relation to CDSE is warranted.

Analysis of other demographic factors in relation to social class suggested that, based on the study groups, social class A respondents were disproportionately represented in the control group compared with the withdrawal group. In other words, those from social class A are disproportionately represented in third level education in Ireland. Furthermore, respondents who came from a background where the educational level was to PhD were overrepresented in social class A. Students from those families where the highest level of education was secondary school were disproportionately represented in social class E. And finally, the proportion of students from social class E who performed poorly on the LC examination was significantly greater than those who performed well. It is thought that higher levels of education contribute to upward social mobility and together these two contextual variables facilitate better academic performance, and presumably higher CDSE. This perpetuates social class divisions ensuring those at the top remain there, and, of greater concern, making it difficult for those at the bottom to overcome the associated barriers with reaching the higher classes.

5.3.5 Academic Achievement

It should be noted here that the central question investigating academic achievement (Q7) did not fit the regression model due to the last variable within the question ('I did not sit the Irish Leaving Certificate') and so this question was not used in the model. Although ANOVA testing demonstrated a significant relationship between this question and CDSE, ANOVA with Bonferroni post hoc testing failed to identify the significant difference between the variables within the question.

In order to establish the possibility of a relationship between academic achievement and CDSE two other questions were used in the regression model. These questions asked respondents if they had taken higher levels' mathematics and English (Q8; Q10). The results of this regression model did not demonstrate academic achievement as a predictor of CDSE. However, the F-test which compared the full model with a model without the variable being tested, *did* find that respondents who completed higher levels' mathematics and English were statistically significant as a predictor of CDSE. Thus, the findings show that students who completed higher levels' mathematics and

³² Casual observation would indicate that, prior to 1996 the vast majority of family structures in Ireland were homogenous, comprising the 'traditional Catholic' family structure. In that year divorce was legalised, creating the possibility of other family structures. In the years since, 'gay' marriage has also been legalised, formally allowing for another family structure. In light of such changes in Irish society, and the family structures contained therein, research on the impact of the newly formed family structure and the impact on career aspirations and expectations may prove worthwhile.

English had higher CDSE scores. In other words, academic achievement had a positive relationship with, and can be used as a predictor of, CDSE.

I explored academic achievement further by asking each respondent to indicate his/her performance, or grades achieved, on the higher levels mathematics and English examinations. Due to the change in grade bands over the two years of data collection (see page 135) analysis of these questions proved challenging. To reiterate here, the changes sought to motivate greater participation in higher mathematics by female students, and help motivate greater academic achievement amongst both genders. The results did not demonstrate, for those respondents who took higher mathematics, a statistically significant relationship between grades achieved and CDSE in the first year of data collection (2016/2017; $P = .688$). However, interestingly, under the new grade bands in 2017/2018 findings *did* demonstrate such a relationship ($P = .040$). A similar finding, although opposite, was demonstrated with respondents who took higher level English. That is, for respondents who took higher level English in 2016/2017 there was a statistically significant relationship between grades achieved and CDSE ($P = .037$). However, in 2017/2018 findings did *not* demonstrate a relationship ($P = .061$). In summary, the change in grade bands achieved the objectives sought for higher level mathematics but did not for higher level English. The findings demonstrate that, in the first year of the study higher English was a predictor of positive CDSE; higher level mathematics was not. In contrast, the second year demonstrated that higher mathematics was a positive predictor of CDSE; higher level English was not. Although gender did not prove to have a significant relationship with CDSE it is worth noting here that there was greater female participation in higher English in year one of the study and greater male participation in higher level mathematics in year two of the study. This may suggest that English contributes to higher CDSE for females, while higher mathematics did so for males. Some researchers (e.g. Betz & Hackett, 1983; Cooper & Robinson, 1991) found gender differences in mathematics self-efficacy in favour of males.

The finding demonstrated a positive relationship between academic achievement and CDSE; and conversely, the positive effect CDSE has on academic achievement. This interrelationship is supported in the literature. For example, Jurecska et al. (2011) suggest that the relationship between self-efficacy and grades is reciprocal or circular. Towards the end of the twentieth and beginning of the twenty-first centuries researchers began to recognise that successful academic achievement depended significantly on high self-efficacy (Hackett & Betz, 1989; Pietsch et al., 2003). Furthermore, it has been suggested by many that beliefs a person has about him/herself (self-efficacy) affect his/her future achievements, academic successes and career choices (Hackett & Lent, 1992; Pajares & Miller, 1997; Pajares & Valiante, 1999; Zeldin, Britner & Pajares, 2008; Louis & Mistele, 2012). Pajares (2000) concluded that students who show higher self-efficacy are more academically successful, and the less successful students are unwilling to consider tasks they

consider difficult due to lack of belief and abilities for success. According to social cognitive theory, self-efficacy is one of the most important variables that influences academic performance and achievement (Shkullaku, 2013). Carpenter and Clayton (2014) observed a positive relationship between self-efficacy and mathematics grades and suggested their study adds to the comparatively small body of literature that considers the more distal variable of course grades. In their study, they acknowledge the important role grades play in getting into college. Keşan and Kaya (2018) acknowledge that one of the most important affective properties that affect mathematics success of students is the self-efficacy belief with personal experience one of the most powerful sources. Thus, it can be said that, CDSE has an immediate manifestation in grades but also an eventual impact on getting into college, and success while there.

Analysis of the CDSE scores within the groups showed that academic performance, as measured by points scored on the Leaving Certificate examination, is a significant determinant in predicting withdrawals and fewer repeats. For example, the mean CDSE score of students who withdrew with 250 points or less was 167. Amongst those who repeated, those who scored higher than 450 had a mean CDSE score of 183, but only accounted for 11% of those repeating. Thus, it may be said that, students with lower CDSE scores are at risk of withdrawing from college. Plus, those with higher CDSE scores are not likely to be repeating examinations.

This finding is in line with research carried out by the HEA with third level students. One such report (HEA, 2018b) showed that 32% of students with 300 points or less dropped out of college. Only 7% of those with 550 to 600 points dropped out. This is also evident in academic literature. For example, Astin et al. (1987) suggested that the academically less well-prepared student is more likely to drop out of college. In some UK universities, Johnes and Taylor (1990) found that students with higher A-level performance were less likely to withdraw from higher education. It has been found that the quality of a student's academic performance in second level is positively related to achievement in higher education (Chapman, 1996; Hoskins et al., 1997). Crowley and Mahon (2012) cautioned that many students entering higher education from secondary school may not have developed the (academic) skills needed to cope with the often-unfamiliar demands of higher education. Likewise, research in Ireland has shown a significant relationship between points required for admission to courses (based on state examination results) and course completion at undergraduate level (Morgan et al., 2001; McCoy & Byrne, 2010).

5.3.6 Ranking of Course Choice

The regression model showed that a respondent's course of study and ranking of course choice had a weak relationship with his/her CDSE. Those for whom the course was a first choice tended to have higher CDSE scores than those for whom it was not. Descriptive analysis demonstrated that 65% of respondents who performed well on the LC examination (>500 points) achieved a first-

choice course. In other words, students who perform better achieved his/her course or career choice. In turn, respondents who achieved a course of first choice had higher CDSE. Thus, it is reasonable to say that, higher CDSE is a predictor of the achievement of career goals for students in third level education in Ireland.

Analysis of other demographic factors in relation to course ranking suggested that, those participants who choose not to identify a gender, were overrepresented amongst those who were registered on courses of tenth choice. This finding was not expected, as earlier analysis of respondents who choose not to identify a gender demonstrated that they were more likely to come from those households where the educational level was PhD. Perhaps being brought up in a household with this level of education would give students the confidence to identify outside what might be considered the 'normal' gender divisions historically recognised by Irish society or it may be that those who answered in this way were, without exactly attempting to be mischievous or unhelpful, not entirely 'playing the game' or, to put it another way, were playing their own game and simply *not answering* rather than expressing any kind of gender doubt or fluidity. And declining to tick the female box could be considered a feminist act: refusing to accept that such a distinction counts for anything. (Indeed, not ticking the male box could be considered a feminist act also, for the same reasons). However, the mean CDSE score for these students (172) was below the mean score of the study (180). One explanation for this might be that, although, these respondents had the confidence not to identify a 'traditional' gender, they lacked the confidence to engage in tasks associated with building CDSE. For example, it is well documented in the literature that observation of role models helps build self-efficacy (Bandura, 1977). It is possible that these students, unable to identify with 'traditional' genders, are unable to locate role models similar to themselves from which to gain strength and confidence, and as such, register low CDSE. It is thought that gender-nonconforming students increase levels of CDSE as they enter the world of work and make decisions concerning gender transitioning and deal with the associated challenges (Dickey et al., 2016).

At the beginning of the twenty-first century, although much had been written on the career decision-making process amongst the minority groups of lesbian, gay, and bisexual people, there were only two sociological empirical articles documenting the experiences of transgender and gender-nonconforming (TGNC) individuals in the workplace (Schilt, 2006; Schilt & Connell, 2007), and two career psychology articles (Budge et al., 2010; Dickey et al., 2016). It is my understanding that there is no research examining the transitioning and career decision-making processes of TGNC people engaged in second or third levels education in Ireland. Given that those who do not identify with their assigned biological gender are becoming more visible in societies further research with this minority group and CDSE may be warranted. But above all else it has to

be stressed that the small number of respondents who preferred not to identify gender does not allow the drawing of definitive conclusions here.

5.3.7 Gender

In common with others (e.g. Betz & Hackett, 1981; Taylor & Betz, 1983), I did not find gender to be statistically significant in predicting CSDE. It is worth noting that, although many studies support this finding, other research supports the idea that females demonstrate higher self-efficacy than males for traditionally female-dominated careers, and lower self-efficacy than men for male-dominated careers. This curtails the range of careers female students consider as viable options and perpetuates gender differences in career choice patterns observable in the world of work. Although the present finding demonstrated that there were no gender differences concerning CDSE, descriptive statistics indicated a possible demographic trend and as such worthy of mention here. The present findings demonstrated that, the gender make-up of the control group was 43% male; 56% female (1% preferred not to identify a gender). Within the withdrawal group the gender proportions changed significantly. For example, amongst withdrawals a greater proportion were male (55%), while 45% were female. Amongst the repeat group proportions were in line with the control group, 43% male and 57% female. Chi-square testing demonstrated a statistically significant difference concerning gender and the three groups ($P = .011$), with the difference between those who withdrew and the control group. Thus, it can be said that, amongst the first-year student population in higher level education in Ireland, males are more likely to withdraw than females. This is supported in the literature, with Buchmann and DiPrete (2006) finding that males drop out in greater number than females. This is also in line with successive findings by the HEA on progression rates concerning gender. One such report (HEA, 2018b) found that 19% of males failed to progress to year two while this dropped to 12% for females. Further analysis of males who withdrew demonstrated that, only 28% deemed the career guidance counsellor *quite influential* or *very influential* when making their career choices. This may be an indication of the level of career planning undertaken by males when making such decisions. Furthermore, 68% of males who withdrew indicated they were doing so as their course choices had not been made correctly; 54% indicated that the course was not as expected. This may be a further indication of poor career planning on the part of male respondents.

One possible explanation for this is that males are inclined to have a greater appetite for risk than females (Buchmann and DiPrete, 2006). Society is only too aware of the probability that the driver of a car being driven recklessly is male, or that the likelihood a young person consuming illegal substances is male. Another reason might be found in research conducted by Dwyer et al. (2013) at Ohio State University which found that males dropped out of college at lower levels of debt than women. This finding is both interesting and opportune for Ireland. Interesting as the burden of debt is becoming more evident amongst students in third level education in Ireland; opportune as

the Irish government considers the introduction of student loans to facilitate passage through higher education. Or, are males more inclined to drop out as they have more opportunities for decent pay in jobs that do not require a college qualification, such as construction work? Notwithstanding all these possibilities, females are more likely to invest a greater length of time and effort in the career decision-making process and more likely to stick with a decision once made. For example, Savickas (1985) found adolescent females were more committed to their career goals, more likely to explore her career options, and had better defined vocational identities. Investigating career decision-making styles Gati et al. (2010) found that females scored higher than males for the dimension 'effort invested in the decision-making process'. Earlier, research by Costa et al. (2001) identified higher consciousness in women than in men for the decision-making process. Also, the incidence of 'consulting with others' was higher among females than men, with this difference being compatible with research by Di Fabio and Bernaud (2008) where they found women have a more positive approach towards seeking help than men. Gati et al. (2010) note in their research that men make their final career decisions faster than women. Women consult more, and invest greater effort in the decision-making process, thus it takes them more time to make the career choice. Rassin and Muris (2005) propose that women make the final decision more slowly than men as they are more hesitant. It may be suggested that, males withdraw or dropout at greater rates than females for a combination of the reasons mentioned above. However, I believe the most prevalent reason is that males do not engage with the career decision-making process effectively and are ill-prepared for the academic aspects of college life. This is followed by the financially rewarding employment opportunities available for men.

5.3.8 Summary of Question One

Social Cognitive Career Theory provided the framework from which fourteen demographic-related questions were asked in order to establish relationships concerning CDSE. These questions included such demographic variables as age, gender, socioeconomic background, and academic achievement. Some questions explored the same variable more than once. For example, two questions related to SES; five related to academic achievement. Age proved to be a strong predictor of CDSE. That is, older students had higher CDSE. Academic achievement, as measured by higher levels' mathematics and English, was also positively correlated with higher CDSE. Students who performed better academically had higher CDSE, and conversely, those with higher CDSE performed better academically. The variable SES demonstrated a weak relationship overall. As such, it not possible to identify SES as a predictor of CDSE. However, I acknowledge a connection. There was mixed results concerning ethnicity and CDSE. Only respondents who identified as Asian had lower CDSE. Thus, ethnicity is a low predictor of CDSE. A positive relationship between CDSE and ranking of course was also established. Respondents who had higher CDSE achieved their career goals. Thus, it may be said that CDSE is an important variable for course achievement, or career goals. Figure 5.1 provides a visual aid depicting the factors

predicting CDSE. The variables connected by broken lines indicate the possibility of a connection though not definitive in findings here.

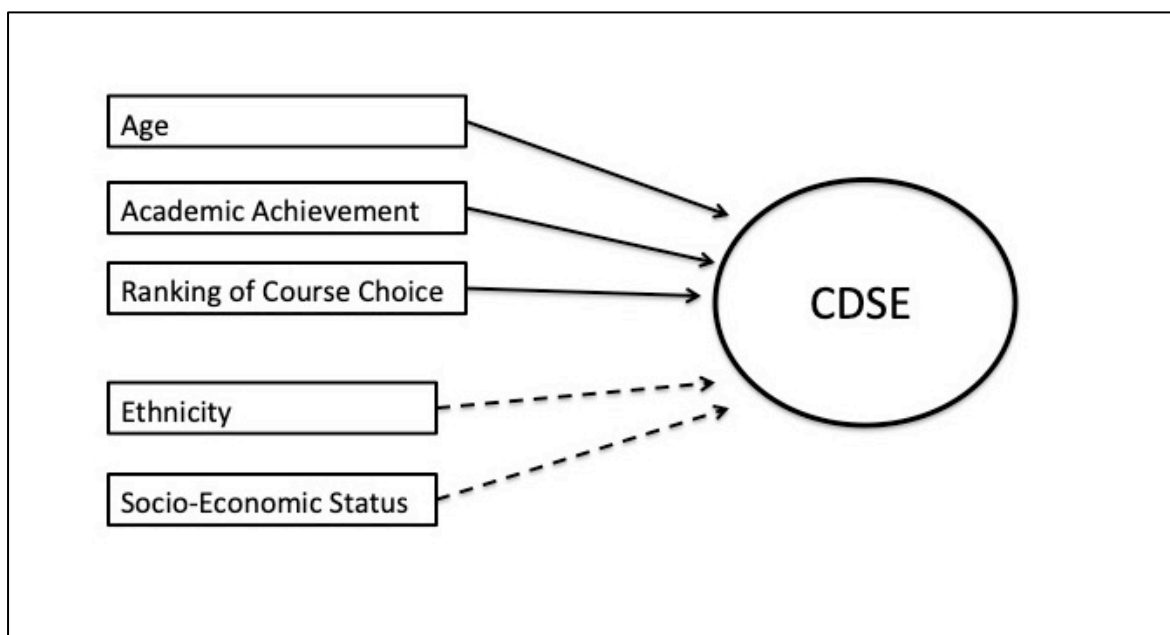


Figure 5.1 – Conceptual diagram: Demographic factors influencing CDSE

5.4 Research Question Two

What factors influence young people when making a career choice in Ireland at the beginning of the twenty-first century?

Understanding how young people make their career or educational course choices is very important. As is evident from this study, and numerous others across different cultures, college withdrawal rates continue to be a challenge for providers of third level education, and indeed for students and their families. If an understanding of the factors influencing students when making a choice is achieved, appropriately timed interventions may help improve this very important career, and indeed, life decision. To this end, I presented each respondent with 14 possible factors which may, or may not, have influenced his/her career choice. The following table presents the most, and least, influential factors in descending order of importance (table 5.2).

Most Influential Factors		Least Influential Factors	
Personality	89%	Gender	66%
Employment prospects	78%	Career guidance counsellor	57%
LC points	60%	Options available	56%
Reputation of course	60%	Teacher	54%
Reputation of college	52%		

Table 5.2 – Factors influencing career choice

5.4.1 Most Influential Factors

It is encouraging that the most important factor influencing students when making a career choice is *myself/my own personality* with 89% of respondents indicating it *quite influential* or *very influential* when making a career decision. Undoubtedly, environmental or extrinsic factors (e.g. employment opportunities; stages of the economic cycle) play a part and may change depending on a range of circumstances (e.g. family status; LC points). However, those concerned with this very important developmental process agree it is unwise for students making a career decision to be disproportionately influenced by these factors at the expense of more personal or cognitive factors such as academic abilities, interests and personality. It is advisable that these intrinsic factors play a more influential role. One of the most important factors contributing to a sustainable career is a correct match between the person him/herself and the career chosen. In other words, success at work is dependent on congruence between the job requirements and personal characteristics such as interests, abilities and personality. This is at the heart of the trait-factor approach to career choice advocated by Holland (1959; 1985; 1997) and others (e.g. Dawis & Lofquist, 1984). Although this approach has been updated to reflect a more complex person-environment interaction, some observers suggest the trait-factor approach inadequate for the complex processes of career choice at end of the twentieth and beginning of the twenty-first centuries. As a result, developmentally based career theories began to emerge (e.g. Super, 1990), and following that social learning theories which includes self-efficacy theory (Bandura, 1977; Hackett & Betz, 1981). Despite the focus of this study, I believe the trait-factor approach continues to have importance in career decision-making for the world of work today.

A large body of research across different disciplines acknowledges the important role personality plays, and ought to play, in career development. For example, Humburg (2017) claims personality traits have been shown to affect young people's academic performance in school, probability of finishing secondary school, attending university, and obtaining a university degree. In vocational psychology literature Tokar et al. (1998) researching the Big Five personality factors, demonstrated that conscientiousness, extraversion, and neuroticism are related to several areas of the career development process, including vocational interests, career indecision, and job satisfaction. Later, Hartman and Betz (2007, p. 156), in their personality-related research, found that "neuroticism was a consistent predictor of inefficacy, whereas conscientiousness and extraversion were the most robust predictors of career-related self-efficacy". Later again, Bullock-Yowell et al. (2011) found all of the Big Five personality factors were correlated with career decision self-efficacy. Similarly, Gati et al. (2011) cautioned that relevant emotional and personality sources may cause difficulties in making a career decision for any college student. Evidently, a 'healthy' personality (possibly characterised by conscientiousness and extraversion) can contribute to successful career decisions, and conversely, an 'unhealthy' one (possibly characterised by neuroticism) can lead to poor career choice or indecision. That said, the present finding suggests that first-year college students in

Ireland acknowledge the importance of self, one's own personality, when making a career choice and encouragingly indicates that it was the most influential factor in the decision process. Leaving certificate points also proved to be very influential. This speaks to the importance of academic self-evaluation and overall academic achievement in a realistic manner in order to make an appropriate career choice. The importance of this factor is an indication of the awareness on behalf of students that the points system in Ireland is central to the decision process. The career choice is mediated by academic abilities, where abilities are measured through the LC points system, though that may be an imperfect measure.

5.4.2 Least Influential Factors

It is also encouraging that *gender* proved to be the least influential factor identified by respondents with 14% indicating it to be *influential* or *very influential* when making a career choice. It has long been acknowledged that gender plays a part in the career decision-making process. Traditionally, males and females gravitated toward careers deemed appropriate in line with their respective genders. A central focus of this study concerned CDSE. Along with the findings here, many studies have found that male and female students are unlikely to differ in terms of CDSE scores, although this may vary depending on the cultural context. For example, Mau (2000) investigating cultural differences in CDSE between American and Taiwanese college students found that female Taiwanese students reported significantly lower CDSE compared to male Taiwanese students while there were no significant CDSE differences between female and male American students. Furthermore, Shkullaku (2013, p. 474) found that the gender difference in CDSE amongst Albanian students was a result of the fact that: "Albanian society is relatively discriminatory, some sex role stereotypes are very powerful, and as a consequence females capacities are undermined by male capacities". That said, it is acknowledged that gender *is* a mediating factor in the career choice *process*. In other words, during the exploration stage of the process females tend to restrict themselves to traditional female dominated occupations. Undoubtedly, a gender balance in the world of work is advantageous for all stakeholders. However, females continue to be underrepresented, and in turn under-utilised, in occupations deemed of higher status and with higher remuneration. Despite decades of research focused on gender as a mediating factor in career decisions, females continue to be underrepresented in careers traditionally associated with males (Pajares, 2000). Much evidence exists demonstrating that this is not due to lack of academic or other abilities on behalf of females. For example, Pajares (2000) demonstrated that, from the seventh grade onwards a typical female will be inclined to underestimate her capabilities in science, regardless of the fact that her performance may not be poorer than any of her male contemporaries. He suggested that this tendency continues into high school and ultimately results in fewer female students in science and science-related courses at college level. Progress must be made on this issue as the benefits of equal opportunities for males and females are obvious, both for the individual him/herself and for organisations. Undoubtedly a starting point is within the

minds and attitudes of the student him or (more importantly) herself. The present finding is a clear indication that current-day students are uninhibited by gender in the career choice process. One would hope that this mindset translates into appropriate career-choice patterns observable in the world of work.

5.4.3 Factor Analysis on Influential Factors

Following the identification of the influential and non-influential factors in the career choice process I completed a factor analysis on the 14 variables to investigate variability among them, and determine if a lower number of unobserved variables (factors) existed. An initial analysis of the eigenvalues and scree plot suggested that there are *three* factors (*career; school; family*) that explain variations across students. The three factors were estimated using ‘varimax’ rotation. It is important to note that the identification of these three factors does not indicate their relevant importance in the career decision-making process; rather that the individual items loading on each factor were considered in a similar manner by respondents. The three *new* factors are presented in the table below with the most important influential variables for each factor highlighted in yellow (table 5.3).

	<i>F1 – Career</i>	<i>F2 - School</i>	<i>F3 – Family</i>
<i>Reputation of college/university</i>	0.52	0.26	0.11
<i>Reputation of course/career</i>	0.86	0.14	0.11
<i>Employment prospects</i>	0.52	0.06	0.06
<i>Teacher</i>	0.01	0.53	0.15
<i>Mother</i>	0.01	0.19	0.81
<i>Father</i>	0.00	0.22	0.54
<i>Other family</i>	0.01	0.31	0.36
<i>Guidance counsellor</i>	0.03	0.44	0.06
<i>Friend</i>	0.12	0.48	0.24
<i>Myself/my own personality</i>	0.23	-0.03	-0.03
<i>My sex</i>	0.00	0.42	0.16
<i>Proximity to college</i>	0.10	0.21	0.07
<i>LC points</i>	0.05	0.04	0.09
<i>LC options</i>	0.07	0.34	0.13

Table 5.3 – Three new career choice influential factors

5.4.3.1 Career as a Career Choice Factor

The first factor relates to the student's *career* ambitions. Students that scored similarly on this factor are those that, comparatively, were more likely to emphasise *reputation of the course/career*, the *employment prospects* and the *reputation of the college/university* as *influential* factors when making a career choice. Reputation of the course or resulting career proved to be the most influential factor for career ambitious students. This was followed by reputation of the college and employment prospects. This finding is supported in the literature. For example, Munisamy et al. (2014) suggested that the career decision-making process involves three stages. The first two concerning whether to go to third level college or not, and the type of college or university to attend (e.g. research-intensive, technology focused, or regional). They proposed the final stage is concerned with characteristics of the institution, such as reputation. It is during this stage they suggest that personal characteristics such as SES and gender become influential. Presumably, one's own personality is also important at this stage too. Other empirical research on student decision-making documents the roles of university reputation, course reputation, and employment prospects in a variety of cultural settings (e.g. James et al. (1999) in Australia; Veloutsou et al. (2004) in England, Scotland and Northern Ireland; Fernandez (2010) in Malaysia; Joseph et al. (2012) in the USA).

Further analysis of respondents who proved to be career ambitious demonstrated a statistically significant difference between the groups. For example, respondents were disproportionately represented in the control by comparison to those who withdrew when influenced by reputation of the college ($P = .012$), reputation of the course ($P < .001$) and employment prospects ($P < .001$). In other words, respondents who judged these factors to be influential in the career choice were less likely to withdraw. Analysis concerning gender demonstrated that, females were more influenced by reputation of college than males when picking a college. That is, 56% of females judged reputation of college to be *quite influential* or *very influential*, while only 47% of males did so. Furthermore, females (64%) proved to be more influenced by reputation of course or career than males (54%). Although the difference in proportions between male and female did not prove to be statistically significant, the descriptive statistics give a clear indication that females tend to be more influenced by such factors than males. Concerning social class, reputation of course proved to be statistically significant when making a career choice for social class A ($P = .020$), social class B ($P = .020$), and social class C1 ($P = .014$) respondents. Employment prospects also proved to be statistically significant for these students who came from social class A ($P = .020$), and social class B backgrounds ($P = .020$). Finally, respondents who performed well on the LC examination (>551 points) were more influenced by reputation of the course or career ($P = .001$) when compared to those who performed less well (<550). Concerning CDSE, respondents who judged: reputation of the college to be very influential when making a choice demonstrated a mean score of 187 ($P = .010$); reputation of the course had a mean score of 189 ($P < .001$), and employment prospects had a mean score of 184 ($P < .001$).

It may be said that students who identified reputation of course or college and employment prospects as quite or very influential were career focused. Career focused students demonstrate ambition, are concerned with gaining access to a university with a good overall reputation, and a course of study with a reputation for employment prospects. Most of these students are female, from the upper social classes and high achievers academically with higher CDSE. Presumably, these students are self-confident, well informed, know his/her own mind, and have engaged productively in the career decision-making process. A profile of these students ought to be prove advantageous for third level institutions when developing market communication strategies in the ever-increasing competitive arena of third level education in Ireland and beyond.

However, a word of caution may be offered concerning these students. Undoubtedly career choice is a complex process with many variables influencing the choice. If a student has been influenced by factors concerning such variables as reputation, status, and opportunities associated with the economic cycle (employment prospects), the sustainability of that choice may be called into question. It has long been suggested that the most influential factor in career choice ought to be the person him/herself. As mentioned earlier (page 3) career mismatch is a challenge and an issue that

has negative impacts on people in the world of work. Third level education providers continue to grapple with stubbornly high withdrawal and dropout rates. It is advisable that students engaged in the career decision-making process are mindful of the pitfalls and although it is not wrong to consider such factors as employment prospects (who wants a happy graduate who cannot obtain employment?), but do so in the light of and knowledge of one's own personality.

5.4.3.2 School as a Career Choice Factor

The second factor related to the *school environment*. The students that scored this similarly are those that were, comparatively, more likely to emphasise his/her *teacher, friend, guidance counsellor, gender, and availability of option subjects* as *non-influential* factors when making a career choice. With the exception of gender, these factors are related to the school environment. It has long been thought that gender is a mediating factor for both males and females when making a career choice. In other words, males are drawn to male-dominated roles such as firefighter or STEM-related jobs; females are drawn to female-dominated roles such as nursing or primary school teaching. It is not unreasonable to suggest that, these stereotypes become more apparent and influential in the school environment as it is in this environment, outside that of the family, students consider careers. Thus, it is understandable that gender featured in the school environment factor.

Analysis of students who indicted gender was *not* an influential factor in career choice demonstrated that, 54% were female and 46% male. Conversely, of those who indicated gender *was an influential factor*, 63% were female and 35% male. Thus, *if* students are influenced by his/her gender in the career decision-making process the likelihood is that these students will be female. It is for this reason that, at the beginning of the twenty-first century, in the world of work, unrestricted by their gender more males were entering careers typically deemed female. However, perhaps restricted by their gender, fewer were undertaking work typically viewed as male, such as STEM-related jobs. Despite enormous progress concerning equality in employment opportunities, this study indicates that the stereotypical divisions between male and female when considering suitable occupations, is still influential. Concerning social class, 57% of both social classes A and B indicated their career guidance counselling was not influential. Conversely, only 29% of social class A and 26% of social class B indicated it was influential. This is interesting as it is students from these social class backgrounds who may be obtaining private career counselling outside the school environment. Those in the lower social classes also viewed career guidance in a negative light with 50% of social class D and 53% of social class E indicated it had not been influential (only 34% of social class D and 36% of social class E indicated it was influential). Furthermore, 58% of students who indicated career guidance was not influential achieved their courses of first choice, doing so despite the apparent lack of effective career guidance by a counsellor. Undoubtedly, this indicates that the effectiveness of career guidance counselling in Ireland is

questionable. This had been recognised by government for some time prompting the then Minister for Education, Richard Bruton, to announce in January 2018 a review of career guidance in post-primary schools and higher education institutes. Following this, in September 2018, the employers' body, Irish Business and Employers Confederation (IBEC), in its report *Informed Choices: Career Guidance in an Uncertain World* found that career guidance services are failing to meet the needs of people faced with a changing world of work. IBEC's report suggested that Irish secondary schools lacked the resources to deliver effective career guidance to students. In April 2019 the independent economic consultancy agency Indecon provided its report to the Minister for Education on the state of career guidance in Ireland. It found that, only 50% of career guidance counsellors time is actually spent on career-related issues; 30% of his/her time spent on personal counselling. This report suggests there is an urgent need to enhance effective enterprise engagement and to make much greater use of technology, blended with other guidance supports, in providing effective career guidance in post-secondary schools (Indecon, 2019).

Analysis of CDSE suggested that, with the exception of those saying the availability of option subjects was not influential, these students had lower scores than peers who were more career focused and ambitious. For example, students who scored similarly and indicated career guidance was not influential had a mean CDSE of 179; those who indicated teacher was not influential had a score of 178; those who indicated friend as not influential had a score of 180, those who indicated gender as not influential had a score of 180, and those who indicated LC options as not influential had a score 185. Interestingly, respondents who indicated LC options as not influential had higher CDSE than other students who answered similarly about this. One reasonable explanation for this is that these students are confident in the career decision-making process and are not restricted in their career choices by the availability of option subjects at secondary school. These students had already shown the confidence to make decisions independent of factors that might ordinarily be deemed influential such as career guidance counsellors, teachers, gender and peers.

5.4.3.3 Family as a Career Choice Factor

The third factor related to the student's *family*. Students who scored similarly on this factor were those who tended to emphasise *mother*, *father*, and *other family member* as *non-influential* factors when making a career choice. The significance of family in the career decision-making process is well documented in the literature; historically sociology literature but towards the end of the twentieth and beginning of the twenty-first centuries in vocational psychology literature. Undoubtedly, the circumstances or status of the family will have an impact on the students primary and post-primary education, availability of appropriate role models and extra circular activities such as accessibility to career guidance counsellors. In other words, the SES of the family will afford students opportunities which may have a positive or negative impact on the career decision-making process. The family status acts as a *filter* for the environmental or extrinsic factors which

may impact the career choice. Taylor et al. (2004) acknowledge that family (parents; guardians) play a significant role in the occupational aspirations and career development of their children. Without parental support or approval, students are often doubtful when it comes to following or even exploring various possibilities for his/her career. Furthermore, as suggested by Metheny et al. (2008), there is a significant positive relationship between emotional support from the family and career choice. Young people with high levels of perceived emotional support have more opportunities and advantages related to career development. However, parental involvement in career choice has different consequences depending on how this involvement is likely to be experienced. If the participation of the parent is found to be effective and supportive, this may contribute to success at school as well as in future life. Conversely, ineffective and oppressive/directive ways of involvement are almost always bound to yield the opposite effect.

In short, family circumstances and structure along with SES, type of school attended and stages in the economic life-cycle all play a part in the career decision-making process of young people. However, as the present findings suggest, in order to choose a career path that turns out to be agreeable and successful to the student, these factors should be secondary to the cognitive factors of the decision-maker him or herself.

It seems the role of the mother, father or other family member(s) in the decision process should be confined to *facilitator* and not influencer. It is encouraging that the present finding indicted that family is may *not* the most influential factor in the career choice process. Undoubtedly the circumstances created by family's status (socioeconomic position) and family structure (single parent; divorced household) facilitates or constrains career choices. However, similarly to the earlier factor of *school environment*, these factors should be secondary to the personal choice of the student. The present finding supports research by Hewitt (2010) who suggested, although the vast majority of decisions on career choice are affected by the family factor, there are students who opt for careers that their educational choice has opened for them, or who make carrier choices based solely on their own desires. Similarly, Reddy and Rajaram (2015) found that in the early twenty-first century most young people decided themselves about careers. Career choice, if it is to be successful, ought to be influenced more by cognitive factors such as (academic) abilities, self-interests and personality. It may be more appropriate that family play a role in the initial, or formation stage, of the career decision-making process. It is during this stage, that a student engages in seeking careers' information, exploring activities and tasks related to a particular career etc. The mother, father or guardian can facilitate and give valuable advice during this important career research stage in the process. As mentioned earlier, parents should act as facilitators, and not influencers. A young person may want to generate his/her own income, job satisfaction, security, respect and success. These are work-related variables that are unique and different for each individual; as such, the career choice ought to be individual to each person.

Analysis of some of the demographic variables concerning the *family* career choice factor proved interesting. Regarding gender, 37% of males, but only 24% of females, indicated their mothers were not at all or not very influential. Conversely, only 41% of males had mothers who were quite or very influential, while 55% of females indicated this. There were also differences related to ethnicity here. For example, 56% of respondents who identified as Asian, but only 37% of those who identified as Other White, indicated mother was quite influential or very influential. Social class had a role to play concerning the *family* career choice factor. For example, 57% of social class A had mothers, and 65% had fathers, who were quite influential or very influential. This compared with only 32% of social class D where a mother, and 27% where a father, was quite influential or very influential. Concerning parental level of education, amongst respondents who came from a family where the highest level of schooling was secondary, 71% indicated mother, and 96% indicated father, were not at all influential or not very influential. This compared with respondents who came from those families with masters or PhD levels of education where 35% indicated mother, and 33% indicated father, not at all influential or not very influential. The inference here is that, parents without third level education may not be best placed to render career advice, while parents with higher third level qualifications are, and it would appear are trusted by their children when giving such advice.

It is worth noting that, in a separate question to the factors influencing career choice, each respondent was asked if he/she had to pick a parent or guardian who was the most influential who that person would be? Sixty-five percent of respondents indicated mother; 33% indicated father; 2% did not answer. Thus, if students were ‘forced’ to pick one parent over the other, mothers proved more influential in the career decision-making process. There was no statistically significant difference in CDSE scores amongst those who picked mother (179) and father (181), although the lower score for respondents who picked mother is interesting. This is in line with an unpublished finding presented at a Dublin conference in January 2019 organised by the HEA and Massachusetts Institute of Technology (MIT) which suggested mothers are the single biggest influence on students choosing career options. However, Vivian Patterson, head of skills at the HEA, cautioned that parents may be out of touch with developments in the world of work as the ‘fourth industrial revolution’ emerges with the rise of automation, robotics and artificial intelligence (Patterson, 2019).

5.4.4 Revised Regression Analysis Including New Factors

I conducted another regression analysis in order to investigate the possibility of a relationship between the three *new* factors and CDSE (table 5.4). It showed a strong relationship between the first factor *career* and CDSE. The factors *school* and *family* were not correlated with CDSE. Thus, it can be said that the career factor is a strong predictor of positive CDSE. In other words, a student influenced by such factors as: reputation of a course or college, resulting employment prospects, or one's own personality, will likely have higher CDSE. Conversely, respondents with higher CDSE are likely more influenced in their career choices by career-related factors than school or family related factors. This speaks to the interdependence of the relationship between career focused students and CDSE.

	<i>Estimate</i>	<i>Std. Error</i>	<i>P-Value</i>	
<i>Intercept</i>	184.517	6.372	<2e-16	***
<i>F1_Career</i>	3.186	0.671	0.000	***
<i>F2_School</i>	0.754	0.558	0.177	
<i>F3_Family</i>	0.796	0.624	0.203	
<i>Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1</i>				

Table 5.4 – Three new career choice factors and CDSE

For visual purposes, the following marginal effect plot reveals the relationship between the *career* influential factors and the career decision self-efficacy score. As CDSE of students increased the importance of the career-related factors also increased. In other words, as a student increased his/her career decision self-efficacy a greater awareness and focus on such factors as one's own personality along with employment opportunities, aided by reputation of course chosen and reputation of college, came into focus.

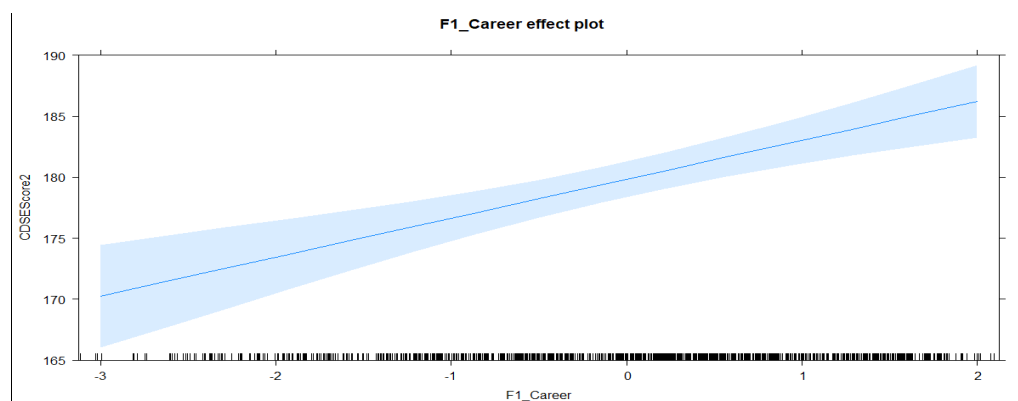


Figure 5.2 – Career effect plot

5.4.5 Summary of Question 2

Social Cognitive Career Theory (Lent, et al., 1994) provided the theoretical framework for the factors used to explore young people's career decision-making in this study. SCCT posits that (young) people make career decisions based on several contextual factors such as a person's background, learning experiences, self-efficacy, outcome expectations and personal interests. Unfortunately, many young people make incorrect career decisions for a variety of reasons such as lack of information, indecision, peer pressure, or inappropriate modelling. Some may even decide on a career based on its prestige or the prestige of the course or college, all done without the benefit of career guidance counselling or effective self-appraisal. The present findings demonstrated that first-year students in third level education in Ireland make career decisions in the context of several external factors such as employment prospects, reputation of a course or college, but are more influenced by cognitive factors such as personality and academic ability (as measured by LC points). Encouragingly, my findings also demonstrated that students were not overly influenced by such factors as teachers, parents and his/her gender in the career decision-making process. A note of concern is the lack of influence the role of career guidance counselling has in the career decision process in Ireland. The factor analysis distilled down the 14 factors to three underlying unobservable factors (*career*; *school*; *family*). Career (reputation of course; reputation of college; employment prospects; self, ie personality) proved to be the most influential factor. Finally, the regression analysis demonstrated the positive effect the career factor had on CDSE. That is, the *new career* factor is a strong positive predictor of CDSE. Figure 5.3 provides a visual aid depicting the career decision-making factors.

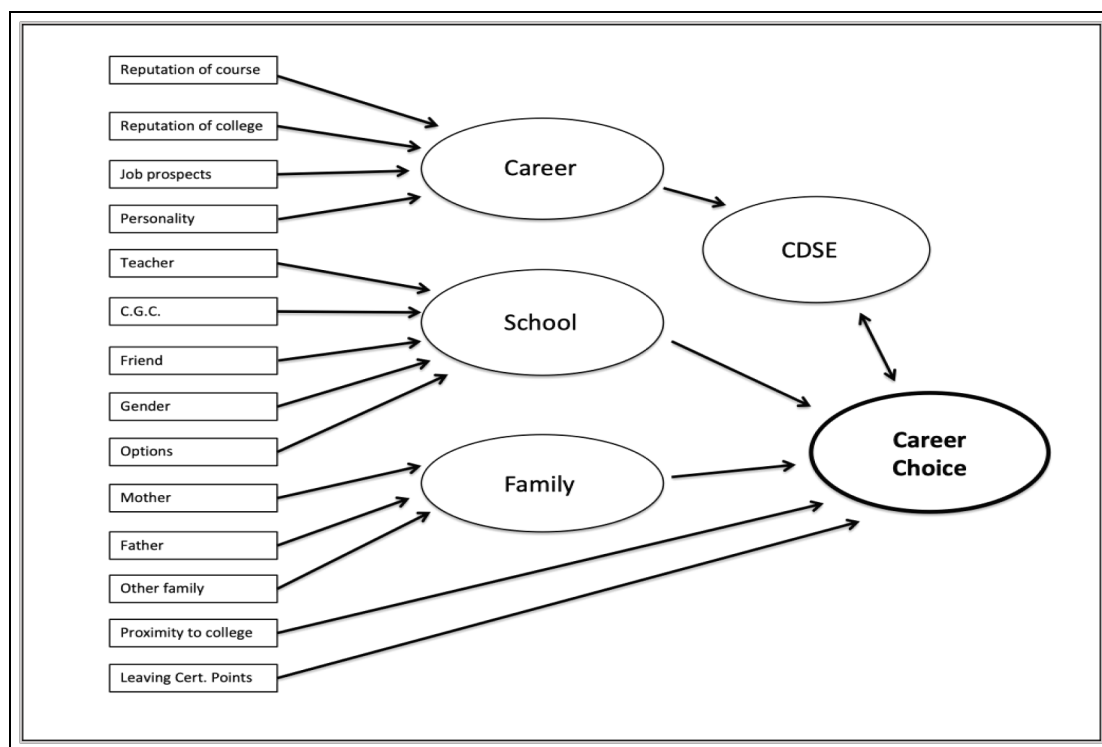


Figure 5.3 – Conceptual diagram: Factors Influencing career choice

5.5 Research Question Three

What factors contribute to college withdrawal rates amongst undergraduate first-year students in Ireland and have those who withdraw lower levels of CDSE?

Research on student withdrawal rates from third level institutions in Ireland only came into focus at the beginning of the twenty-first century. Eivers et al. (2002) suggested this was for two possible reasons. First, the reasons for withdrawals were believed to be beyond the scope of the higher education provider; second, an assumption that non-completion of third level courses was to be expected. Since then, numerous studies have sought to explain the reasons for the high withdrawal rates from third level institutions in Ireland, and elsewhere, in particular amongst first year students as it is well established that non-completion rates are highest in the first year of college (Yorke & Longden, 2008; HEA, 2018b). There is consensus in the literature that there is never a single reason influencing a student to withdraw (Redmond et al., 2011) but rather a bundle of influences (Georg, 2009). Incorrect course choice is continually reported as the dominant factor (e.g. Redmond et al., 2011; Burroghs et al., 2015; Gibbons, 2017). Following this, there is some evidence that lack of academic ability is a factor in withdrawal rates (O'Donovan, 2017). Regardless of the reason(s), the costs associated with withdrawal from college are undisputed, for the student, family and indeed the institution. Gibbons et al. (2017) go so far as to suggest that one cost of high withdrawal rates may lead to reputational damage for a country, and impact its ability to attract foreign direct investment. Although withdrawal rates are judged to be stubbornly high, comparatively, Ireland does not fair as badly as other countries. For example, at the beginning of the twenty-first century Ireland consistently registers between 80% and 85% retention rates annually. This compares to 78% for the UK, 67% for Australia, and 54% for the USA (Van Stolk et al., 2007). Nonetheless, an understanding of the factors which contribute to withdrawal rates is important if the appropriate interventions are to be put in place and at the right time.

5.5.1 Factors Influencing Withdrawal Rates

5.5.1.1 Positive Factors

The most influential factor contributing to withdrawals was incorrect course choice where 68% of respondents indicated this was *quite influential* or *very influential* (table 5.5). In other words, over two-thirds of students had made incorrect decisions when making their career choices. The next most influential factor amongst those who withdrew was inaccurate expectations of the course. Fifty-three percent of respondents indicated this was the primary reason for withdrawal. Thus, it can be said that the two most influential factors contributing to withdrawals amongst the first-year undergraduate population in Ireland are incorrect course choice and inaccurate expectations concerning the course. The next most influential factor contributing to withdrawals was to take a different course. However, only 17% of respondents indicated this as the dominant reason. Although this was not a dominant reason for withdrawal, I believe it to be associated with the two

previous reasons. It is not unreasonable to suggest students who withdrew for these three reasons did so in order to improve their career choices/prospects. I suggest these reasons ought to be considered *positive* reasons for withdrawal. That is, students who withdrew for these reasons did so in order to improve their career situation; and in doing so demonstrated the ability to make a difficult career-related decision, presumably as part of a bigger plan for betterment. As such, I refer to these collectively as *career-related* factors. It is worth noting here that, although these students did not demonstrate a statistically significant difference in CDSE to those who did not cite these as predominant reasons, descriptive statistics indicate a clear pattern. Of the 164 students who withdrew, 121 (74%) indicated definitely (very influenced) they did so for one of these three reasons; collectively these students registered a mean CDSE score of 184. In other words, the majority of students withdrew for career-related reasons, and these students demonstrated higher CDSE than the other students who withdrew, and, indeed, a higher mean score than the study control group (180) and those who repeated (178).

Ordinarily, it would not be unreasonable to suggest that these three factors indicate a lack of preparedness. Students who do not engage with the career decision-making process in a fruitful manner, in particular the exploration stage, risk making an incorrect choice based on inadequate or inaccurate research. It is reasonable to suggest that if a student has incorrect or inaccurate expectations concerning a course of study he/she has not adequately completed research surrounding the contents of that course. Or, on the other hand, the third level educational institution has not adequately explained the contents of the course. The current findings suggest that third level institutions ought to consider reviewing communication strategies to ensure the appropriate messages are communicated to second level students concerning course content and requirements. That said, students who withdrew did not score lower than those in the control group, or on the sub-scales goal selection, occupational information, or planning, as would be expected if underprepared.

Perhaps there is a more interesting story concerning students who withdrew for one of the three reasons: incorrect course choice; inaccurate expectations, or doing so to take another course. Respondents who withdrew for these reasons, demonstrated confidence in making a decision. These students could have continued in college and completed courses with which they were unhappy or to which they were not suited. This might be the easiest solution and possibly one suggested by parents and staff. However, these students demonstrated the ability to make certain difficult decisions and withdrew. Each demonstrated the ability to overcome a barrier or problem; being registered on a course to which he/she was unsuited or with which he/she was unhappy. For these students the barrier was staying in college on a course they would otherwise not be happy with. The barrier was the conflict between personality and staying engaged with a course to which one was unsuited or with which one was unhappy. These students demonstrated the ability to

overcome this barrier and make a difficult decision: solving a problem. As expected, with relation to the problem-solving sub-scale, those who withdrew demonstrated statistically significant higher scores, not only compared to those who repeated but also the control group. Furthermore, these students also demonstrated statistically significant higher scores on the self-appraisal sub-scale to those who repeated and those in the control group. This is a clear indication that, some students who withdrew, did so as a positive step, undoubtedly aided by higher CDSE, more specifically higher self-appraisal and problem-solving skills. It is not unreasonable to suggest that, if these students, having encountered a challenge (the dilemma of withdrawing and being happy, or, remaining on a course and not being so), did not have appropriate levels of CDSE, they may not have had the confidence, courage and self-trust to withdraw. Thus, it may be said with a high degree of certainty that, students who demonstrate high CDSE, who are highly self-aware and demonstrate the ability to solve a problem, will withdraw from college if not happy with a career choice. Thus, it is CDSE that affords a student the confidence to make, what might be otherwise looked on as a negative step, a decision to withdraw from college.

5.5.1.2 Negative Factors

The above three withdrawal factors were followed by the others: financial reasons (16%); perceived academic inability (14%), and respondents unable to secure appropriate accommodation (10%). Of the remaining two factors, 9% indicated they withdrew to take a job, and seven percent indicated they did so for medical reasons. Thus, it can be said that these were *not* the most influential factors contributing to withdrawals amongst the first-year undergraduate population in Ireland when making a decision to withdraw. It is not unreasonable to suggest that, collectively, these reasons are *negative* ones. That is, respondents who withdrew predominantly for these reasons encountered challenges or barriers and did not demonstrate persistence; as a result they withdrew. Of the 164 withdrawals, 43 indicated definitely (very influential) they did so for one or other of these five factors; collectively these students registered a mean CDSE score of 165, considerably lower than the mean score of 179 for all withdrawals, 180 for the control and 178 for the repeat groups. This indicated a pattern. That is, those who withdrew for negative reasons had lower CDSE. I discuss CDSE and withdrawals further below.

Factor	Response	Percentage	Positive v. Negative
Incorrect choice	Not at all influential	6%	
	Not very influential	10%	16%
	Neutral	16%	
	Quite influential	26%	
	Very influential	42%	68%
Financial resources	Not at all influential	50%	
	Not very influential	18%	68%
	Neutral	16%	
	Quite influential	10%	
	Very influential	6%	16%
Unavailable Accom	Not at all influential	71%	
	Not very influential	10%	81%
	Neutral	9%	
	Quite influential	4%	
	Very influential	6%	10%
Medical reasons	Not at all influential	88%	
	Not very influential	2%	90%
	Neutral	3%	
	Quite influential	4%	
	Very influential	3%	7%
Incorrect expectation	Not at all influential	18%	
	Not very influential	13%	31%
	Neutral	16%	
	Quite influential	33%	
	Very influential	20%	53%
Academic inability	Not at all influential	52%	
	Not very influential	18%	70%
	Neutral	16%	
	Quite influential	11%	
	Very influential	4%	15%

Factor	Response	Percentage	Positive v. Negative
Another course	Not at all influential	63%	
	Not very influential	10%	73%
	Neutral	10%	
	Quite influential	5%	
	Very influential	12%	17%
Taking a job	Not at all influential	68%	
	Not very influential	13%	81%
	Neutral	10%	
	Quite influential	6%	
	Very influential	3%	9%

Table 5.5 - Factors influencing college withdrawals

5.5.2 Withdrawals Logistic Regression Analysis

In order to explain withdrawals further I completed another logistic regression analysis (table 5.6). The dependent variable in this model was whether or not the respondent was a student who withdrew from his/her course. The model also included the newly discovered factors from the factor analysis concerning those influencing career choice. Concerning withdrawals, Gender, Ranking of Course Choice, and, above all, Career and School were the influential factors. Demographic, or background characteristics, such as SES and parental education were not found to be strong contributors to withdrawals.

	Estimate	Std. Error	P-Value	
(Intercept)	-1.915	0.682	0.005	**
Q2 – Male	-0.538	0.186	0.004	**
Q12 - 2 nd	-0.370	0.253	0.145	
Q12 - 3 rd	-0.938	0.325	0.004	**
Q12 - 4 th	-0.499	0.362	0.168	
Q12 - 5 th	-1.075	0.555	0.053	
Q12 - 6 th or lower	-0.202	0.360	0.563	
F1_Career	-0.424	0.080	0.000	***
F2_School	0.220	0.069	0.001	***
F3_Family	0.049	0.077	0.524	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				

Table 5.6 - Withdrawal factors regression analysis

5.5.2.1 The Three New Influential Factors and Withdrawals

Amongst the three new career choice influential factors the dominant determinant of whether one withdrew or not was the *career* influential factor. Those who were more likely to score higher on this factor (that is, his/her career was an important influential factor in determining a college choice) were far less likely to withdraw. For example, respondents with the lowest scores had a one in three chance of withdrawing from their courses, while respondents with high scores had a one in 20 chance of withdrawing. Respondents for whom *school* was an influential factor were

significantly more likely to withdraw than those for whom school was not a factor. This suggests that, if career choice factors relating to school were influential in the choice, when a student was faced with persisting and staying engaged with that choice, he/she might choose to withdraw. The inference here is that, once the student left the school environment that influenced the choice in the first place and entered college, he/she was more likely to abandon the course choice. This demonstrates the risks for students influenced by external factors at the expense of cognitive influences when making their career choices. *Family* as an influence on career choice had no bearing on the likelihood of withdrawal. Perhaps this is partly because if family members had been able to convince a student to follow a course, they could influence the student to continue.

5.5.2.2 Other Withdrawal Influential Factors

Following these factors, males were more likely to withdraw. This finding is supported in literature concerning college withdrawals (e.g. Buchmann and DiPrete, 2006; HEA, 2018b). I have discussed at length above (page 33) the possible reasons for male career choice. Concerning male withdrawals the literature suggests reasons such as these: males are more likely to withdraw after not having engaged adequately in the career decision-making process, in particular, the planning or exploration phase (Savickas, 1985; Costa et al., 2001; Gati et al., 2010). Males are also more likely to withdraw at lower levels of college-related debt than females (Dwyer et al., 2013). In other words, males are more likely to withdraw for financial reasons. That said, and based on present findings, I believe that males are more likely to withdraw as the employment opportunities for males without a college education are greater than for females. Males leave, secure in the knowledge that, opportunities to enter the labour force and source financially rewarding employment are greater than for females. Although this withdrawal factor did not prove to be statistically significant, descriptive statistics demonstrated that, of those who withdrew in order to take a job, 73% were male, 27% female. This is a clear indication of the employment opportunities for males over females. This is further indication of the lack of preparation on the part of males. If, as appears likely, certain males preferred to enter the labour force and not attend third level education how did they find themselves in college in the first place? These students may have allowed themselves to be unduly influenced by factors other than the cognitive.

There appeared to be something interesting in relation to Ranking of Course Choice. This was statistically significant for respondents with lower choices (e.g. third choice) who were marginally less likely to withdraw compared with respondents for whom it was a first choice. In other words, if a student withdrew he/she was marginally more likely to be on a course of first choice. It is not unreasonable to suggest that the reason for this concerns academic ability. As highlighted earlier (page 146) students who achieve their first choices have performed better academically, and indeed demonstrate higher CDSE. These students may be described as *high-achievers*. Such a person has a wider range of opportunities or options available; he/she has the academic ability to withdraw and

reapply the following year for a more preferred course; or, he/she may repeat the LC in an attempt to gain higher points and achieve a corresponding course. In other words, these students have the academic ability to take a risk and try again next year. They are not restricted to any course by the points system. On the other hand, those students on courses of lower choices are more likely to have lower points and are restricted in the options available to them such as withdrawing and trying again next year, or seeking some more immediate employment opportunities. These students may be described as *moderate-achievers*, and as such are restricted in the choices or options available.

That said, as discussed earlier, overall, 58% of students who indicated career guidance was not influential went on to courses of first choice. For the control group 45% who said likewise achieved their courses of first choice; for the withdrawal group this increased to 60%. As noted here, if a student withdrew he/she was marginally more likely to be studying on a course of first choice. Although Pearson's correlation analysis did not demonstrate a relationship between these two variables, the inference is that some students who made their career choices without the benefit of the professional guidance of a counsellor, ended up withdrawing. This speaks to the importance of engaging effectively with the career guidance service. It is not unreasonable to suggest that an explanation for this is *overconfidence*. By this I do not mean over or inaccurate estimation of academic abilities, but overconfidence in one's ability to make the right choice without input from others (counsellors). These students demonstrated both higher academic ability and CDSE, and were less likely to have engaged with the career guidance service. As discussed earlier, males withdrew in greater numbers. In relation to this, it has been claimed that males are more likely to be over-confident than females (Croson & Gneezy, 2009; Bertrand, 2011). Furthermore, men exhibit greater preference for competition as well as greater confidence in their abilities than women and are more likely to put themselves into competitive environments (Schulz & Thoni, 2004; Niederle & Vesterlund, 2007). Undoubtedly, the points race in Ireland, and the associated obtaining of any third level course offer(s), is a competition. Perhaps male students find themselves caught up in this competitive environment seeking to win, rather than thinking about the actual task of successfully picking a suitable course of study. Once the male student wins, that is, achieves his course of first choice, he then loses interest which results in a withdrawal. Or perhaps these students have suffered from not engaging in a meaningful way with the services of a professional guidance counsellor and find after arriving in college that their courses were poor choices. In these instances, it is entirely possible that higher academic ability and CDSE, combined with failure to engage with professional career guidance, may work against the student resulting in incorrect choices and college withdrawal.

5.5.3 Withdrawals and CDSE

Use of 'One-way ANOVA' test showed there was no statistically significant difference between CDSE of withdrawals and the two other study groups (control and repeat groups) (figure 5.4). The

result of $P = .523$ established that there was no significant difference between the mean scores of the different groups. However, analysis of the sub-scales demonstrated that for two out of the five (self-appraisal and problem-solving) CDSE was statistically significantly higher amongst withdrawals than the control and repeating groups.

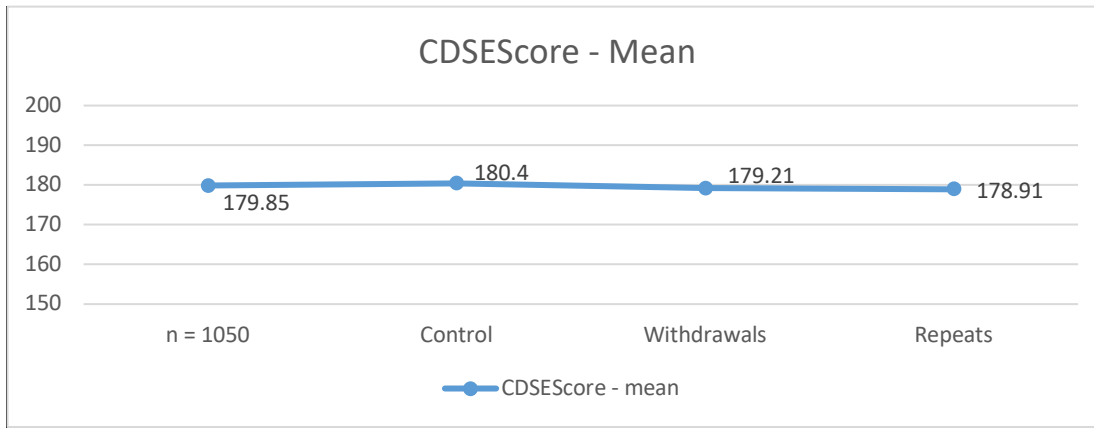


Figure 5.4 – Mean CDSE scores for entire study and three groups

This was an unexpected result as the theory suggests those who demonstrate a lack of persistence and withdraw ought to have lower CDSE compared to those who demonstrate persistence, or grit (Vela et al., 2018), in the face of a barrier (examination failure) and remain engaged. However, further analysis of withdrawals below suggests that the findings, in some circumstances, fit the theory. That is, as suggested above, some respondents who withdrew *did* demonstrate statistically significant lower CDSE, while others demonstrated higher CDSE. As a result, this gave rise to two types of withdrawals, those who withdrew for *positive* reasons (career-related factors), and those who withdrew for *negative* ones (financial or accommodation problems).

5.5.3.1 Positive Withdrawals and CDSE

Those who withdrew for positive reasons demonstrated moderate to high levels of CDSE compared to those who withdrew for negative ones. For example, respondents who withdrew due to incorrect course choice (68%) demonstrated moderate CDSE with a mean score of 178 (quite influential) and 180 (very influential). Respondents who indicated inaccurate expectations concerning a course (58%) also demonstrated moderate CDSE of 176 (quite influential) and 181 (very influential). Students who withdrew to take another course (only 17%) demonstrated considerably higher scores. Respondents who withdrew for this reason had a mean CDSE score of 182 (quite influential) and 192 (very influential). Although these three factors did not demonstrate a statistically significant difference in CDSE to those who did not withdraw for these reasons, the scores ought to be seen as an indication of a pattern amongst students who withdrew. That is, respondents who were very clear and definite (very influential) concerning a decision to withdraw demonstrated higher CDSE than those who were less clear (quite influential or neutral).

The students who withdrew to take other courses revealed sufficient confidence and the ability to make the difficult decision to withdraw from one course or join another. Furthermore, this decision was made after the semester had started, this again demonstrates a student's ability to make a difficult career decision. These students demonstrated the existence of a contingency plan by taking a course but if an offer for a preferred course came up, withdrawing from the original one and take it instead. Such a decision requires confidence and strength of character, especially making this decision after a semester has started, presumably having already made friends and engaged with integrating into that course and/or college. Despite the barriers created by withdrawing, these respondents demonstrated a trust in his/her own ability to successfully manage the change in direction. It is not unreasonable to suggest that, the higher CDSE facilitated this change. Undoubtedly, the significantly higher scores for the sub-scales self-appraisal and problem-solving aided students in making the decision. Thus, it is not unreasonable to suggest that, higher levels of CDSE afforded students the confidence to make the change.

5.5.3.2 Negative Withdrawals and CDSE

Analysis of students who withdrew for reasons such as lack of financial resources (only 16%), perceived academic inability (only 14%), or inability to secure accommodation (only 10%) demonstrated *lower* CDSE. For example, respondents who indicated lack of financial resources registered mean CDSE scores of 173 (quite influential) and 166 (very influential). Students who doubted their own academic abilities to complete a course registered mean CDSE scores of 169 (quite influential) and 155 (very influential). And students who indicated they could not secure appropriate accommodation registered mean CDSE of 158 (very influential). For these students the barrier(s) proved insurmountable and they choose to withdraw. However, in the Ireland of 2019, and more accurately the Dublin of 2019, most first year students encountered these problems or barriers. Concerning financial resources, although third level education is heralded as free, a substantial annual registration fee of 3,000 euros is required from every student. Admittedly, some students qualify for state aid in the form of a grant but many do not. This becomes a challenge, or barrier, but most manage to overcome it and source the necessary funding. Concerning accommodation, anecdotal evidence indicated that Dublin and most other urban centres in the country, were experiencing a housing crisis. As such, in 2019, the pressure on accommodation supply was felt most by students. It was not uncommon to encounter students spending several hours each day on public transport in order to attend college as they could not secure appropriate accommodation within the colleges' catchment area. Most overcome this hurdle, or barrier; some do not. Those who do not, demonstrate a lack of persistence. These students demonstrated lower levels of CDSE.

Although students who withdrew due to lack of financial resources did not demonstrate a statistically significant difference for CDSE scores to those who did not, those who withdrew due to lack of accommodation and perceived academic inability *did*. The students who withdrew from college due to an inability to overcome these two barriers, demonstrated statistically significant lower CDSE (e.g. could not secure accommodation: $P = .007$; perceived academic inability: $P = .002$) than those who did not. Thus, it can be said with a high degree of certainty that, first-year undergraduates in Ireland with low CDSE who encounter barriers such as inability to secure accommodation, or, perceived academic inability, are likely to withdraw from college. And conversely, students who encounter barriers such as inability to secure accommodation, and/or, perceived academic inability, if coupled with low CDSE, are at risk of withdrawing from college. The idea is that if these variables occur together, there is a high degree of probability that the student will withdraw from college.

That said, a note of caution ought to be included here. The correlation shown between students who withdrew concerning inability to source appropriate accommodation and CDSE *may* be inappropriate. Career decision self-efficacy measures just that; self-efficacy associated with careers. Sourcing accommodation may not be deemed a career-related activity. However, an argument might be made connecting the two. That is, the sourcing of accommodation is specifically related to a career activity (going to college) and as such, *is* career-related. Arguably, if the student was not going to college he/she would not be engaged in this activity. It is entirely plausible to relate sourcing appropriate accommodation to, say, the planning aspect of careers. I believe the two *are* related and, as such, the relationship is an important one and relevant for present purposes.

Respondents who were influenced by one or other of the remaining two factors also had lower CDSE. For example, those who withdrew to take a job (only 9%) registered mean CDSE of 180 (quite influential), and 171 (very influential). Those who withdrew for medical reasons (only 7%) registered mean CDSE of 171 (quite influential), and 173 (very influential). These students also demonstrated a lack of persistence. Presumably, when these students made the decision to attend college they did so intending to complete the chosen course. Understandably, those students who withdrew for medical reasons might not have foreseen such circumstances. However, they did not even opt to defer the year which is an option available without any lasting consequences. These respondents chose to withdraw, and in doing so demonstrated lack of persistence. It is not unreasonable to suggest that, if such a student had higher CDSE, he/she may have found a way around the barrier(s) and would either continue with or protect his/her place for later. These students made radical changes in direction from their original plans, and, in doing so, showed lack of persistence. Although analysis of CDSE concerning these students did not demonstrate a statistically significant difference to those who did not withdraw for these reasons, I believe lower

CDSE levels amongst these students is a clear indication that CDSE played a part in their decisions to withdraw. The connection between CDSE and persistence is well established in the literature (e.g. Betz & Hackett, 1981; 1986; Peterson, 1993). In short, the present findings concerning CDSE and career decision difficulties (withdrawals) supports similar findings in the literature. For example, Osipow and Gati (1998) reported that students who demonstrated greater decision-making difficulties also reported lower levels of CDSE. And conversely, Amir and Gati (2006) suggested that students with fewer difficulties in making career decisions demonstrated higher levels of self-efficacy in carrying out tasks specific to making those decisions. Presumably, it is having higher CDSE that reduces the number of difficulties as these students have the ability to overcome problems as they arise.

In short, withdrawal may prove negative for some (e.g. those who are defeated by a barrier such as inability to secure accommodation) but, for others, it may be a positive (those who withdraw as part of the career planning process). In other words, CDSE is, in some circumstances, a predictor of first-year college withdrawals in Ireland. I believe this is the first time CDSE has been associated with college withdrawal rates in Ireland and ought to provide a new perspective for this field of study in terms of further research, theory and practice.

5.5.4 Summary of Question Three

With a view to addressing the challenge of withdrawals, numerous studies have examined the reasons or factors behind the high rates in Ireland (and elsewhere). Despite this, students continue to withdraw from college in large numbers, and as my findings suggest, most blame poor course choice or inaccurate expectations. There is little or no benefit to having somebody attend college if he/she does not complete. Students may withdraw with hostile feelings toward the college, incur large financial costs, and damage their capacity to make future decisions. In order to avoid wasting government and college resources, and to save students and families the stress and difficulty of withdrawing, it is important to ensure each student is as well matched as possible to his/her college course or career choice. The present findings demonstrate that the two most dominant factors which contribute to college withdrawal rates amongst first-year college students in Ireland are incorrect course choice and inaccurate expectations concerning that choice. Factors such as perceived academic inability, inability to secure appropriate accommodation, lack of financial resources, health reasons, and withdrawal in order to take another course or job, did not prove dominant. Amongst the demographic factors a regression analysis identified Ranking of Course (for some respondents with lower ranking choices), Gender, and the newly discovered career decision factors of *Career* and *School*, as predictors of withdrawals. Overall, there was no statistically significant difference between CDSE of withdrawals and the two other study groups (control and repeats). However, the findings suggested two types of withdrawals: one, those who withdrew for positive reasons; the other, those who withdrew for negative ones. For these,

descriptive statistics did demonstrate a difference in CDSE. That is, those who withdrew for positive reasons tended to have high CDSE; those who withdrew for negative reasons tended to have low CDSE. Although not all withdrawal factors in this study predicted CDSE, two did. Perceived academic inability and inability to secure appropriate accommodation were shown to be statistically significant predictors of negative CDSE. Similar to findings by some others (e.g. Betz & Hackett, 1981; Peterson, 1993) present findings demonstrated that background characteristics (e.g. socioeconomic status; parental educational level) were not strong contributors to withdrawals. Figure 5.5 below demonstrates the relationship between the withdrawal factors, low and high CDSE and positive/negative withdrawals. The mean CDSE scores for those who made a definitive decision to withdraw (very influential) are included in order to demonstrate the difference in scores for the individual withdrawal factors.

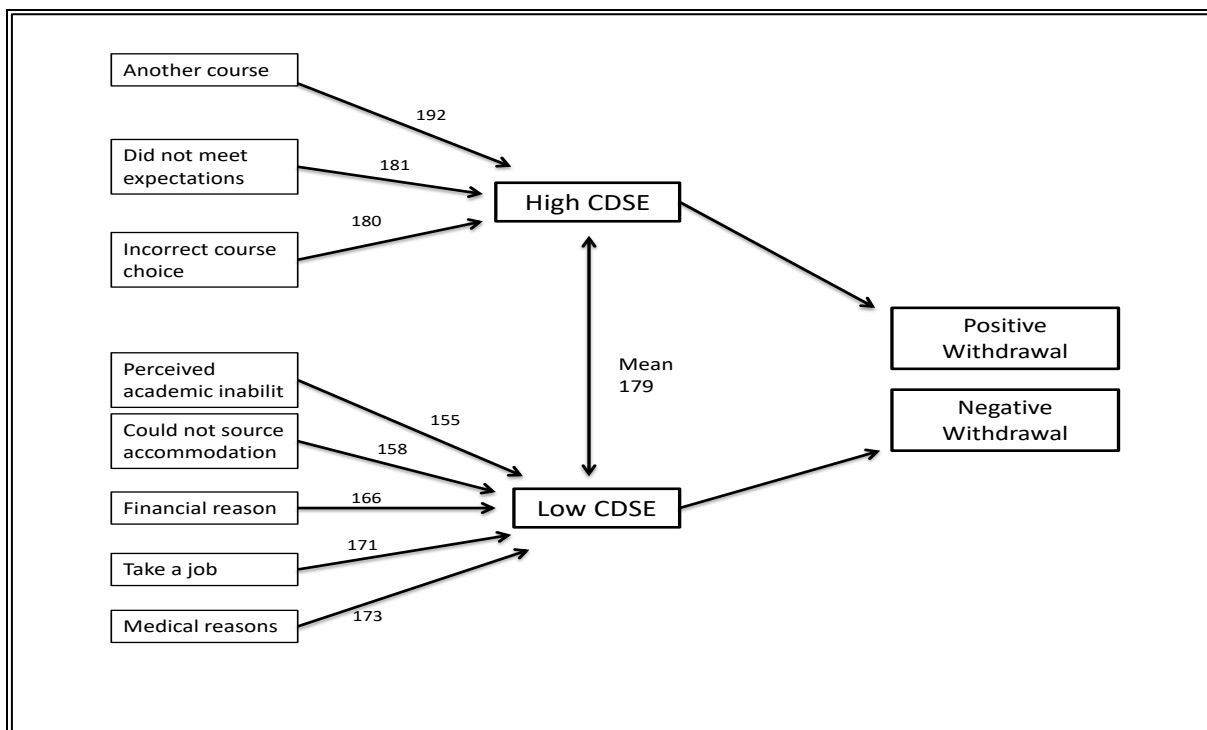


Figure 5.5 – Withdrawal factors influencing positive and negative withdrawals (mean scores)

5.6 Research Question Four

Were those with lower career decision self-efficacy more influenced by external considerations when making career choices (e.g. parents or career guidance counsellors) at the expense of internal or cognitive factors?

The connection between self-efficacy and decision-making is undisputed. That is, self-efficacy, acting as a filter, allows a person to or prevents a person from engaging with a task. If a person has high self-efficacy he/she will engage positively and, even in the face of obstacles or barriers, persist and remain engaged. Conversely, if a person has low self-efficacy he/she may shy away from the

task; or, after initially engaging may do so in a negative manner and withdraw when confronted by obstacle or barriers (Bandura, 1977). Betz and Hackett (1981) were the first vocational psychologists to apply this theory to career decision-making. My research question sought to explore if a student with low self-efficacy was more influenced by factors external to his/her personality or cognitive ones. It is not unreasonable to suggest that, if a person has low self-efficacy, or, in this instance, low CDSE he/she may allow him/herself be influenced, or even dictated to, by others (e.g. parents; friends; teachers; mentors) when making a career choice. The student making the career decision may not demonstrate the confidence, or self-trust, to oppose those encouraging him/her down a particular career path, despite cognitive factors or personality pulling the student in a different direction. It is proposed those with low CDSE may allow external factors influence career decisions, even if those decisions are contrary to their own preferences. And conversely, those with high CDSE may resist the onslaught of recommendations and encouragement from others and follow their own preferences when making the career-choice; that is, make a career choice mediated by personality.

According to SCCT (Lent et al., 1994, 2000), personality traits are considered as a precursor that may affect the formation of self-efficacy beliefs. Research linking personality and CDSE has primarily focused on personality traits with some examining the relationship between Five-Factor Model (McCrae & Costa, 1987) and positive or negative CDSE (e.g. Bullock-Yowell, 2011; Hartman & Betz, 2007). Hsieh and Huang (2014) looked at the relationship between a proactive personality and CDSE. Such studies all view personality as a precursor to CDSE. And according to Hsieh and Huang this field is under-researched. The extant research has already shown that CDSE can be predicted by a variety of personality constructs such as the Five-Factor Model of personality (Hartman & Betz, 2007), a healthy personality (Borgen & Betz, 2008), proactive personality (Hsieh & Huang, 2014), and character strengths (Vela et al., 2018). Ample evidence of the relationship between personality and CDSE exists. As such, this study did not seek to establish individual personality traits or types as precursors to CDSE, but sought to establish if students with *low* CDSE are at risk of influence from factors external to their personality or cognitive ones. The understanding of a possible relationship between low CDSE, personality, and choice ought to be useful in helping career guidance counsellors design and apply interventions that may help increase CDSE and, in turn, improve the effectiveness of the career choice.

5.6.1 Low versus High CDSE

In order to answer this question I sought to identify low and high CDSE amongst respondents. A mean CDSE score of 179.9 (180) for this study was closely aligned or identical to the median (180) demonstrating that the data set was normally distributed. It is not uncommon to take a mean score as a dividing point when considering low or high CDSE. However, I believe this to be too crude an approach. I consider viewing these matters as a spectrum is more appropriate. The survey

produced a minimum and maximum CDSE score of 96 and 246, respectively (table 5.7). The first quartile demonstrated that 25% of those in the lower range are below 164. The third quartile demonstrated that 25% of those that scored high are above 197. Based on this, I decided to define those with *low* CDSE as respondents who scored 164 or below, and those with *high* CDSE as respondents who scored 197 or above. Based on my definitions of low and high CDSE, 277 respondents had low CDSE, while 270 had high CDSE. The remaining respondents (503) may be referred to as those with *moderate* CDSE (165-196).

Min	First Quartile	Median	Mean	Third Quartile	Max	St. Dev.
96	164	180	179.9	197	246	24.1

Table 5.7 – Respondents high and low CDSE scores

5.6.2 High versus Low CDSE Regression Analysis

I completed a logistical regression analysis which seemed to explain the factors influencing career choice of respondents with low and high CDSE (table 5.8). The dependent variable in this model was whether or not the respondent was a student with low or high CDSE. Only three variables emerged as being statistically significant predictors of low or high CDSE. *Personality* (as a contributing factor rather than an objective assessment of personality) proved to be a predictor of career choice for respondents with high CDSE compared to those with low CDSE. *Proximity to college* (in terms of influence on student as opposed to a measure of distance) acted as a predictor of career choice for respondents with low CDSE compared to those with high CDSE. *Leaving Certificate points* (in terms of influence on student as opposed to actual number of points) were a predictor of career choice for those with low CDSE compared to those with high CDSE. The findings did not entirely reveal the expected relationship between respondents with low CDSE and influential factors external to the decision maker. However, conversely, the findings did suggest that those with high CDSE successfully resisted external influences and made the career choice primarily influenced by their own personalities.

			P-Value	
Intercept				
Q15 – Personality			.000	***
Q15 – Proximity to College			.004	**
Q15 – LC Points			.035	*

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Table 5.8 – Career choice influential factors on high versus low CDSE

5.6.2.1 Personality

There is acceptance in the literature that many factors influence a career choice. Background or situational factors such as SES, ethnicity and the educational environment, to a greater or lesser extent, interact with cognitive considerations and personality in a complex way to have some greater or less degree of impact on the choice made. Those factors internal to the decision-maker such as interests, abilities and values ought to play a defining role in the career choice. Factors influencing career choice are found in work as early as that of Parsons in the 1920s (though his speculative writing may not warrant being referred to as a theory in the fullest sense of that term) and further developed by Holland in the 1980s into what have become known as the trait-factor or trait-environment theories. These theories are based on matching personality types with the tasks and responsibilities of occupations. A career development theory by Ginzberg et al. (1951) suggests that career choice may even be based on childhood fantasies (the first of three stages of career development: Fantasy stage). Super's theory of career choice in the 1950s and other developmental theories emphasise the role of the life-span in career choice and changes that may occur as the decision-maker matures over time. Social Cognitive Career Theory developed by Lent et al. in the 1990s, and based on Bandura's theory of the 1970s, proposed that a person is likely to continue with a particular task if he/she has had a positive experience completing it (e.g. while on internships or undertaking part-time weekend/holiday work while in school). In this way a person focuses on matters in which he/she has been successful and achieved positive self-esteem. As is evident, many career theories attempt to explain the complex process of career choice. However, all emphasise the importance of the decision-maker him/herself in the choice. The person making the decision ought to be heavily influenced by his/her own interests, abilities and values if a sustainable successful choice is to be made. In other words, the decision-makers personality ought to play a dominant role.

It is encouraging that my findings suggested that some respondents were more influenced by personality when making a career choice than other external factors such as parents, friends, teachers, or career guidance counsellors. Undoubtedly, this should be the most influential factor for such a personal choice. In order to understand one's own personality, it is advised that a student involved in making career decisions conduct a self-assessment in order to discover the tangible aspects of his/her personality that ought to influence the choice such values, interests and aptitudes. Different careers require different abilities and skills along with different personal interests and values or principles. If a student does not have an in-depth knowledge of him/herself there is a risk of occupational mismatch. It is during this stage of self-analysis that the career guidance professional can play a vital role in administering and interpreting career personality tests for, and with, the student. The assessment and evaluation of personality and the matching between personality and occupations is considered critical in the career planning and decision-making process. Holland, Powell, and Fritzsche (1994, p. 5) suggested that the primary reason assessing

personality is important “is that people tend to surround themselves with other people who share interests, competencies, and worldviews and that people search for environments that will let them exercise their skills and abilities, express their attitudes and values, and take on agreeable problems and roles”. Although it is encouraging to find that some students made career choices influenced by personality, at the same time it is worrying to find that large numbers of students (58% of respondents) did not engage in a fruitful manner with the career guidance services. If a student misses out on the very important step of self-evaluation in the career decision-making process he/she runs the risk of making an incorrect choice.

Developmental psychologists disagree about how a personality develops. Some theorists believe that a person is born with certain personality traits and that these traits remain constant throughout the lifespan. For example, Hartman (1998, p. 25) suggested that personality is innate and that “every child is born with a unique set of personality traits”. He believed that rather than being dependent on personal history, personality is complete at birth and is composed of various genetically inherited traits. Similarly, Ritenberger (2000) proposed that each person is born with inherent personality traits, which in turn determine the way the brain develops and how personality expresses itself. Personality traits reveal themselves very early in life and remain constant throughout childhood. Ritenberger (2000, p. 17) concluded that personality characteristics “create our habits, determine how we gather information, communicate with others, and are primarily responsible for brain functioning”. However, other personality theorists believe that personality is learned. For example, Albert Bandura (1986) suggested that personality was a dynamic interaction of three forces: the environmental, the personal, and the behavioural. He referred to this model as the Triadic Reciprocal Interaction Model, suggesting the interaction between these three factors greatly influences a person’s self-esteem and self-efficacy. Bandura believed that people are self-organizing, proactive, self-reflecting, and self-regulating rather than simply reactive beings shaped by environmental forces or childhood circumstances. As a result, personalities are not set in stone; not only does personality evolve with circumstances, but it can also be consciously shaped by the individual him/herself.

Regardless of whether one’s personality is constant or dynamic, the match between it and an occupation and the work environment cannot be understated. Liptak (2008, p. 93) agrees that personality plays as important a role as interests, skills and abilities in determining the types of jobs that a person may be attracted to and that “the greater the match between your occupation and your personality, the greater life and career satisfaction you will have”. As such, it is advisable that a student does not look on the self-assessment as something that is only completed once. Some authors have suggested the personality is dynamic and can change dependent on circumstances and experiences. Continuous self-evaluation is recommended for a person to remain successful and happy in a chosen career path.

Present findings suggested that students with high CDSE believed their career choices were predominantly mediated by their own personalities. In other words, his/her personal interests, abilities and values were the most influential variables influencing the choice made. Thus, respondents who made their career choices predominantly mediated by personality had high CDSE. And conversely, those with high CDSE were predominately influenced by their own personalities when making their choices. It is not unreasonable to suggest that, if these respondents did not have high CDSE, they might not have demonstrated the confidence and self-trust to make their career choices and may have been influenced by other factors external to themselves. This suggests a relationship between personality and CDSE. That is, if students have the confidence and self-trust to make career choices they will also have high CDSE; and conversely students with high CDSE will make career choices mediated by their own personalities, which ought to be the case. Although, Pearson's correlation analysis demonstrated a positive correlation between importance of personality as a factor influencing career choice and CDSE ($r = .33$; $P < .001$),³³ a strong relationship quite likely exists and this merits further research focusing specifically on this relationship. It is worth noting the CDSE scores for those who rated personality as a career choice factor. Those respondents who were definitive and indicated that personality was not at all an important influencer when making the career choice demonstrated statistically significant lower CDSE to those who definitive and indicated personality very influential ($P < .001$). For example, respondents who indicated personality was not at all influential demonstrated mean CDSE of 159, while those who indicated it to be very influential demonstrated a mean score of 187. In other words, respondents with low CDSE did not make career choices based on their own personalities. Undoubtedly, this is an ill-advised approach to such an important unique personal decision. This raised the question: if those with low CDSE were *not* influenced by their own personalities when making their career choices, what factor(s) *did* influence their choices? The inference here is that, in the absence of one's own personality influencing the choice, external factors were more influential. Although the regression analysis did not demonstrate this, instead demonstrating a relationship between choice, personality and *high* CDSE, I believe further research concerning the relationship between choice, personality and *low* CDSE is merited. Understanding the relationship between low CDSE, personality, and choice amongst young people in Ireland making a career choice ought to be useful in helping career guidance counsellors design and implement interventions that may help increase understanding in one's own interests, abilities and values, increase CDSE, and, in turn, improve the effectiveness of the choice.

³³ Based on Evans's (1996) guide for the absolute value of r , Pearson's correlation analysis demonstrated for the five subscales a positive but weak relationship between personality and CDSE: Self-appraisal $r = .33$, $P = .000$; occupational information $r = .30$, $P = .000$; goal selection $r = .31$, $P = .000$; planning $r = .28$, $P = .000$; problem-solving $r = .20$, $P = .000$.

5.6.2.2 Proximity to College

Geographical distance between parental home and college may be a barrier to entry into third level education, and may be an influential factor when choosing between institutions. Low income and ethnic minority groups are often considered to be especially constrained in education choices as they may remain at home for financial or cultural reasons. If distance deters lower socioeconomic students from choosing high quality universities (if high quality universities are further away, as can be the case) then disadvantaged students may be underrepresented in more prestigious professions with higher remuneration which may compound the socioeconomic divide.

The regression analysis suggested that proximity to college could be a good predictor of career choice for respondents with low CDSE. This was an unexpected finding although one that ought to be of interest to those charged with the management of third level institutions, in particular those with responsibility for marketing. It is worth noting the CDSE scores for proximity to college as a factor in career choice. Those who were very definite that proximity to college was not at all influential had a mean CDSE score of 186, compared to a mean score of 175 for those who judged it to be very influential. The difference between these two groups emerged as being statistically significant although Pearson's correlation analysis only demonstrated a weak negative relationship ($r = -.13, P < .001$). In other words, students with low CDSE are at risk of making their career choices in such a way that proximity to college is a deciding factor. It would appear that students with high CDSE were undeterred by the prospect of leaving home or having to travel long distances when making the career choices. These students showed confidence in managing the transition from home to college, those with low CDSE did not. My findings thus suggest students with low CDSE were less likely to move away to college, possibly opting for a lesser course choice at a more regional institution in order to remain at home. If, as the finding suggests, students with low CDSE are more inclined to go to college locally this may restrict the career choices available to them. In turn, this may compound wage inequality as local IOTs and universities of lesser reputations may not provide courses that result in high status occupations attracting higher remuneration. The findings of Avery and Hoxby (2004) from the USA suggested that college choices of high-aptitude students are not sensitive to distance. And, as findings here suggest, high-aptitude students have higher levels of CDSE, thus it is not unreasonable to suggest, students with higher CDSE are not restricted by distance. The converse may also apply. That is, as findings here suggest, students with low CDSE are much more likely to be restricted by distance.

Distance-to-university as a factor for attending college is typically the focus of economists and sociologists (Adams, 2009), and is used as a variable for estimating the effects of decisions on communities and cities. It is thought that if students choose universities close to where they live and in turn work close to where they studied, this may result in spatial disparities in human capital and labour market outcomes. Efficient higher education systems depend on individual institutions

competing for talented students and in turn, students choose the third level institution that best meets his/her needs, abilities and aspirations. If, as in many countries the majority of university students attend a nearby institution, student mobility may not be sufficiently large to achieve optimum productive and allocative efficiency in a higher education system (Denzler & Wolter, 2011).

Although not conclusive, research suggests that career decisions influenced by distance to college are mediated by variables such as socioeconomic background, educational attainment of parents, educational attainment of student, and gender. For example, Frenette (2006) in a study of students in Canada found that those living 'out of commuting distance' ($> 80\text{km}$) were far less likely to attend university than those living 'within commuting distance' ($< 40\text{km}$), and that students from lower-income families and females were particularly disadvantaged by distance. In Germany, Spiess and Wrohlich (2010) showed that young people who live farther away are disadvantaged in accessing university. They found that 57% of those who live more than 12.5 km enrolled in a university, while among those who live close to a university (less than 6 km away), participation increased to 70%. Suhonen (2014) contributed to the literature by presenting evidence of a 'distance deterrence effect' in the context of selecting a field of study in the Finnish university system. The estimated distance effect was sizeable: a 100 kilometre longer distance required to enrol in a field is, on average, associated with a 15% lower likelihood of selecting that field. However, the results also indicated that the impact of distance varied, to some extent, depending on the choice alternative in question: A student's decision to study education, arts or medicine was not found to be sensitive to the distance needed to travel to study in any of these fields; whereas for the remaining fields, the estimated distance effects were generally large and statistically significant.

On the other hand, the noted sociologist Vincent Tinto (1973) in his seminal work on distance to college and attendance rates in North Carolina and Illinois found that communities without a college were not necessarily associated with significantly lower rates of college attendance. He suggested that this finding casts doubt on a common assumption that rurality is associated with lower rates of third level education attendance, an argument often used for the establishment of public higher education institutions in smaller urban centres. He also found that males from smaller communities without a college went on to college in lower proportions than males from other communities without a college. Furthermore, proximity to college was a significant factor in attendance for mostly lower-ability students than for higher ability ones. In other words, local colleges tended to recruit mostly lower ability students. This he did suggest may be attributable to their open admissions criteria and to the historical association between public junior colleges and local high school districts. Denzler and Wolter (2011) in a study of students in Switzerland found that distance does not influence career choices amongst students from higher socioeconomic backgrounds or high academic achievers. In other words, these students are not restricted in their

choices of universities based on distance. Based on a choice model developed by Hossler and Gallagher (1987), in a study of African-American students enrolled at a private college in the USA, Cartledge et al. (2015) found that proximity to college was not a predictor of enrolment amongst this minority group. However, they did find that financial aid, socioeconomic background and grade point average (GPA) were positive predictors, while non-athletic status and high American College Testing (ACT) were negative predictors (high ACT suggested university enrolment instead of college).

Deterrents to travel to college in Ireland may not be similar to those documented in the literature for other countries. For example, it has long been thought that costs associated with attending the more prestigious universities act as a deterrent; that is, those from lower socioeconomic backgrounds do not attend due to the associated costs. However, the cost of a university or Institute of Technology course of study in Ireland is the same (in 2019 the cost of registration was 3,000 euro) for every first year undergraduate student, regardless of the course of study, or third level institute attended. The only costs associated with attending a more prestigious institute further away from a student's home are those associated with travel and accommodation. However, all students who leave home for third level education are subject to these costs. This raises the question: why is distance a deterrent for some students but not for others? Another possible reason for distance being a deterrent may be that a student does not wish to leave his/her local community for cultural reasons. This is a plausible explanation in Ireland. For example, the role that the Gaelic Athletic Association (GAA) plays in many young people's lives in Ireland is substantial, in particular young male adults. Every community in Ireland, regardless of size, has a very strong association with the GAA. Many young adults are part of the local team from junior years and a role on that team, or at county level, is sought after and coveted. These students may be reluctant to leave this behind, fearful of losing a position on a team and or losing contact with peers associated with participation in GAA. It is not uncommon when enquiring of my students at the end of a week as to their plans for the weekend to hear a chorus of responses saying something along the lines of: 'Going home for a match'³⁴. However, large numbers of students do leave local communities, but manage to return on weekends and holidays to maintain positions on teams, and friendships with peers. This again raises the question why some students manage the process of leaving the community and maintaining links successfully, while others are deterred by distance and do not leave? The present finding suggests that the answer to such questions is associated with CDSE, in particular low CDSE.

³⁴ For a detailed history of the GAA and an understanding of the role it plays in the lives of young people in Ireland see *The GAA: A People's History*, by Cronin et al. first published in 2014.

Some researchers suggest it is easy to mistakenly infer a causal link between distance and college participation, when the causation comes from family background, income or ability (Gibbons & Vignoles, 2012). The evidence regarding the effect of the distance to the nearest higher education institution on enrolment has been mixed across studies and countries, varying from the strong effects observed by Frenette in Canada, to the weak or insignificant effects observed by Gibbons and Vignoles in Britain. Furthermore, Gibbons and Vignoles are critical of the economic-based research suggesting that most of the studies, while focusing on such determinants as distance, socioeconomic background, and varied of courses offered by universities, do not take into account unobservable variable(s). In their research they conclude “the higher distance sensitivity of poor students may be the result of cost barriers, although we find no evidence that housing costs or availability of university accommodation matters. The costs of distance may therefore be predominantly psychological” (Gibbons & Vignoles, 2012, p. 111). The present finding may support their contention.

Undoubtedly, if the present findings are correct, those charged with the management and marketing of third level educational institutions ought to be aware of them, in particular those in smaller urban centres or regional locations as local institutions may be restricted by the calibre of student it attracts. Tinto (1973) was one of the first sociologists to suggest this when he found that, proximity to college was a significant factor in attendance for mostly lower-ability students than for higher ability ones. In other words, local colleges tended to recruit mostly lower ability students. The present finding may mean that, an average regional institution is even more likely to be restricted to recruiting less mobile students and thus has to be commensurately less selective while higher quality prestigious institutions are in a position to maintain demand even amongst potentially distance-restricted students if they are high-achievers. Although Frenette (2009) demonstrated that the creation of new universities increases university attendance among local youth, if these students are moderate or low achievers, with low CDSE, the local institution is at risk of becoming stuck in an environment of mediocrity. Although the present finding is significant, further research on distance to college and CDSE is required to support it.

5.6.2.3 Leaving Certificate Points

Entry to third level colleges in Ireland is based on a quantitative system of points. As outlined earlier (page 3) points are awarded for grades achieved with two possible levels (higher and lower) for subjects studied as terminal examinations at the end of the second level education cycle. Ordinarily, a student may take six, seven or possibly eight examinations as part of the LC, either all at higher or lower level, or, a mixture of both. The choice of subjects taken is made from a list of 37 possible options. Students make decisions concerning which subjects to take as follows. Essential/core subjects are: Irish, English, mathematics but only certain other subjects may be offered at any particular school; personal interests play a part in choices (e.g. a student may opt for

more business-focused subjects), and course-specific requirements for courses at third level are important (e.g. if a student wishes to study medicine he/she must have studied biology). The LC is highly competitive and has become known casually as the ‘points race’. The National Council for Curriculum and Assessment (NCCA) launched a review of the LC in 2018 suggesting it is too exam-focused and fails to engage less academic students. Preliminary findings from this review suggested that the LC move away from a ‘taught to test’ approach to one that promotes the development of personal and interpersonal skills, which in turn, ought to enhance young people’s wellbeing and ability to cope with challenges associated with life in the twenty-first century. Consensus had emerged that the system was too rigid and should have more technical or creative pathways for students whose strengths lie in different areas and are not academic focused (NCCA, 2019). Thus, there is a recognition that the LC and the associated points race favour students who are more academic. These students are not as concerned with the competitive points race. He/she trusts in his/her own ability to perform well and gain entry to third level education on a course of high choice-ranking. However, as observers of the LC have indicated, and present findings suggest, the student who is more affected by the points system is the one who performs moderately. These students experience the worries and concerns associated with not achieving the points required for a third level course and the possibility of not gaining entry to college. The high achievers’ concerns centre around achieving a preferred course choice, while the moderate achievers’ concerns centre around getting *any* place. Arguably, the more stressful situation is that experienced by the moderate performer for if he/she fails to get an offer the options thereafter are limited. Coupled with that is the possible stigma or prospect of failure in the eyes of family, friends and the wider community. In light of this, the association between the LC points race and lower CDSE is understandable.

As demonstrated earlier, students considered high achievers showed higher CDSE. Furthermore, as present findings suggested, students with lower CDSE were influenced by the LC points system, while those with high CDSE were not. For example, respondents who were definite that the LC points system was *not* at all influential showed a mean CDSE score of 187, while those who indicated definitely that the LC points system was very influential scored 177. The difference between these two groups proved statistically significant although Pearson’s correlation analysis only showed a weak negative relationship ($r = -.13$, $P < .001$). In other words, respondents with low CDSE were significantly more concerned with the LC points system than those with high CDSE. The question asked if students with low CDSE were more influenced by external factors at the expense of internal factors (personality). Based on the present finding there is significant evident to suggest that those with low CDSE are influenced by external factors (LC points) at the expense of internal ones (personality).

The LC points system is an indication of academic ability. Undoubtedly (academic) ability is associated with personality. Thus, to some degree, it is important that a student be aware of his/her abilities and have a good or realistic estimation of points. This will allow a realistic selection of course(s) appropriate to the student. That said, it is advisable that the student not be overly concerned with the competitive nature of the LC points system. The optimum approach is for a student to select courses reflecting ability and from that preliminary list make a final selection mediated by personality alone. However, it is entirely understandable that a student with low CDSE may get caught up in this competitive race while not being equipped with the confidence and self-trust to manage the career decision-making process. This is further evidence of how important the career guidance professional is during this difficult and complex period. The role of the guidance counsellor is not merely to help with self-evaluation and matching course(s) with students' abilities, interests and values, but also assisting the student with activities that will help build the unobservable construct of CDSE.

5.6.3 Summary of Question Four

This question sought to explore whether students with low CDSE were more influenced by external career choice factors than one's own personality or cognitive one's. The findings suggest that students with high CDSE are more influenced by their own personalities when making their career choices. Students with low CDSE were more influenced by such factors as proximity to college and the LC points system. Although it is reasonable to suggest that LC points are representative of academic abilities, which ought to be viewed as part of personality, students with low CDSE are at risk of placing too much emphasis on this factor at the expense of personality. Of concern was the finding which suggested that students with low CDSE are at risk of influence from the external career choice factor proximity to college. There are related disadvantages from this approach, not just for the career development of the student but for communities and society as a whole. Figure 5.6 below provides a visual aid depicting the variables impacting low and high CDSE.

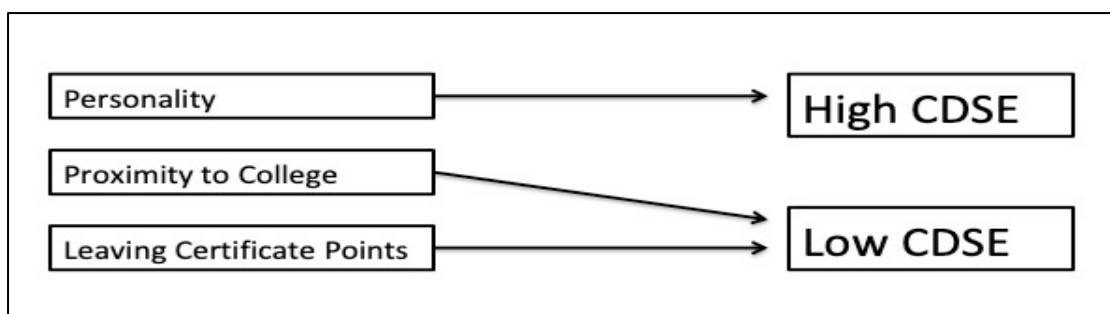


Figure 5.6 – Conceptual diagram: Career choice influential factors on high versus low CDSE

5.7 Conclusion

The central question for this study concerned the possibility of a relationship between CDSE and college withdrawals. The regression analysis and F-test demonstrated an unexpected result; that is, those who repeated an examination had lower levels of CDSE. Closer scrutiny of withdrawals suggests the possibility of two types of withdrawals: one, those who withdraw for *positive* reasons, the other, those who do so for *negative* ones. Those who did so for positive reasons demonstrated higher CDSE than those who did so for negative ones. Males were at greater risk of withdrawing than females. Concerning predictors of CDSE age proved to be the strongest. Academic achievement was also a predictor along with ranking of course choice. There is some evidence to suggest that ethnicity and socioeconomic status might be correlated with CDSE. Gender did not prove to be a predictor of CDSE although it may impede or facilitate career choices considered, especially for female students. Students who demonstrated lower levels of CDSE may be at risk of making their career choices influenced by factors external to their personalities or thinking. Those with higher CDSE appeared to attribute greater emphasis to their own personalities when making their choices.

6.1 Introduction

Research on students' withdrawals from third level institutions in Ireland was a new field at the time of writing (Redmond, et al., 2011). This study sought to examine the relationship, if any, between CDSE and first-year college withdrawals in Ireland. The central hypothesis was that those who withdraw have lower levels of CDSE. If so, interventions may be made at the appropriate junctures to help address the universally recognised challenge of withdrawals. The following conclusions were drawn from analysis of the four questions examined in this thesis.

6.2 Conclusions

6.2.1 Conclusion One

This work largely concerned college withdrawals and the possibility of a relationship with CDSE amongst first-year third level students in Ireland during the first quarter of the twenty-first century. The theory suggests that those who withdraw may have lower levels of CDSE than those who, in the face of obstacles such as examination failure, persist and progress on their chosen courses of study (Bandura, 1977; 1986; Betz & Hackett, 1981; 1986). Unexpectedly, respondents from the *repeat* group had significantly lower CDSE scores than those from the control and/or withdrawal groups. Closer scrutiny of the withdrawal group resulted in my identifying *two sub-groups*. The first of these comprised students who withdrew in line with the theory. That is, these students succumbed to some negative force or barrier, and left their courses of study. I classify these as *negative* withdrawals. The other group comprised those students who withdrew as part of a bigger plan. These students also left but in doing so demonstrated the confidence necessary to make a difficult decision. In such cases the student overcame the hurdle or barrier of being on a course he/she had chosen incorrectly and with which he/she was unhappy. Such students do not leave without a 'contingency plan', and do so apparently in the belief that their actions will eventually lead to a more fruitful career path. These students demonstrated higher levels of CDSE. I classify these as *positive* withdrawals. Thus, it is reasonable to conclude that, for some students (those with a plan which allowed for contingencies - withdrawal) CDSE is a predictor of *positive college withdrawals*. This is not what was originally expected. The expectation was that, those with higher CDSE might persevere and 'stay the course'. In other words, higher levels of CDSE ought to afford a student the ability to stick with his/her original choice. However, the higher levels of CDSE enabled the student to withdraw, giving him/her the confidence to change direction. Unexpectedly those with higher CDSE, if not happy on a course, and being equipped with contingency plans, were *prepared* to withdraw.

Ultimately I conclude that, contrary to the negative connotations associated with withdrawing from college, for some, *leaving is not losing*. Conversely, should obstacles arise (e.g. the student is unable to secure appropriate accommodation), those with lower levels of CDSE may *be at risk* of withdrawing.

Further analysis of the CDSE scores within the groups showed that *academic performance*, as measured by points scored on the Leaving Certificate examination, is a significant determinant in predicting withdrawals and fewer repeats. For example, the mean CDSE score of students who withdrew with 250 points or fewer was 167. Amongst those who repeated, those who scored higher than 450 had a mean CDSE score of 183, but only accounted for 11% of those repeating. This is further evidence that students with lower CDSE are at risk of withdrawing from college and those with higher CDSE were not likely to be repeating examinations in the first place.

More males (55%) than females (45%) withdrew. Thus, I conclude that, to the extent that this can be known with any certainty, male first-year students in higher level education in Ireland are more at risk of withdrawing than females. This is supported in the literature, with Buchmann and DiPrete (2006) finding that males drop out in greater number than females. This is also in line with successive findings by the HEA. One such report (HEA, 2018b) found that 19% of males failed to progress to year two but this value dropped to 12% for females.

6.2.2 Conclusion Two

This conclusion concerns the precursors to CDSE. These are the demographic factors that contributed to CDSE amongst first year students in third level education in Ireland during the first quarter of the twenty-first century. Above all the variables examined, *age* proved to be the strongest predictor of CDSE. Analysis of the data demonstrated that the older the student, the higher the level of CDSE. As a student got older his/her CDSE score increased suggesting that older students were more career self-efficacious. For example, respondents aged 20 and over had higher CDSE than those aged 19 or younger. This was not an unexpected finding and one that I believe is perfectly comprehensible. That is, *life lived* contributes to higher levels of CDSE. This helps support Bandura's (1977; 1986) contention that there are four sources of self-efficacy (previous successes; vicarious learning and modelling; levels of anxiety, and encouragement and support from others) which contribute to self-efficacy (or CDSE). Presumably, as one progresses through life one is afforded more opportunities to experience some, or all, of these contributing factors, which in turn impacts positively on self-efficacy, and more specifically, CDSE. This conclusion has support in the literature (e.g. Smith & Betz, 2002; Bacanli, 2012; Kelly & Hatcher, 2013; Baglama & Uzunboylu, 2017).

Academic achievement, represented by higher options mathematics and English, proved to be a predictor of CDSE. *Ranking of course choice* also proved a predictor. However, ranking of course choice is associated with academic ability as the achievement of a course choice relies on apparent ability. Thus, it is reasonable to ‘bundle’ these two variables together under academic achievement. Analysis of the findings show that students who completed higher level mathematics and English had higher CDSE scores. In other words, it is reasonable to conclude that, academic achievement had a positive relationship with, and can be used as a predictor of, CDSE. Further analysis of the findings suggest that, in the first year of the study higher English was a predictor of positive CDSE; while in the second year, higher mathematics was a predictor of CDSE. Although gender did not prove to have a significant influence on CDSE it is worth noting here that there was greater female participation in higher English in year one of the study and greater male participation in higher mathematics in year two of the study. This suggests that English contributes to higher CDSE for females, while higher mathematics does so for males. Some researchers (e.g. Betz & Hackett, 1983; Cooper & Robinson, 1991) found gender differences in mathematics self-efficacy in favour of males.

Considering the other variables examined, I conclude that *ethnicity* and *social class* had only weak relationships to CDSE. For example, a typical Asian student had lower CDSE than his/her peers across other ethnicities but no important differences between these other ethnicities were evident. The weak relationship between CDSE and social class was unexpected as anecdotal evidence might suggest otherwise. That is, the expectation was that students from less privileged backgrounds would demonstrate lower CDSE than those from privileged ones, due to financial restrictions if nothing else, as these students may have less opportunity to engage in one or all of the four sources of self-efficacy (or CDSE) as outlined by Bandura (1977; 1986).

Returning to *ranking of course choice* the regression analysis demonstrated a weak relationship with CDSE. However, descriptive analysis suggested that 65% of respondents who performed well on the LC examination (>500 points) achieved a first-choice course. In other words, students who performed better achieved their course or career choices. In turn, respondents who achieved their courses of first choice had higher CDSE. Thus, it is reasonable to conclude, higher CDSE is a predictor of the achievement of career *goals* for students in third level education in Ireland. This ought to prove a very important finding for those involved in career choice, both practically and academically. Finally, a short note concerning gender. I conclude it is not a predictor of CDSE. This supports the results of other researchers; for example, Betz and Hackett (1981), and Taylor and Betz (1981).

6.2.3 Conclusion Three

This conclusion concerns the factors influencing career choice amongst students in Ireland during the first quarter of the twenty-first century. The importance of making a correct choice is well documented here and in the literature. Inevitably, some students will make incorrect choices. Understanding the factors having an impact on choice is important if those concerned with this process (parents and teachers/counsellors) are to advise and help students make effective educational/career choices. Encouragingly, I conclude that, the most influential factor as identified by students him/herself when making a career choice was his/her own *personality*. Thus, according to the responding students, personality is considered a paramount factor when making a career choice. Undoubtedly, environmental or extrinsic factors (e.g. employment opportunities; stages of the economic cycle; reputation of college or course) play a part and may change depending on a range of circumstances (e.g. family status or LC points) but I consider it unwise for students making important career decisions to be disproportionately influenced by these factors at the expense of more personal or cognitive ones such as academic abilities, interests and personality. The important role one's own personality ought to play in the career choice is substantially documented in the literature (e.g. Tokar et al., 1998; Hartman & Betz, 2007; Gati et al., 2011; Humburg, 2017).

I analysed further the 14 career choice factors using factor analysis. I found that these could be distilled down to three *new* influential factors (*career; school; family*). I conclude that the first factor *career* has the most relevance for this study. Students who scored similarly on this factor were those who, comparatively, were more likely to emphasise *reputation of the course/career*, the *employment prospects* and the *reputation of the college/university* as *influential* factors when making a career choice. It is also worth noting the prominence of *myself/my own personality* in this factor. This finding is supported in the literature (James et al., 1999; Veloutsou et al., 2004; Fernandez, 2010; Joseph et al., 2012; Munisamy et al., 2014). Career focused students demonstrate ambition, are concerned with gaining access to a university with a good overall reputation, and a course of study with a reputation for employment prospects. Most of these students are female, from the upper social classes and high achievers academically with higher CDSE. Presumably, such a student is self-confident, well informed, knows his/her own mind, and has engaged productively in the career decision-making process. A profile of these students may well be advantageous for third level institutions when developing market communication strategies in the competitive market of third level education in Ireland and beyond.

I conducted another regression analysis in order to investigate the possibility of a relationship between the three *new* factors and CDSE. As a result of this, I conclude that there is a strong relationship between the new *career* factor and CDSE. The factors *school* and *family* were not correlated with CDSE. Thus, it can be said that the career factor is a strong predictor of positive CDSE. In other words, a student influenced by such factors as: reputation of a course or college, resulting employment prospects, or one's own personality, will likely have higher CDSE. Conversely, respondents with higher CDSE are more likely influenced in their career choices by career-related factors than school or family related factors. This speaks to the interdependence of the relationship between career focused students and CDSE.

Further analysis of respondents who appeared to be very ambitious demonstrated a statistically significant difference between the groups. For example, respondents were disproportionately represented in the control by comparison to those who withdrew when influenced by reputation of the college, reputation of the course, and employment prospects. In other words, respondents who judged these factors to be influential in their career choices were less likely to withdraw. Thus, it is reasonable to conclude that, students who are influenced by career-related factors in their career choices are not likely to withdraw from college.

6.2.4 Conclusion Four

This conclusion concerns the relationship between levels of CDSE and the factors influencing career choice. The expectation was that, those with lower levels of CDSE allowed themselves to be influenced by external career choice factors (e.g. parents; career counsellors; economic cycle) at the expense of what ought to be the more important personality or cognitive considerations. Conversely, did those with higher CDSE resist external forces and made their decisions in better informed ways?

In order to answer this question I sought to identify low and high CDSE amongst respondents. The survey produced a minimum and maximum CDSE score of 96 and 246, respectively. The first quartile demonstrated that 25% of those in the lower range were below 164. The third quartile demonstrated that 25% of those who scored highly were above 197. Based on this, I decided to define those with *low* CDSE as respondents who scored 164 or below, and those with *high* CDSE as respondents who scored 197 or above. Based on my definitions of low and high CDSE, 277 respondents had low CDSE, while 270 had high CDSE. The remaining respondents (503) may be referred to as those with *moderate* CDSE (165-196).

Only three variables proved to be statistically significant predictors of low or high CDSE. *Personality* proved to be a predictor of career choice for respondents with high CDSE compared to those with low CDSE. *Proximity to college* proved to be a predictor of career choice for respondents with low CDSE compared to those with high CDSE. *Leaving Certificate points* proved a predictor of career choice for those with low CDSE compared to those with high CDSE.

The findings did not demonstrate the expected relationship between respondents with low CDSE and influential factors external to the decision maker. I expected variables such as parents and career guidance counsellors to be influential, this seemed not to be the case. However, based on the regression analysis *proximity to college* revealed itself as a predictor of career choice for respondents with low CDSE. This was an unexpected finding although one that ought to be of interest to those charged with the management of third level institutions, in particular those with responsibility for marketing. It is worth stressing the CDSE scores for proximity to college as a factor in career choice. For those who were very definite that proximity to college was *not* at all influential had a mean CDSE score of 186, compared to a mean score of 175 for those who judged it to be *very* influential. The difference between these two groups proved statistically significant although Pearson's correlation analysis only demonstrated a weak negative relationship ($r = -.13$, $P < .001$). In other words, it is reasonable to conclude that students with low CDSE are at risk of making their career choices influenced by the external (perhaps less important) factor of proximity to college.

Furthermore, students with lower CDSE were influenced by the LC points system, while those with high CDSE were not. For example, respondents who were definite that the LC points system was *not* at all influential showed a mean CDSE score of 187, while those who indicated definitely that the LC points system was *very* influential scored 177. The difference between these two groups proved statistically significant although Pearson's correlation analysis only showed a weak negative relationship ($r = -.13$, $P < .001$). In other words, it is entirely plausible to conclude, respondents with low CDSE were significantly more concerned with the LC points system than those with high CDSE when making their career choices. However, the LC points system may be a proxy for academic ability; that is, the points achieved by a student are representative, or a measure of, academic achievement/ability. Perhaps this ought to be viewed, not as an external factor, but a cognitive one. In this instance, being influenced by the LC points system is not an external factor, but one that more accurately might be viewed as a cognitive matter.

It would appear that those with high CDSE successfully resisted external influences and made their career choices primarily influenced by their own personalities. Thus, respondents who made their career choices predominantly mediated by personality, were likely to have higher CDSE. And conversely, those with higher levels of CDSE were predominately influenced by their own

personalities when making their choices. It is worth noting the CDSE scores for those who rated personality as a career choice factor. For example, respondents who indicated personality was *not* at all influential demonstrated mean CDSE of 159, while those who indicated it was *very* influential demonstrated a mean score of 187. In other words, it is reasonable to conclude that respondents with high CDSE made their career choices based on their own personalities. And conversely, those with low CDSE did not make their choices primarily influenced by personality, which ought to be the case, other things being equal. Undoubtedly, this is an ill-advised approach to such an important unique personal decision.

6.3 Recommendations

This study produced recommendations. Some are as a result of certain aspects of the study's design (e.g. quantitative versus qualitative), others are associated with the findings. These are set out below.

- This study highlights the need for additional research concerning CDSE amongst third level students in Ireland. The findings here suggest a correlation between CDSE and college withdrawals. In order to support this further, a longitudinal study ought to prove fruitful. In addition, as this study sought to establish the existence of the relationship, and was intended to do so by quantitative means, a more focused qualitative study might be appropriate in order to establish *why* this relationship exists. Furthermore, research with second level students and CDSE ought to be advantageous.
- If, as the findings suggest, students who fail examinations (especially if they are younger students) and are required to repeat in order to progress on their courses of study have lower levels of CDSE, more focused attention and career planning interventions ought to be available to these students. In addition, more focused research concerning CDSE and this group of students (those who fail some examination[s]) ought to prove beneficial; beneficial for the student who appears to be wavering in his/her career direction (having failed in an associated examination despite possessing the academic ability not to fail), but also for the third level education provider.
- As the population of Ireland becomes more diverse and representation of groups considered minorities becomes important, research with such students and CDSE may be beneficial. This may assist stakeholders in preventing career discrimination; that is, where minority groups appear to be limited in their scope of choices despite possessing the academic abilities and qualifications to consider a wider breath of careers.

- This study focused on those who formally withdrew from college. However, richer findings might be forthcoming if research focused on students who do *not* formally withdraw, but choose instead to ‘dropout’. Research concerning CDSE and this group of students ought to be more advantageous to those concerned with college non-completion rates. However, due to the emergence of prohibitive rules and regulations concerning data protection it is virtually impossible to conduct research with such students.
- One finding suggested that students make inaccurate judgments surrounding the content of courses and withdraw because of these. It is incumbent on those involved in the marketing and communication of course content and requirements to do so in a way that will enable a student to make an informed career choice. It is recommended here that third level institutions scrutinise their marketing and communication strategies to ensure course descriptions are representative as to content and any associated requirements.
- As family structures change in Ireland it is recommended that there be a study of students originating from ‘new’ structures that are emerging such as students from divorced, single parent, and same sex families. Understanding CDSE in their lives might prove interesting and worthwhile.
- It is recommended that there be further research with students who register low levels of CDSE and whose career choice factors seem ill-advised. Such students are at risk of being influenced by factors external to themselves and, that being so, may make incorrect choices based on the preferences of others.
- The last recommendation, and overall, arguably the most important, concerns preparation for the career choice. Students ought to approach the task in a systematic organised and planned manner in order to make effective choices. As set out below in summary, I recommend a three-step process which might have the desired effect (figure 6.1).

The analysis stage, by far the most detailed, requires the greatest degree of time and effort. This step involves a detailed self-analysis. A person making a career choice ought to understand him/herself. One must have knowledge of one’s personality, self-concept, self-esteem, self-efficacy, locus of control and emotions. One must be aware of intuitions and the role these may play, positively or negatively, in one’s decisions. That is, the cognitive factors internal and unique to a person which may impact on that person’s choices need to be thoroughly understood. The decision maker must also conduct an analysis of the contextual factors in which the decision is being made. These include: the influence of family, socioeconomic circumstances, stereotyping, gender, race and the stages of the business cycle. Knowledge of such variables and their potential

impact on the choice (consciously or subconsciously), is important in order to employ the necessary interventions to mediate against factors that may have a negative impact on one's choice(s) (e.g. stereotyping). Knowledge of occupations and their availability is also important and must be conducted in the context of the stages in the business cycle.

The second step is the choice itself, that is: the matching of the person with the career/job. It is advisable that all choices are in line with the cognitive features of the person making the choice. It is preferable that the contextual/external factors are mediated against in order to allow a choice which will likely be successful. This may be achieved through the interventions of a career guidance counsellor. During this stage alternatives are identified in order to allow for eventualities which may prevent the first choice materialising.

The final step is review. This is continuous and ought to go on simultaneously with other steps. Factors may change resulting in choices not being advisable or available. It is for this reason that alternatives are identified in step two. The review stage may require returning to step one and starting the process again.

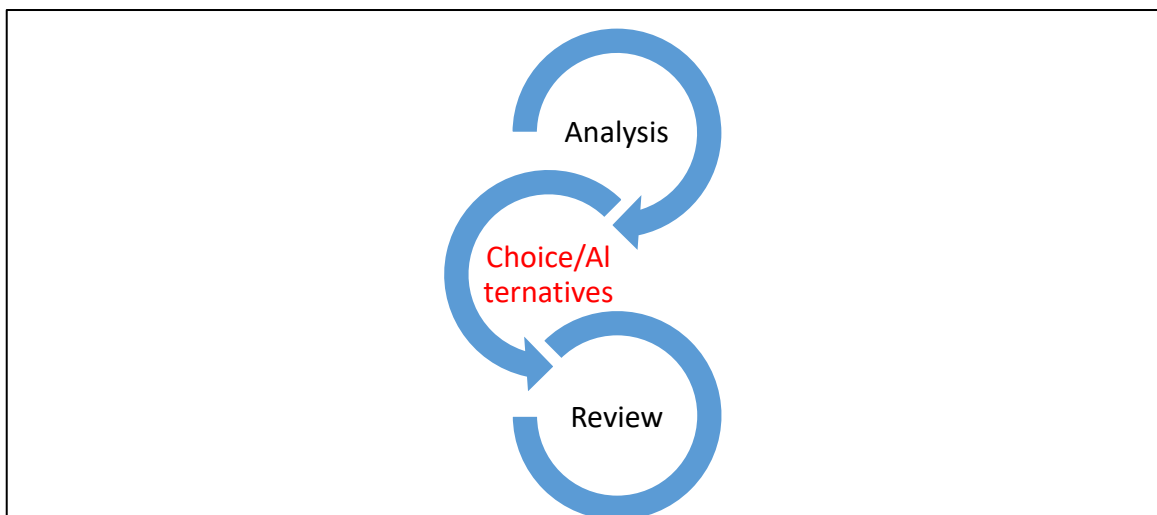


Figure 6.1 - Career decision-making process

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APPENDIX 1 – PARTICIPANT LETTER AND QUESTIONNAIRE



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Dear Student,

My name is Clement Ryan and I am currently a PhD student in the School of Education, Trinity College Dublin. As part of this programme I am conducting research in the matter of career self-efficacy. My research is under the supervision of Dr. D. Limond and is provisionally entitled Self-efficacy Levels as a Predictor of College Withdrawal (working title).

In general, this study seeks to investigate the levels of career decision self-efficacy amongst students studying at Dublin Institute of Technology (DIT) and, more specifically, if those withdrawing from college have lower levels than those who remain despite obstacles such as examination failure.

The data collection, primarily by way of a questionnaire, will take place in DIT amongst registered first year students across a sample of programmes and will include those wishing to withdraw and those who fail any module(s) but return for supplemental examinations in August. A small number of willing participants (no more than 10) will be asked to participate in an informal semi-structured interview later in the study. If you would be willing to participate further please include your contact details in the space provided below. Selection for interview will be random.

The information gathered will be treated with the appropriate privacy and anonymity. No individual participant will be identified in the research and results will be presented in aggregate format. All information will be stored safely with access only available to the researcher and supervisor. A copy of the results can be made available to you if requested.

Please note, you are under no obligation to participate in this study. If at any time during completion of the questionnaire attached you wish to withdraw you may do so.

If you have further questions regarding this research please feel free to get in touch using the contact details below.

Finally, I would like to thank you for taking the time to consider my research. Without your generous participation conducting such research would be impossible.

Kind regards,

Email: clement.ryan@dit.ie

Phone: 087 6470714

Only include your contact details below if willing to participate in an interview at a later date.

Student e-mail: _____ **Mobile No.:** _____

Career Self-efficacy Questionnaire

Q1 Are you? (Please tick one box)

1st year student planning to continue to 2nd year ☐

Please complete Sections A and B

1st year student withdrawing/deferring from college ☐

Please complete Sections A, B and C

1st year student repeating an examination ☐

Please complete Sections A, B, and D

Section A – All Students Complete this Section

Q2 Please indicate your gender (tick one box):

- Male ☐
- Female ☐
- Prefer not to say ☐

Q3 Please indicate your age (tick one box):

- 18 years ☐
- 19 years ☐
- 20 years ☐
- 21 + years ☐

Q4 Please indicate your ethnic background (tick one box):

- Irish ☐
- Other white ☐
- Asian ☐
- Black ☐
- Mixed ☐

Q5 Please indicate the socioeconomic class of your family? (tick one box)

- Class A (Higher professional: E.g.: judge; doctor; architect; dentist; lawyer) ☐
- Class B (Lower professional: E.g.: managers; ICT; nurses; teachers; Gardaí) ☐
- Class C1 (Skilled non-manual workers: E.g.: administrators; drivers; sales person) ☐
- Class C2 (Skilled manual workers: E.g.: farmers; fishermen; electricians; plumbers) ☐
- Class D (Unskilled manual workers: E.g.: labourers; retail/shop assistant) ☐
- Class E (Pensioners; Unemployed) ☐

Q6 Taking the primary earner in your family, please indicate his/her level of education (tick one box):

- No schooling or primary school only ☐
- Secondary school only ☐
- Certificate/Diploma/Degree ☐
- Master's Degree ☐
- PhD ☐

Q7 In the Leaving Certificate examination, how many points did you score? (tick one box)

200 points or less

Between 201 and 250 points ☐

Between 251 and 300 points ☐

Between 301 and 350 points ☐

Between 351 and 400 points ☐

Between 401 and 450 points ☐

Between 451 and 500 points ☐

Between 501 and 550 points ☐

Between 551 and 600 points ☐

I did not sit the Irish Leaving Certificate ☐

Q8 Did you take higher level Mathematics? (tick one box)

Yes ☐

No ☐

Q9 If you answered yes to question 8, what grade did you achieve on the higher paper? (tick one box)

Grade H7, H8 ☐

Grade H5, H6 ☐

Grade H3, H4 ☐

Grade H1, H2 ☐

Q10 Did you take higher level English? (tick one box)

Yes ☐

No ☐

Q11 If you answered yes to question 10, what grade did you achieve? (tick one box)

Grade H7, H8 ☐

Grade H5, H6 ☐

Grade H3, H4 ☐

Grade H1, H2 ☐

Q12 On your CAO application where did the course you are studying on rank in order of choice? (e.g. was it your first choice? Circle one):

1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Q13 What level is the course you are studying? (tick one box)

Level 6 (2 year course) ☐

Level 7 (3 year course) ☐

Level 8 (4 year course) ☐

I don't know ☐

Q14 Please indicate your area of study (tick one box):

Arts & Tourism ☐

Business ☐

Science & Health ☐

Engineering & Built Environment ☐

I don't know ☐

Q15 From the following list please tick one box from the scale 1 to 5 indicating how influential the person/thing was in making your course/career choice. One (1) is where the person/thing was not at all influential, five (5) is where the person/thing was very influential.

• **Mother**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐☐☐☐☐

• **Father**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐☐☐☐☐

• **Other family member(s)**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐☐☐☐☐

• **Career guidance counsellor**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐☐☐☐☐

• **Teacher(s)**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐☐☐☐☐

• **Friend(s)**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐☐☐☐☐

- **Myself, based on my own personality**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐ ☐ ☐ ☐ ☐

- **My sex (e.g. if you are female you might say I wanted to be a firefighter but it's not a job for a girl)**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐ ☐ ☐ ☐ ☐

- **The proximity of the college to my home**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐ ☐ ☐ ☐ ☐

- **The Leaving Certificate points system**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐ ☐ ☐ ☐ ☐

- **Option subjects available in your secondary school for the Leaving Certificate (e.g. I would have liked to do medicine but my school didn't have biology)**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐ ☐ ☐ ☐ ☐

- **The reputation of the college/university**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐ ☐ ☐ ☐ ☐

- **The reputation of the course/career**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐ ☐ ☐ ☐ ☐

- **The employment prospects on completion of the course**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐ ☐ ☐ ☐ ☐

Q16 If you had to pick one parent/guardian, who would you say was the more influential in your going to a third level college?

Mother: ☐ Father: ☐

Section B – All Students Complete this Section

Q17 Judging your own personality please tick one box from the scale one (1) to five (5) for each statement below on how confident you are that you could complete the task outlined in each statement. One (1) is not at all confident, and five (5) is very confident.

List three college/university courses that you are interested in. _____

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Use the internet to find information about courses of study that interest you.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Select one course from a list of potential courses you are considering.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Make a plan of your goals for the next five years.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Determine the steps to take if you are having trouble with any aspect of the course you are on.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Accurately assess your abilities.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Find information about companies employing people who graduate from the course you are on.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Select one occupation/job from a list of potential occupations/jobs you are considering.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Determine the steps you need to take in order to successfully complete the course you are on.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Persistently work at your course or overall career goals even when you get frustrated.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

List three occupations/jobs that you are interested in.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Find information about college courses in another institute or university.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Choose a career that will fit your preferred lifestyle.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Prepare a good Curriculum Vitae (CV).

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Change courses if you did not like your first choice.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Determine what your ideal job would be.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Talk to a lecturer in a department you are considering for another course.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Make a career decision and then not worry about whether it was right or wrong.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Get letters of recommendation from your teachers or lecturers.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Change courses if you are not satisfied with the one you are on.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Decide what you value most in an occupation/job.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Ask a staff member about graduate schools and job opportunities in your area of study.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Choose a course or career that your parents do not approve of.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Get involved in work experience relevant to your future occupation/job.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Resist attempts of parents or friends to push you into a course or career you believe is beyond your abilities.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Figure out whether you have the ability to successfully complete maths or accounting based modules.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐ ☐ ☐ ☐ ☐

Describe the job duties of the occupation/job you would like to pursue.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐ ☐ ☐ ☐ ☐

Choose a career in which most workers are the opposite sex.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐ ☐ ☐ ☐ ☐

Find and use the Placement Office on campus.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐ ☐ ☐ ☐ ☐

Move to another city to get the kind of job you really would like.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐ ☐ ☐ ☐ ☐

Determine the academic subject you have the most ability in.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐ ☐ ☐ ☐ ☐

Find out the employment trends for an occupation/job for the future.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐ ☐ ☐ ☐ ☐

Choose a course or career that will fit your interests.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐ ☐ ☐ ☐ ☐

Decide whether or not you will need further studies (e.g. complete a Masters) to achieve your career goals.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐ ☐ ☐ ☐ ☐

Apply a second time for a Masters if you got rejected the first time.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Determine whether you would rather work primarily with people or with information.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Find out about the average yearly earnings of people in an occupation/job.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Choose a course or career that will suit your abilities.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Engage in additional studies outside of your course that will help you in your future career.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Identify some reasonable course or career alternatives if you are unable to get your first choice.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Decide what you would give up or sacrifice (e.g. a sporting pastime) in order to achieve your career goals.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Talk with a person already employed in the field you are interested in.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Choose the best course for you even if it takes longer to finish.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Identify employers, firms, institutions relevant to your career possibilities.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Go back to school to get a Masters degree after being out of school 5 - 10 years.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Define the type of lifestyle you would like to live.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Find information about Masters or professional schools.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Choose the course you want even though the job opportunities in this field are declining.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Successfully manage the job interview process.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Come up with a strategy to deal with withdrawing from college.

1 (not at all confident) 2 (not very confident) 3 (neutral) 4 (quite confident) 5 (very confident)

☐☐☐☐☐

Section C – For those Withdrawing/Deferring from their Course

Q18 What level is the course you are withdrawing from? (tick one box)

Level 6 (2 year course) ☐

Level 7 (3 year course) ☐

Level 8 (4 year course) ☐

I don't know ☐

Q19 Has the content of your programme matched your expectations that you had when you selected the programme? (tick one box)

Yes ☐

No ☐

Q20 Please indicate the reason(s) for your withdrawal from the course by ticking a box from one (1) to five (5) for each statement below. One (1) is not at all influential reason, five (5) is very influential reason.

• **The course was not the right choice for me**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)
☐ ☐ ☐ ☐ ☐

• **I do not have the financial resources needed for college**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)
☐ ☐ ☐ ☐ ☐

• **I could not secure appropriate accommodation**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)
☐ ☐ ☐ ☐ ☐

• **I am withdrawing for medical reasons**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)
☐ ☐ ☐ ☐ ☐

• **I had a different idea of what the course involved**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)
☐ ☐ ☐ ☐ ☐

• **I do not have the academic ability to complete the course**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)
☐ ☐ ☐ ☐ ☐

- **I have been offered another course which I am more suited to**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐ ☐ ☐ ☐ ☐

- **I have secured a job and so I do not need to attend college**

1 (not at all influential) 2 (not very influential) 3 (neutral) 4 (quite influential) 5 (very influential)

☐ ☐ ☐ ☐ ☐

Q21 In your opinion what is the most influential/important reason for you withdrawing/deferring from college? (Please state the most influential/important reason for your withdrawing/deferring from college below).

Section D – For Those Repeating a Module(s)

Q22 Between semesters 1 and 2, how many modules did you fail? (tick one box)

One module ☐

Two modules ☐

Three modules ☐

Four modules ☐

Five modules ☐

Six or more modules ☐

Q23 Indicate the module you have just repeated? (tick one box)

Industry Studies ☐

Management (including HRM) ☐

Communications ☐

Information Technology ☐

Accounting; financial mgmt.; economics ☐

Language ☐

Other module not listed here _____

Q24 On the scale below please rate how you think you performed on the repeat examination you just completed. One (1) indicates you performed very badly, five (5) indicates you performed very well. (tick one box)

1. (very badly)

☐

2. (quite badly)

☐

3. (neutral)

☐

4. (quite well)

☐

5. (very well)

☐

End of Survey – Thank You!

APPENDIX 2 - COMPONENT MATRIX^A

Component Matrix^a

		Component											
		1	2	3	4	5	6	7	8	9	10	11	12
1.	Choose three courses of interest	.370	-.374	.182	.342	-.177	-.196	.066	.168	-.091	.010	.063	-.109
2.	Use the Internet to research courses	.412	-.334	.249	.144	-.123	-.216	.232	.220	-.177	-.047	.142	.137
3.	Select one course	.484	-.207	-.099	.272	-.176	-.005	.075	.309	-.074	-.019	-.085	.001
4.	Make a plan/5 years	.533	-.019	-.275	.110	-.249	.239	-.012	.091	.115	-.122	.117	-.142
5.	Step to take if having trouble with course	.494	.151	-.074	.119	-.291	.127	.125	-.152	.154	-.081	-.019	-.060
6.	Assess abilities	.490	.091	-.200	.194	-.219	.093	.056	-.241	.176	-.082	-.108	-.097
7.	Find information on companies	.482	-.036	-.072	-.350	-.258	.011	.247	-.055	-.039	.283	-.047	.197
8.	Select one occupation	.482	-.167	-.325	-.140	-.107	.027	.162	.182	-.014	.213	-.203	.173
9.	Determine steps to complete course	.506	-.158	.000	.032	-.292	.149	.165	-.225	.146	-.039	-.235	.219
10.	Persist at course even when frustrated	.449	-.145	-.081	.223	-.229	.202	.079	-.219	.017	-.216	-.060	.212
11.	List three jobs of interest	.520	-.269	-.216	.010	-.034	-.001	-.052	.154	-.189	.128	.280	-.010
12.	Find information about college courses at another university	.445	-.210	.262	.119	-.156	-.266	.225	.191	-.071	.118	.176	-.069
13.	Choose a career or course that fits lifestyle	.565	-.105	-.415	.052	.020	-.036	-.107	.043	-.149	.005	.083	-.035
14.	Prepare a good CV	.407	.192	-.109	-.122	-.042	-.096	.097	.265	.381	-.128	.192	.115
15.	Change course if first choice does not fit	.353	.593	-.093	.131	.043	-.429	-.029	.002	-.166	.041	-.034	.163
16.	Determine idea job	.551	-.034	-.443	.028	.131	.060	-.126	.138	-.145	.058	.080	-.134
17.	Talk to a lecturer in another department	.373	.446	.055	-.064	-.075	-.244	.189	.070	-.139	-.223	-.071	-.167
18.	Make a career decision and not worry if it was right	.315	.369	-.291	.193	.024	.130	.029	.044	-.134	.066	-.158	-.043
19.	Get letters of recommendation from teachers/lecturers	.485	.095	.091	-.195	.067	.009	.325	-.026	-.061	-.290	.016	-.187

Component Matrix^a

		Component											
		1	2	3	4	5	6	7	8	9	10	11	12
20.	Change course if not satisfied	.401	.580	-.075	.157	.093	-.412	-.026	-.035	-.126	.008	-.131	.076
21.	Decide what of most value in a job	.552	-.152	-.155	.041	.176	-.040	-.036	-.051	.097	.023	-.086	-.305
22.	Ask staff about graduate school or jobs in your area	.526	.125	.128	-.288	-.017	-.036	.293	-.039	-.047	-.184	-.005	-.252
23.	Choose course/career that parents do not approve	.243	.239	.164	.316	.387	.277	.303	-.091	-.017	.218	.124	.089
24.	Get work experience in area of study	.511	-.069	.047	-.288	.172	-.027	.212	.071	.011	-.167	.007	.228
25.	Resist parents or friends pushing in the direct of a career	.291	-.075	.124	.357	.286	.146	.351	-.210	-.024	.105	.093	.133
26.	Access maths or accounting abilities	.330	-.022	.234	.389	-.142	-.129	.045	-.212	.163	.112	-.013	-.058
27.	Describe duties of preferred job	.611	-.127	-.281	-.021	.088	.018	-.101	.075	-.083	.094	.046	-.039
28.	Choose a career where most are opposite sex	.340	.056	.201	.025	.335	.257	.295	.078	-.067	.012	-.035	-.118
29.	Find and use the placement officer	.357	.318	-.015	-.205	-.126	.199	.170	-.101	-.211	.227	.039	-.163
30.	Move city to get a preferred job	.350	.062	.144	-.204	.112	.171	-.094	-.019	.041	.186	.142	.004
31.	Determine your best academic subject	.495	-.156	.131	.155	.141	-.192	-.104	-.272	.094	.000	-.037	-.117
32.	Find employment trends for future jobs	.528	.025	-.038	-.248	-.102	.014	-.108	-.288	-.023	.293	.089	.018
33.	Choose a course or career that fits interests	.605	-.158	-.222	.021	.191	-.091	-.173	-.164	-.162	-.091	-.055	.121
34.	Decide if future study is needed to achieve career	.543	-.042	.252	.032	-.061	.016	-.254	.080	-.053	-.022	-.272	.025
35.	Apply for a masters a second time if rejected	.507	.156	.385	.015	-.052	.173	-.224	.128	-.039	.071	-.229	-.084
36.	Determine preference for working with people or information	.405	-.220	.095	.025	.361	-.068	-.029	.137	.235	-.008	-.130	.003
37.	Find average earnings in preferred occupation/job	.486	-.122	.165	-.155	.002	-.235	-.123	-.153	.112	.357	-.090	-.083
38.	Choose a career suitable to abilities	.607	-.199	-.169	.008	.177	-.116	-.163	-.231	-.090	-.187	-.063	.013

Component Matrix^a

		Component											
		1	2	3	4	5	6	7	8	9	10	11	12
39.	Engage in additional studies that will help with future career	.495	.097	.133	-.147	-.146	.144	-.193	-.178	-.126	-.265	.173	-.095
40.	Identify course/career alternatives if unable to get first choice	.465	.029	.250	.029	.010	-.147	-.181	-.159	.032	-.042	.321	.144
41.	Decide scarifies to be made in order to achieve career goals	.372	-.042	.186	-.022	-.050	.145	-.244	-.074	-.073	-.121	.409	-.036
42.	Talk with employees already in your field of study/career	.499	-.066	.098	-.330	.228	.079	.046	.041	-.113	-.209	-.059	.122
43.	Choose the most suitable course even if its longer to finish	.501	-.043	.155	.064	.164	.095	-.225	.022	-.088	-.185	-.140	.361
44.	Identify employers, firms, institutions relevant to career	.581	-.137	.110	-.295	.041	.004	-.022	-.008	.093	.151	.012	.106
45.	Return to education after 5-10 years	.368	.273	.326	.129	-.156	.262	-.277	.248	-.015	-.002	-.014	-.013
46.	Define the type of preferred lifestyle	.412	-.202	-.070	.050	.298	-.007	-.025	.033	.281	.015	-.098	-.324
47.	Find information about a masters or professional schools	.549	.111	.349	-.116	-.135	-.005	-.145	.154	.005	.130	-.176	-.114
48.	Choose a course even though job opportunities are declining	.277	.325	-.051	.226	.107	.356	-.115	.232	-.027	.086	.052	.104
49.	Successfully manage the job interview process	.433	.175	-.098	-.082	.032	-.060	-.028	.243	.550	-.071	.043	.125
50.	Come up with a strategy to withdraw from college	.322	.422	-.102	.058	.011	-.129	-.036	-.054	.270	.083	.301	.063

Extraction Method: Principal Component Analysis.^a

a. 12 components extracted.

APPENDIX 3 – CDSE SCORE EIGENVALUES

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.702	21.404	21.404	10.702	21.404	21.404
2	2.488	4.977	26.381	2.488	4.977	26.381
3	1.990	3.979	30.360	1.990	3.979	30.360
4	1.682	3.365	33.724	1.682	3.365	33.724
5	1.499	2.998	36.723	1.499	2.998	36.723
6	1.443	2.886	39.609	1.443	2.886	39.609
7	1.427	2.855	42.464	1.427	2.855	42.464
8	1.254	2.509	44.973	1.254	2.509	44.973
9	1.170	2.340	47.313	1.170	2.340	47.313
10	1.109	2.217	49.530	1.109	2.217	49.530
11	1.051	2.102	51.632	1.051	2.102	51.632
12	1.017	2.035	53.667	1.017	2.035	53.667
13	.967	1.934	55.600			
14	.928	1.856	57.456			
15	.923	1.845	59.301			
16	.882	1.764	61.065			
17	.870	1.741	62.806			
18	.828	1.656	64.462			
19	.810	1.620	66.082			
20	.781	1.561	67.643			
21	.757	1.514	69.157			
22	.724	1.447	70.604			

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
23	.705	1.410	72.014			
24	.689	1.378	73.392			
25	.682	1.364	74.756			
26	.666	1.331	76.088			
27	.644	1.287	77.375			
28	.642	1.284	78.659			
29	.618	1.237	79.895			
30	.599	1.199	81.094			
31	.598	1.197	82.291			
32	.579	1.159	83.450			
33	.573	1.146	84.596			
34	.550	1.099	85.695			
35	.540	1.079	86.774			
36	.534	1.068	87.842			
37	.513	1.027	88.869			
38	.506	1.012	89.880			
39	.499	.997	90.878			
40	.490	.979	91.857			
41	.475	.949	92.806			
42	.469	.938	93.744			
43	.447	.895	94.639			
44	.435	.871	95.510			
45	.427	.854	96.364			

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
46	.415	.831	97.195			
47	.403	.806	98.000			
48	.396	.792	98.792			
49	.342	.683	99.475			
50	.262	.525	100.000			

Extraction Method: Principal Component Analysis.

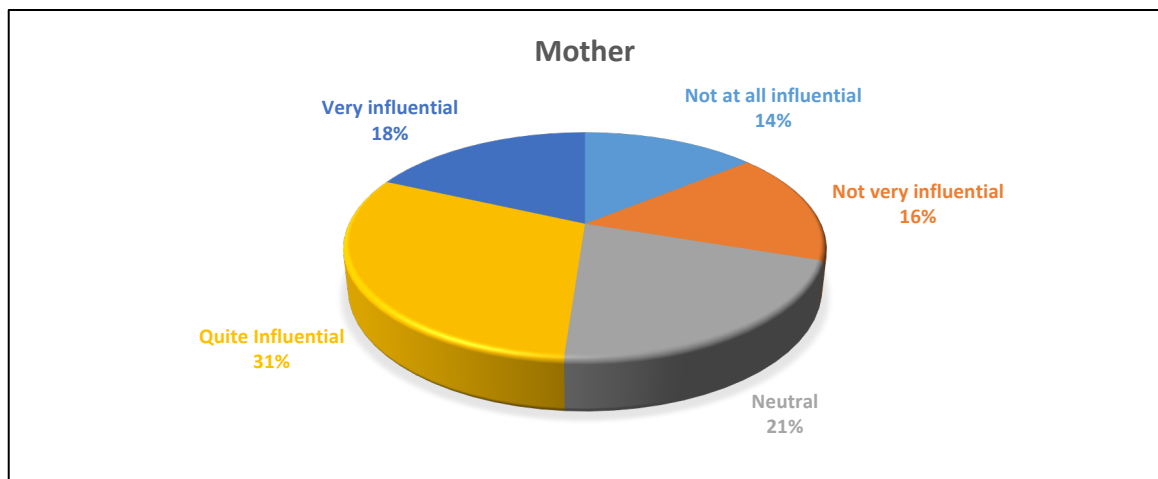
APPENDIX 4 – FACTORS INFLUENCING CAREER CHOICE

Factor	Response	Percentage	Positive v. Negative
Mother	Not at all influential	14%	Negative 30%
	Not very influential	16%	
	Neutral	21%	
	Quite influential	31%	Positive 49%
	Very Influential	18%	
Father	Not at all influential	21%	Negative 38%
	Not very influential	17%	
	Neutral	22%	
	Quite influential	27%	Positive 40%
	Very influential	13%	
Family Member	Not at all influential	28%	Negative 47%
	Not very influential	19%	
	Neutral	23%	
	Quite influential	21%	Positive 30%
	Very influential	9%	
Career Guidance	Not at all influential	36%	Negative 57%
	Not very influential	21%	
	Neutral	16%	
	Quite influential	20%	Positive 27%
	Very influential	7%	
Teacher	Not at all influential	31%	Negative 54%
	Not very influential	23%	
	Neutral	23%	
	Quite influential	17%	Positive 23%
	Very influential	6%	
Friend	Not at all influential	22%	Negative 42%
	Not very influential	20%	
	Neutral	25%	
	Quite influential	24%	Positive 33%
	Very influential	9%	

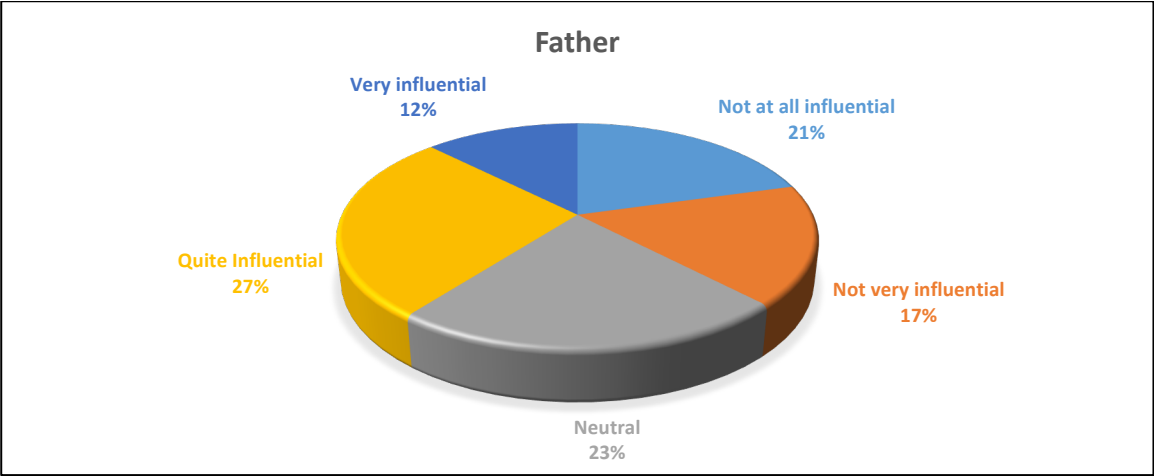
Factor	Response	Percentage	Positive v. Negative
Personality	Not at all influential	1%	Negative 3%
	Not very influential	2%	
	Neutral	8%	
	Quite influential	36%	Positive 89%
	Very influential	53%	
Gender	Not at all influential	51%	Negative 66%
	Not very influential	15%	
	Neutral	20%	
	Quite influential	11%	Positive 14%
	Very influential	3%	
Prox. to college	Not at all influential	24%	Negative 41%
	Not very influential	17%	
	Neutral	18%	
	Quite influential	31%	Positive 41%
	Very influential	10%	
LC points	Not at all influential	13%	Negative 26%
	Not very influential	13%	
	Neutral	15%	
	Quite influential	32%	Positive 60%
	Very influential	28%	
Options available	Not at all influential	34%	Negative 56%
	Not very influential	22%	
	Neutral	16%	
	Quite influential	21%	Positive 28%
	Very influential	7%	
Rep. of college	Not at all influential	11%	Negative 25%
	Not very influential	14%	
	Neutral	23%	
	Quite influential	39%	Positive 52%
	Very influential	13%	
Rep. of course	Not at all influential	8%	Negative 21%
	Not very influential	13%	
	Neutral	19%	
	Quite influential	40%	Positive 60%
	Very influential	20%	

Factor	Response	Percentage	Positive v. Negative
Employment opp.	Not at all influential	2%	Negative 9%
	Not very influential	7%	
	Neutral	13%	
	Quite influential	34%	Positive 78%
	Very Influential	44%	

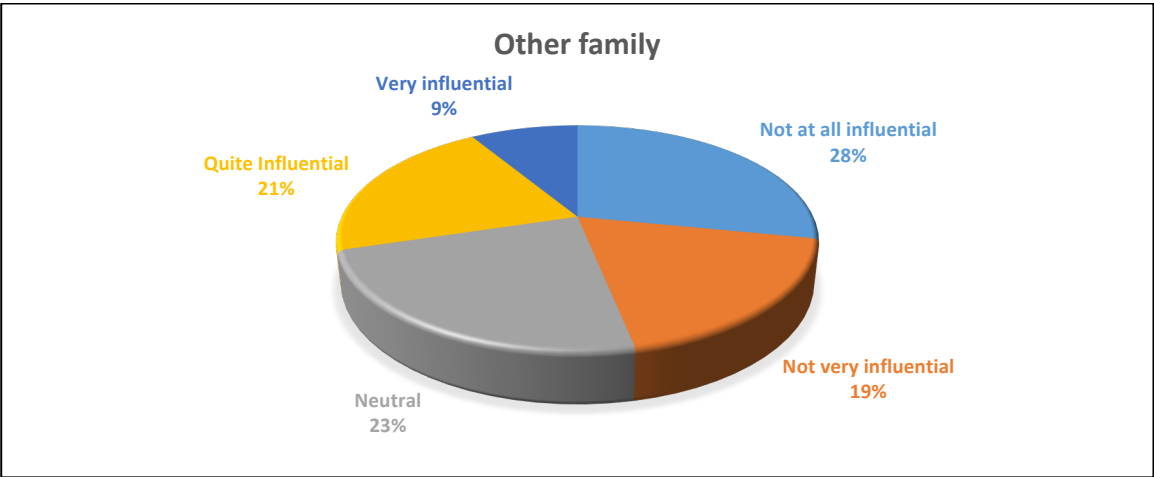
Most Influential Factors	Least Influential Factors
Personality 89%	Gender 66%
Employment prospects 78%	Career guidance counsellor 57%
LC points 60%	Options available 56%
Reputation of course 60%	Teacher 54%
Reputation of college 52%	



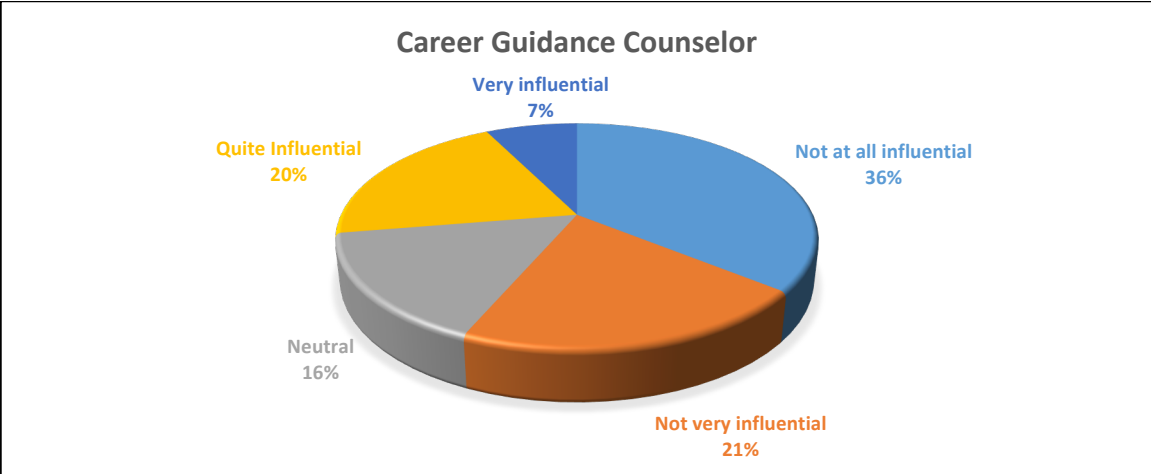
Mother as influential factor on career choice



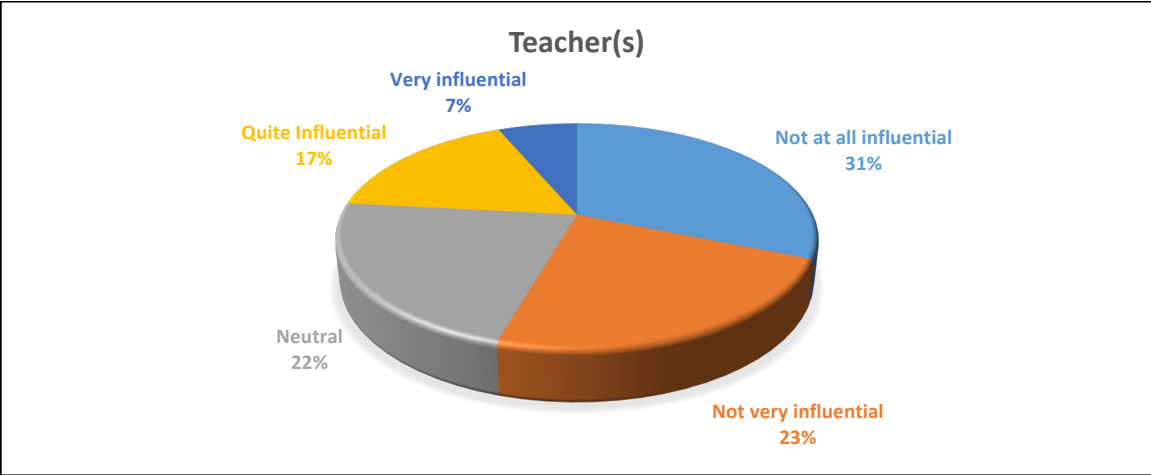
Father as influential factor on career choice



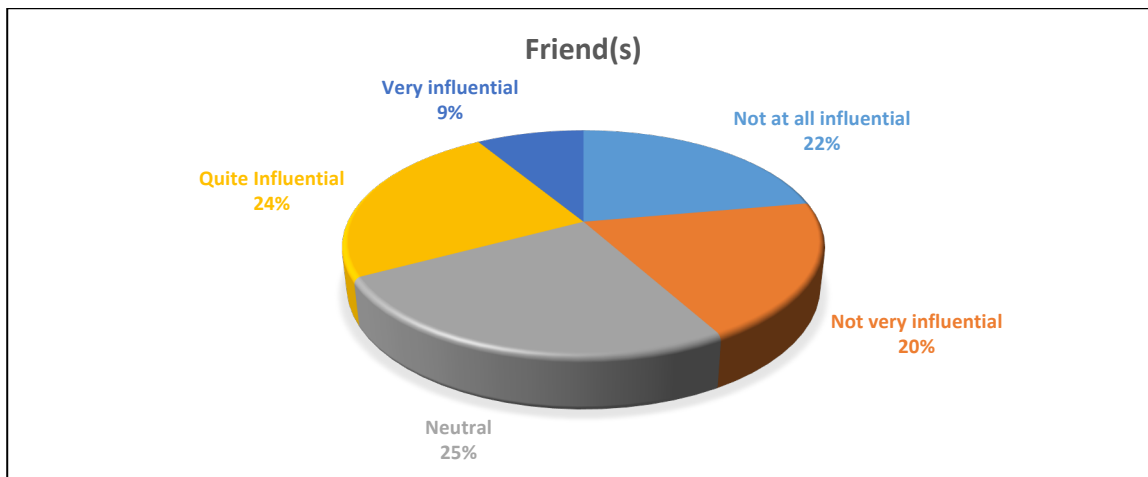
Other family as influential factor on career choice



Career guidance counsellor as influential factor on career choice



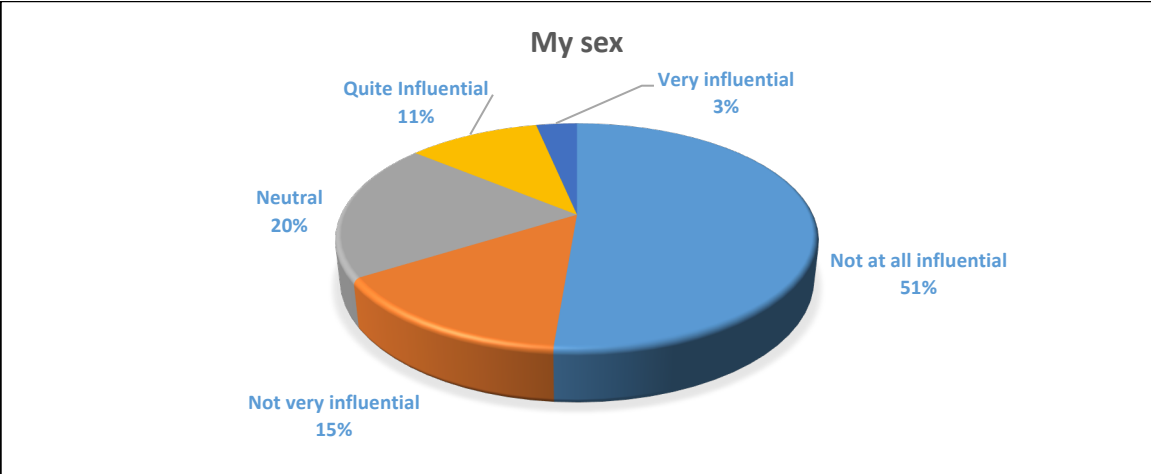
Teacher(s) as influential factor on career choice



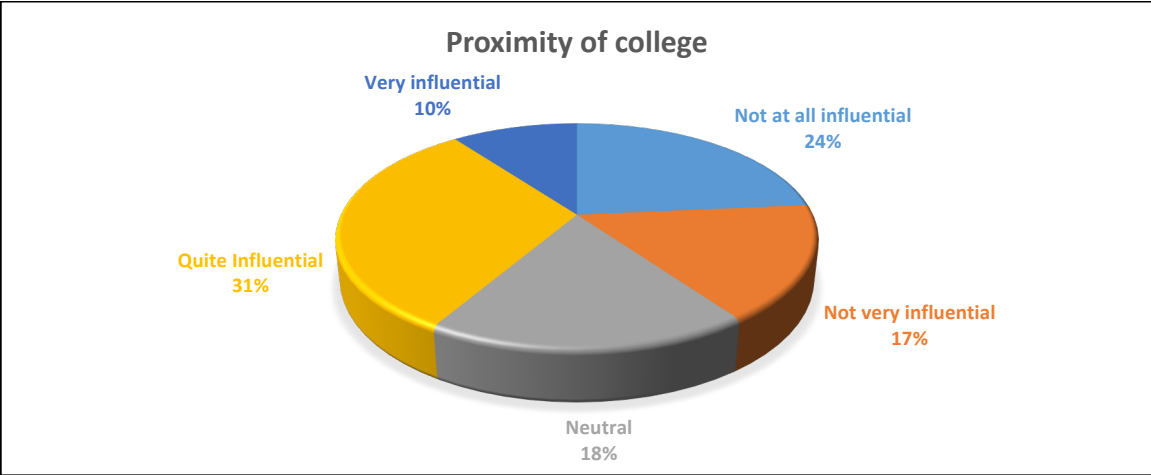
Friend(s) as influential factor on career choice



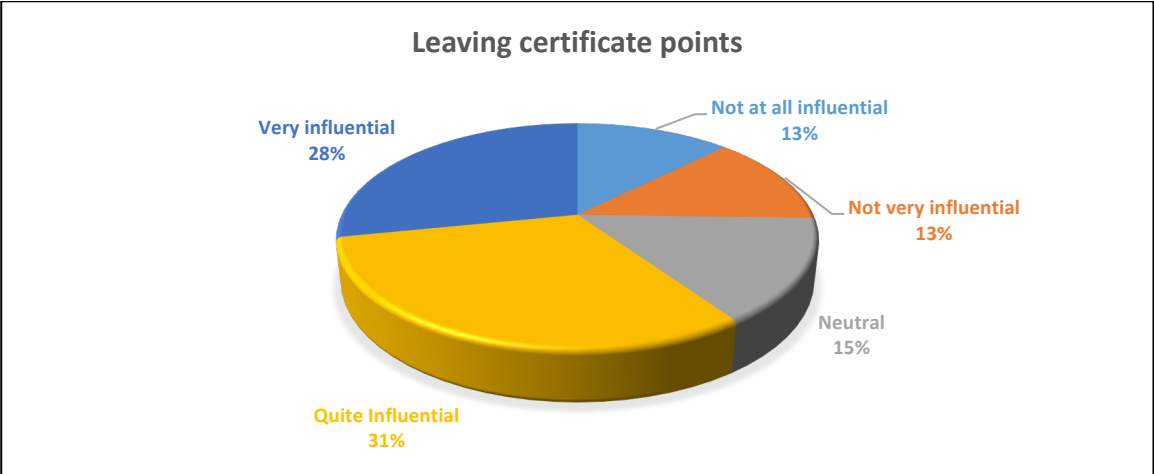
My own personality as influential factor on career choice



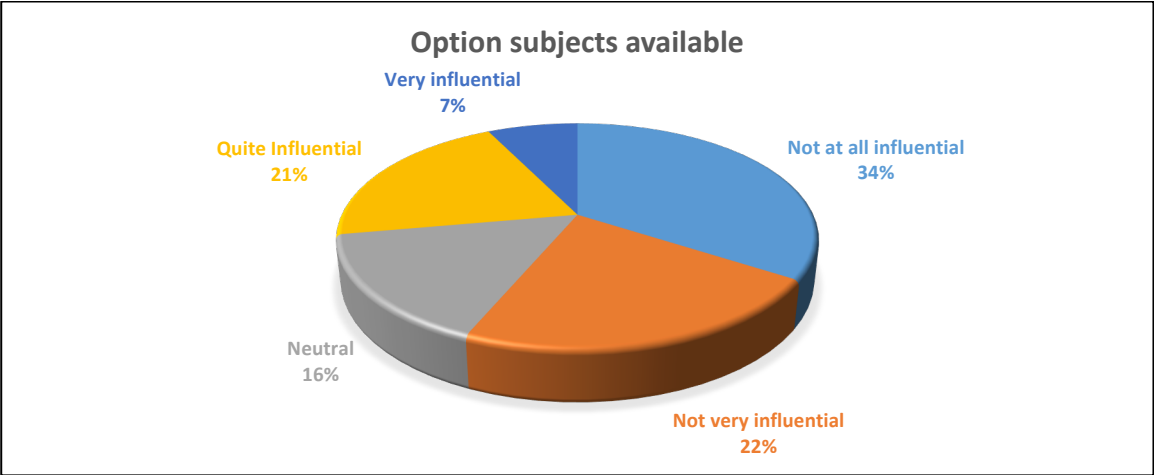
Sex as influential factor on career choice



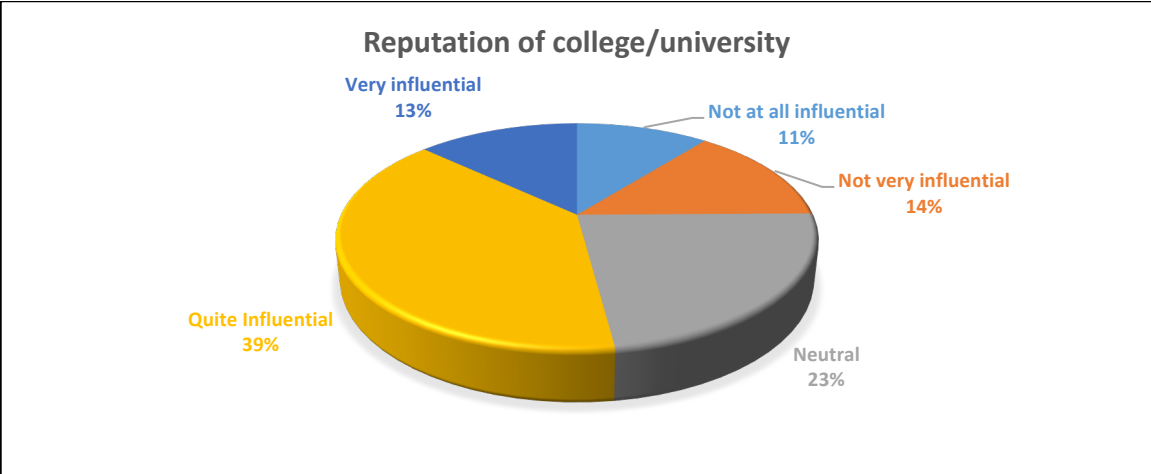
Proximity of college to home as influential factor on career choice



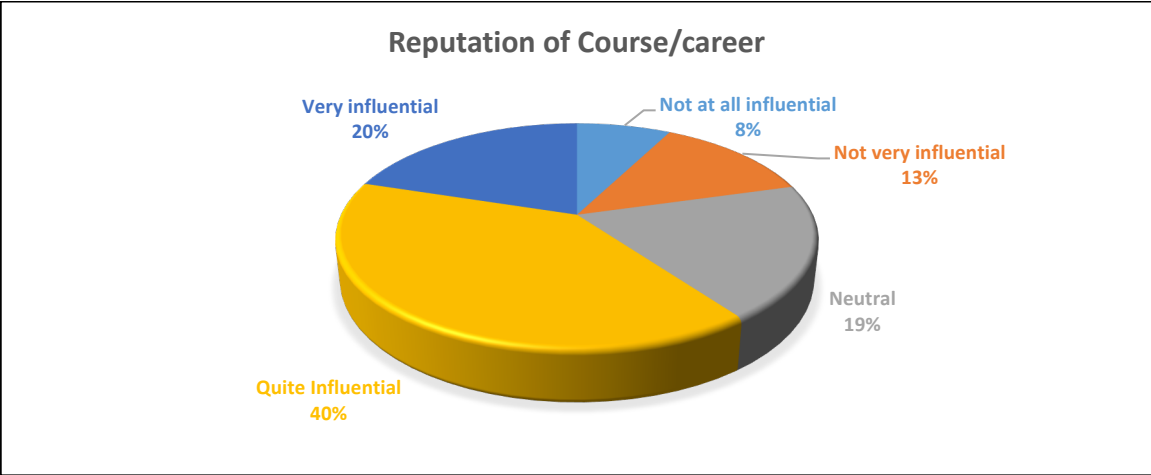
Leaving Certificate points as influential factor on career choice



Option subjects available as influential factor on career choice



Reputation of college/university as influential factor on career choice



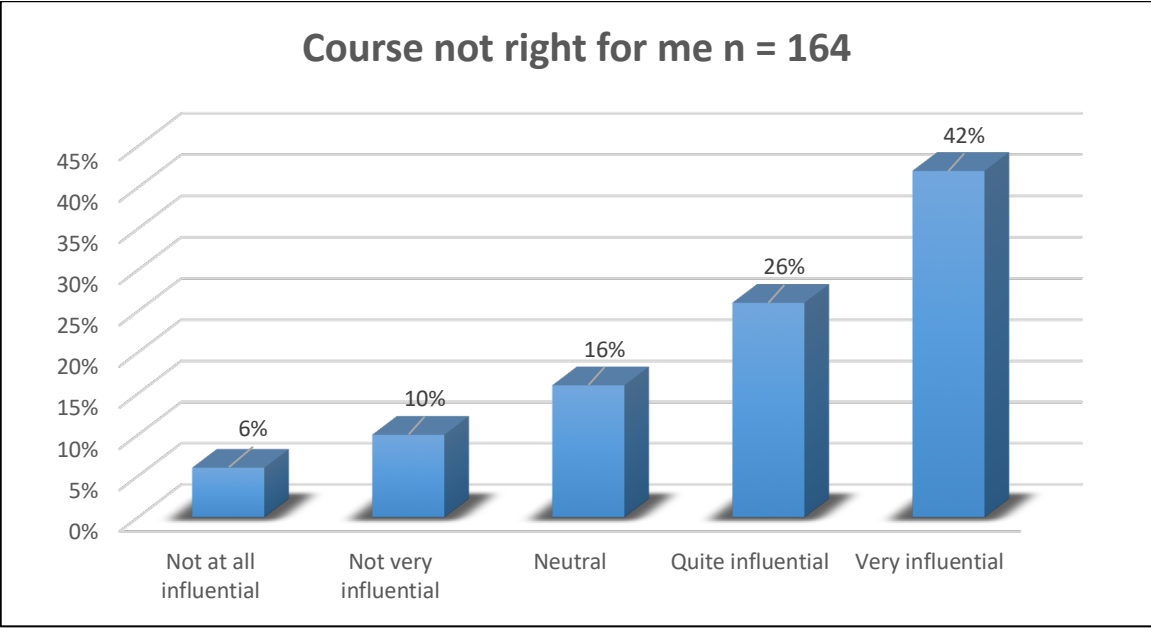
Reputation of course/career as influential factor on career choice



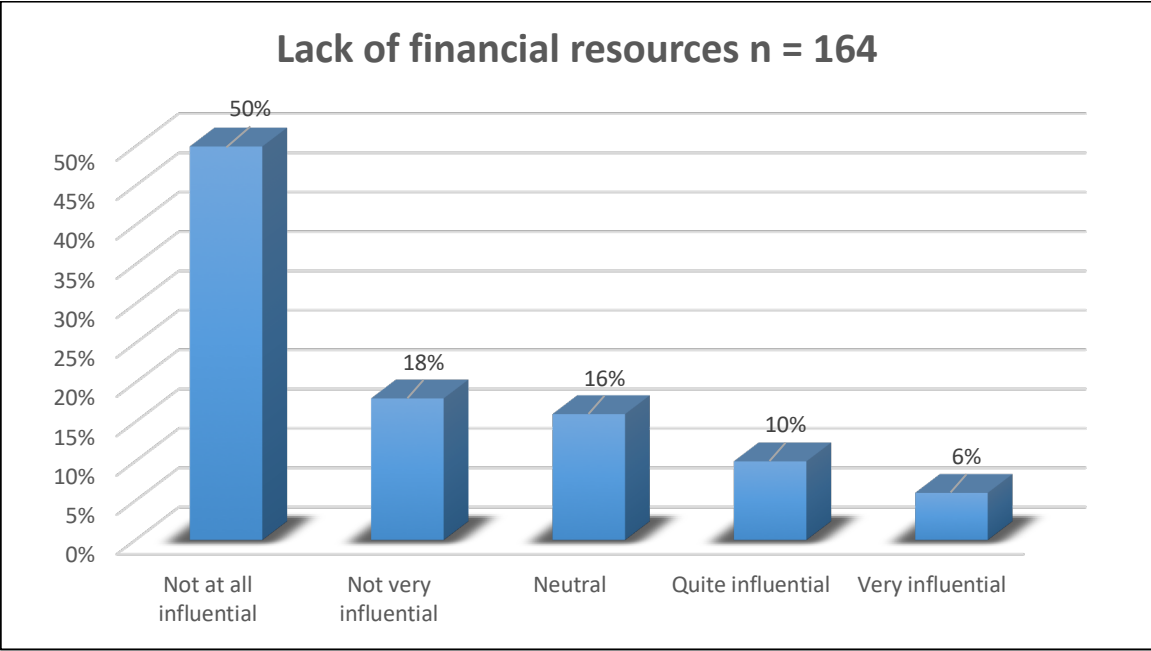
Employment prospects as influential factor on career choice

APPENDIX 5 – WITHDRAWAL FACTORS

Factor	Response	Percentage	Positive v. Negative
Incorrect choice	Not at all influential	6%	
	Not very influential	10%	16%
	Neutral	16%	
	Quite influential	26%	
	Very influential	42%	68%
Financial resources	Not at all influential	50%	
	Not very influential	18%	68%
	Neutral	16%	
	Quite influential	10%	
	Very influential	6%	16%
Unavailable Accom	Not at all influential	71%	
	Not very influential	10%	81%
	Neutral	9%	
	Quite influential	4%	
	Very influential	6%	10%
Medical reasons	Not at all influential	88%	
	Not very influential	2%	90%
	Neutral	3%	
	Quite influential	4%	
	Very influential	3%	7%
Incorrect expectation	Not at all influential	18%	
	Not very influential	13%	31%
	Neutral	16%	
	Quite influential	33%	
	Very influential	20%	53%
Academic inability	Not at all influential	52%	
	Not very influential	18%	70%
	Neutral	16%	
	Quite influential	11%	
	Very influential	4%	15%
Another course	Not at all influential	63%	
	Not very influential	10%	73%
	Neutral	10%	
	Quite influential	5%	
	Very influential	12%	17%
Taking a job	Not at all influential	68%	
	Not very influential	13%	81%
	Neutral	10%	
	Quite influential	6%	
	Very influential	3%	9%

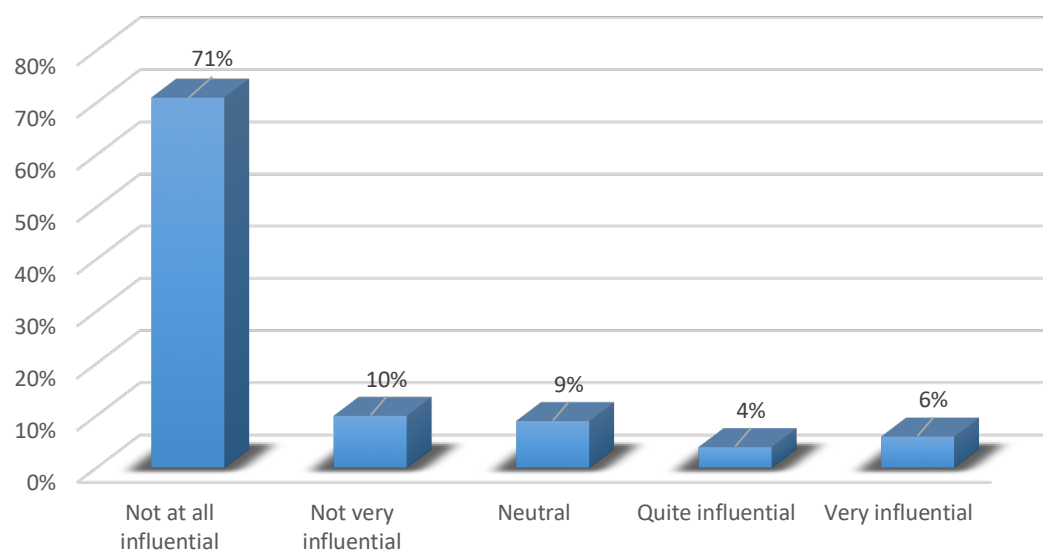


The course was not right for me



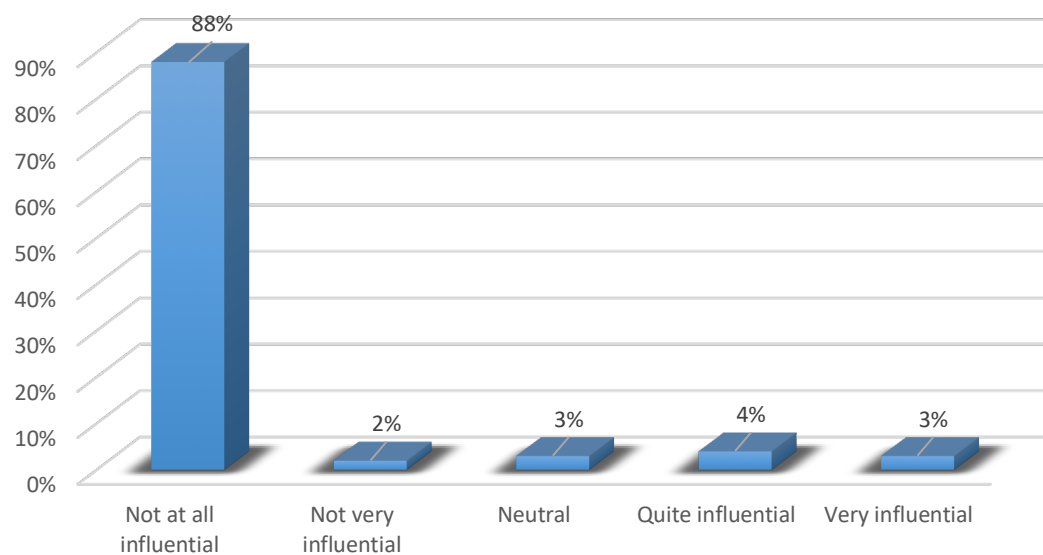
Lack of financial resources

Lack of accommodation n = 164

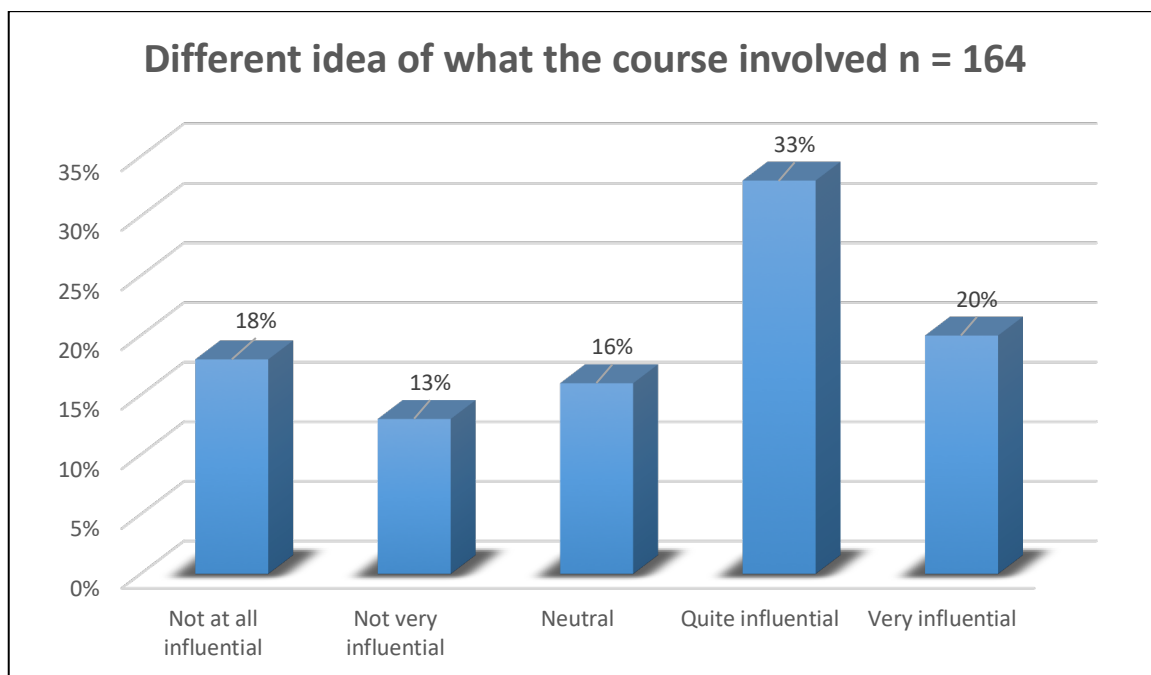


Lack of available accommodation

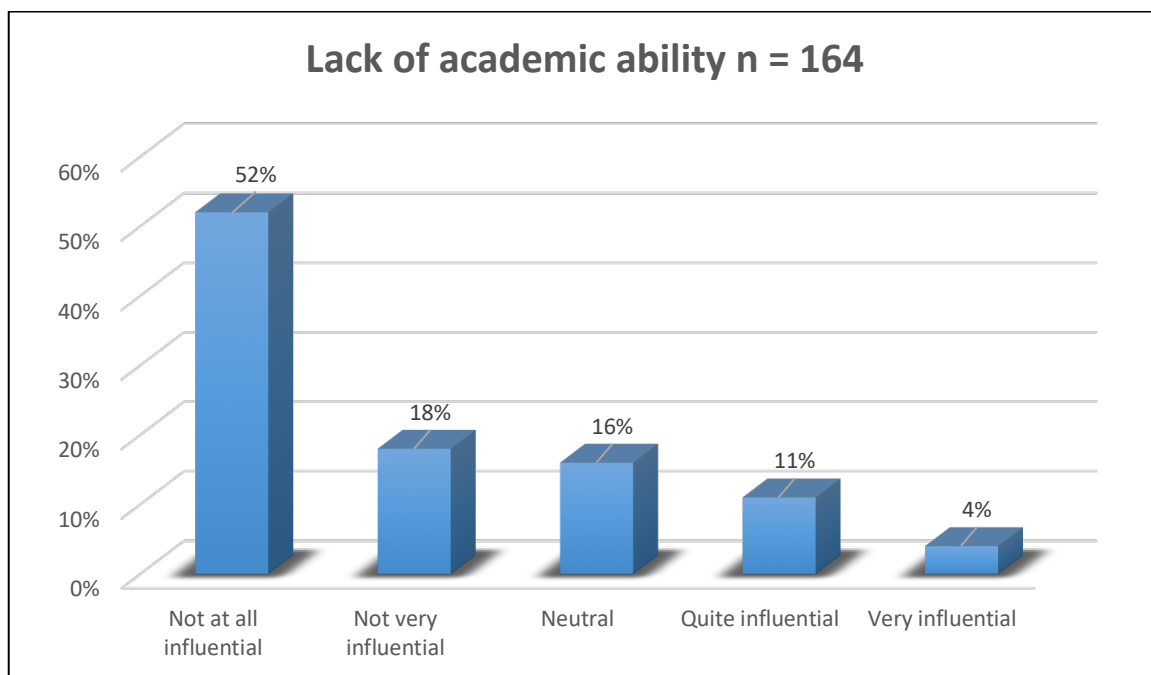
Medical reasons n = 164



Medical reasons

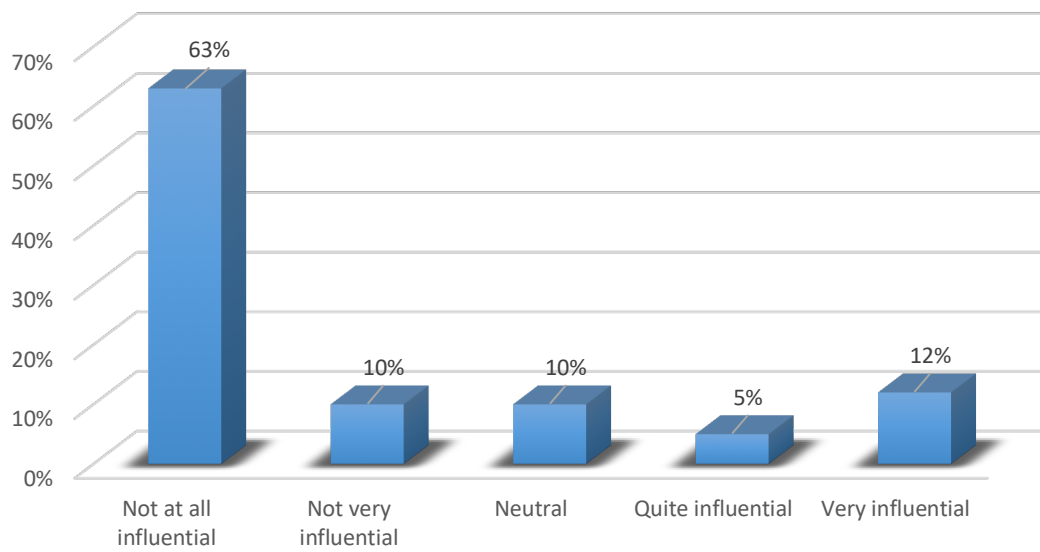


I had a different idea of what the course involved



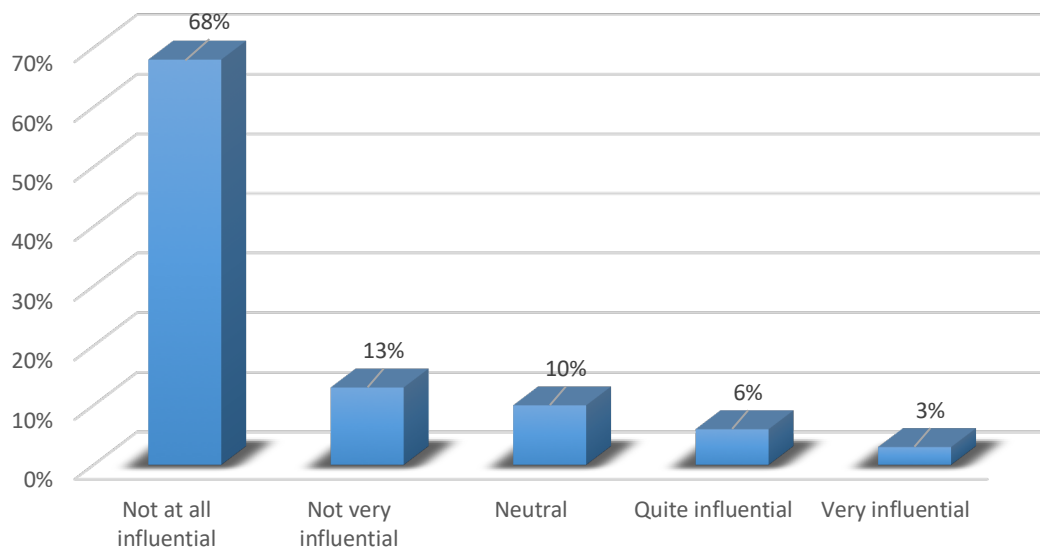
I do not have the academic ability

Offered another course n = 164



Offered another course

Secured a job n = 164



Secured a job

Approval Clement Ryan

16th November 2016

Dear Clement,

The School of Education's Ethics Committee has received and considered your application for approval of your PhD research project.

It is the decision of the Committee that no additional information is needed regarding your application. Therefore, approval is granted for your research, on the condition that it is carried out as indicated on your application. Should there be a change in the design of your research project, you will need to re-apply again for approval from the School of Education's Ethics Committee.

You are required to include a copy of this letter as an appendix to your thesis.

If you have any queries regarding this decision, please contact the Chair of the School of Education's Ethics Committee and Director of Research, Dr Stephen James Minton (mintonst@tcd.ie).

We wish you all the very best with your research project.

Kind regards,

Fiona McKibben
Research Officer at the School of Education
on behalf of Professor Stephen James Minton
Director of Research

3088 School of Education Arts Building
[Trinity College Dublin, the University of Dublin](#)
Dublin 2, Ireland.
Tel | + 353 1 8963583

3088 Scoil an Oideachais
Coláiste na Tríonóide, Baile Átha Cliath, Ollscoil Átha Cliath
Baile Átha Cliath 2, Éire.
School of Education, Trinity College Dublin, the University of Dublin is ranked in the top 100 in the QS 2016 subject rankings.

Trinity College Dublin School of Education

Application for Ethical Approval of

D Ed & PhD Research Proposals 2015/16

Notes for Staff and Students **prior to completing application form:**

1. The University requires all research activity involving people as participants to be subjected to ethical scrutiny and this form is designed to enable the School of Education's Research Ethics Committee (REC) to assess any research proposed by members of staff or students.
2. You must state whether you require ethical approval at **Level 0**, **Level 1** or **Level 2**.

Level 0 ethical approval

If your research does not involve human (or animal) participants for example:

1. Quality assurance studies (e.g. assessment of teaching practice records)
2. Audits of standard practice (not involving identifiable records)
3. Research on publicly available information, documents or data sets

Your research work would constitute a Level 0.

Please state this clearly on the form and complete question 1 only along with your personal details as well as the necessary signatures. Students please note, you need to have this form signed by your supervisor.

Level 1 ethical approval

This is **no risk to relatively low risk research** – i.e. research carrying little or no risks or discomfort greater than usually encountered during normal daily life, for example:

1. Anonymous surveys of a non-intrusive personal nature.
2. Unrecorded and anonymous observation of individuals in public areas.
3. Analysis of irrevocably anonymised and appropriately collected data.
4. Interviews (consensual) with non-vulnerable adults.

5. Action research (Research initiated to solve an immediate problem or a reflective process of progressive problem solving conducted either by individuals on their own practice or by individuals working with other in teams or as part of a "community of practice" to improve the way they address issues and solve problems [participatory action research]).
6. Surveys where respondents can be identified and where respondents

Level 2 ethical approval

Moderate to high-risk research (i.e. risk or discomfort is greater than that usually encountered during normal daily life) this includes ALL RESEARCH WITH CHILDREN (i.e. under 18 years of age).

MODERATE RISK

1. Surveys asking questions of a sensitive or private nature
2. Questionnaires or observational studies involving children or vulnerable adults.
3. Research where there is a risk of a participant feeling undue pressure to participate by virtue of his/her relationship with the researcher (e.g. student/supervisor; teacher/student).
4. Projects involving a justifiable degree of deception.

HIGH RISK

5. Research involving children and vulnerable adults.
6. Research where identifiable information obtained may have legal, economic or social consequences for research subjects.
7. Research that may identify illegal activity.
8. Projects where each subject is paid (over and above token gestures).
9. Research that may potentially endanger the subjects, and/or researchers, and/or 3rd parties, and/or the environment.
10. Research that may have a direct military role.
11. Research conducted outside Ireland.
12. Research involving psychological intervention.
13. Research where a potentially beneficial or harmful treatment, information or learning method may be withheld from some participants.

Additional notes

- i. In situations where research ethics approval has been granted by an appropriate research ethics committee elsewhere, the submission may qualify for fast-tracked approval processing in TCD.
- ii. Unless otherwise noted, research involving adults assumes adults with a capacity to consent.
- iii. Vulnerable groups/persons are described as:
 - individuals who face excessive risk of being enrolled in research, including those with limitations in their ability to provide informed consent to research because of factors such as immaturity or cognitive impairment.
 - vulnerability can also stem from individuals' relationships with others, and it is imperative that coercive situations are avoided. Such cases may occur when an employee/student/dependent is asked to participate in research being conducted by a supervisor/mentor.

- iv. Additional social factors, such as poverty and lack of access to health care, can also make individuals vulnerable to coercion, exploitation or other risks and need to be considered in reviewing applications.
3. The primary focus for approval is research involving people. Where the participants include **children or vulnerable adults**, research cannot proceed unless all researchers involved have obtained Garda vetting. In principle, all research in Trinity School of Education should be conducted in a manner that respects the rights of all participants (including to privacy of data, confidentiality and anonymity as appropriate), causes no harm to participants or researchers, and requires the active, fully informed consent of all participants and their parents, carers, guardians or relevant responsible others.
4. In the case of **Level 2 ethical approval applications**, consent forms, **must be attached to the application**, and therefore demonstrate clearly that prospective participants are being fully informed about the purpose of the research and their role in it, how their data will be gathered, the purposes to which their data will be put and how their right to privacy (confidentiality and anonymity) will be respected (for research involving children, use the guidelines produced by the Department of Children and Youth Affairs:

http://www.dcy.gov.ie/documents/Publications/Ethics_Guidance.pdf .
5. Educational research undertaken outside Ireland must adhere to the same ethical standards as research Ireland. Any additional regulations (e.g. police clearance) and cultural sensitivities of the host country must also be observed.
6. Some **Level 2 ethical approval applications** may need to be referred to the Trinity Research Ethics Policy Committee (REPC) where proposals:
 - have the potential to cause harm to participants or researchers, directly physical or psychological;
 - may give rise to situations in which the researchers have to make statutory disclosure of illegal activity, whether on the part of participants or others;
 - seek to deceive participants for any reason;
 - may give rise to situations that may put the participants or researchers in any form of jeopardy.
7. If any changes to the approved research proposal are made:
 - i. **For Students:** these must be discussed with your supervisor, and may require additional ethical approval;
 - ii. **For Staff:** substantive changes need to be clarified with the REC and may require additional approval.
8. This form along with any correspondence that is undertaken as a follow-up (e.g. approval letter, request for amendments etc) will be kept as a formal record of the scrutiny process, for inspection as required by the University authorities. As such, proposers should ensure that proposals are presented to a professional standard as they will be returned for resubmission if deemed not to have been adequately prepared.

Please post a hard copy of the completed ethical approval application form, consent form(s) and a cover email requesting ethics review to the REC administrator: Ethical Approvals, Room 3088 School of Education, Trinity College Dublin, College Green, Dublin 2 Email: Phdrsrch@tcd.ie). You can also use the ‘drop box’ underneath the School of Education main notice board on the 3rd floor in the Arts Building.

In the case of student applicants, the form MUST be signed off by the supervisor prior to submission otherwise it will be returned

Application for Ethical Approval of D Ed & PhD Research Proposals

Title of Research Self-efficacy & Career Choice Amongst First Year Students Withdrawing from Dublin Institute of Technology

Student's Name Clement Ryan

Trinity Email Address ryanc37@tcd.ie

Please complete the following:

Student Number 12328046

Course of Study (please tick) D Ed ☐ PhD ☐

Please indicate the level of approval required (see accompanying notes) Level 0

Level 1 ☒ **Level 2** ☐

- 1. Please give a structured abstract of the proposed research, including the methods you intend to use (approx. 300 words).**

This study sets out to investigate the levels of career self-efficacy amongst first year students studying at DIT who propose to withdraw from their course of study. Participants will be self-selecting and can choose to participate or not. Those who do so will not be identified and will participate anonymously with data presented in the final thesis in aggregate form. Participants will be asked if they would like to participate in the research further (one to one interview) and, if they choose to do so, will be invited to include their contact details for contact at a later date. A small number of participants (approx. 10 persons) will then be randomly selected (allowing for gender balance) from those. One-on-one interviews will be conducted by the researcher and recorded by a colleague at DIT who specialises in qualitative research. Interviews, with the permission of the participants, will be recorded.

The objectives of the study itself are:

Two sub-questions arise.

1. What are the factors influencing adolescents when making educational or career choices?
2. What are the factors which contribute to withdrawal rates?

These sub-questions lead to two central questions.

1. Have those who withdraw from higher education in Ireland lower levels of self-efficacy?
2. Have those with lower levels of self-efficacy been more influenced by external factors when making their choices (e.g. parents; career guidance counselors) at the expense of internal or cognitive factors.

The Methods to be used are:

Positivism – quantitative approach, followed by constructivism – qualitative approach. In other words, mixed methods.

2. Please answer the following questions in relation to your proposed research. Questions (b), (c) or (d) will require detailed explanations if answered ‘yes’ and will be referred for additional scrutiny by the REC or Trinity REPC. Answering ‘Yes’ to (e) will require a separate application to the relevant HSE REC.	Please tick	
	Yes	No

a. Does the research involve work with children (under-18) or vulnerable adults?		x
If ‘Yes’, has appropriate Garda clearance (or equivalent) been obtained (include details)?		
Please provide the date of issue on the Certificate.		
b. Could any aspect of the research give rise to any form of harm to participants, in the researcher(s)?		x
c. Could any aspect of the research produce information that could lead to criminal prosecution of the participants or others?		x
d. Is deception of the participants planned in any aspect of the research? If yes, provide details.		x
e. Does any aspect of the research involve patients (or their relatives or carers) or users of health and social care services, the premises or facilities of such services, access to personal records or the participation of health or social care staff?		x

3.(a) Who are the proposed participants, e.g. teachers; students?

Over 18 first year students attending DIT who propose to withdraw from their course of study.

(b) What is your relationship with them? (If you are in a position of authority, for example, indicate how you will deal with the potential influences of such a relationship.)

No relationship.

4.(a) How will you recruit them?

Those presenting themselves to the registration office in order to fill out the appropriate withdrawal forms will be asked by the registration staff to anonymously complete the survey. Students are free to agree to participate or decline without fear or favour. Those who participate will be asked in a survey question if they would be willing to participate further (interview). If in agreement they will be invited to include their contact details.

(b) Please detail any ethical aspects that must be considered, including the proposed use of any incentives.

No incentives will be offered. Participants have the freedom to participate or not without fear or favour.

5(a) What is the location(s) at which the data collection will be undertaken?

Data will be collected in the central registration office of DIT. Qualitative interviews will be conducted in the office of the registrations manager at a later date with those students who agreed to participate having the choice to opt out if they wish.

Describe any circumstances that might give rise to security concerns for participants or researchers?

None anticipated.

5(b) Describe any conflicts of interest where data might be critical of working practices, people etc. or disclosure of illegal activities?

None anticipated.

6. Please indicate how informed consent of all participants will be gained. (Draft consent forms MUST be attached – see question 8 for guidance.)

Participants can agree to fill out the survey or decline without repercussions and since all participants are of consenting age no formal approval will be required.

7(a) Please indicate how the participants' rights to privacy (inc. confidentiality and anonymity) and the privacy of their data will be protected. Highlight potential limitations of confidentiality in the ethics form and information sheets for participants (e.g. for small samples or insider research and how this will be addressed).

Participants will be asked if they would participate in the research by filling out the survey. A cover sheet will be attached to the survey informing participants of the objectives of the research. All data provided will be done so anonymously and will only be made available through the final thesis in aggregate form. Those participants in the qualitative interviews will be invited to give permission to record the session. This recording will be done with standard technology and managed by an experienced qualitative researcher from DIT.

7(b) Please also indicate how the data will be stored (and ultimately destroyed as appropriate).

Data will be stored in my office provided by Trinity in a locked cabinet of which I will be the sole key holder. Participants will have filled out the survey anonymously and so the identity of participants will not be possible or compromised. Surveys will be destroyed in the appropriate way at the end of the study. All taped interviews (approx. 10) will also be stored in said locked cabinet and destroyed at the end of the study.

8. Please complete the checklist below to confirm you have considered all ethical aspects of consent.

(Note that the consent forms that must accompany this application; any omission or inadequacy in detail will result in a request for amendments).

I have attached (an) appropriate consent form(s) which include the freedom to withdraw at any stage without having to offer a reason.	n/a
Each consent form has full contact details of the researcher to enable prospective participants to make follow-up inquiries	
Each consent form has full details, in plain non-technical language, of the purpose of the research and the proposed role of the person being invited to participate	
Each consent form has full details of the purposes to which the data (in all their forms: textual, oral, video, imagery etc) will be put, including for research dissemination purposes	
Each consent form explains how the privacy of the participants and their data will be protected, including the storage and ultimate destruction of the data as appropriate	
Each consent form gives assurances that the data collection (questionnaires, interviews etc) will be carried out in a sensitive and non-stressful manner, and that the participant has the right to cease participation at any time and without the need to provide a reason	
Please include here any other comments you wish to make about the consent form(s)	

Has your proposal been submitted to any other Research Ethics Committee?

Yes

No x

If yes, please provide details:

n/a Declaration by All Proposers:

I have read and understood the Trinity School of Education's policy on ethics in educational research: <https://www.tcd.ie/Education/ethics/> and the Trinity College Dublin Good Research Practice Policies:

<https://www.tcd.ie/research/dean/assets/pdf/TCD%20Good%20Research%20Practice%20Policies%20copy.pdf>

I declare that the details above reflect accurately my research proposal and I undertake to seek updated approval if substantive changes are proposed after this submission. I have consulted an authoritative set of educational research guidelines.

Student Signature: _____

Signed: _____

Date: _____

Supervisor's Signature: _____

Signed: _____

Date: _____

In instances where supervisors feel that their specialised expertise may be important information for the REC to take into account (e.g. in relation to researching highly sensitive areas such as trauma/abuse), please submit an additional page with any relevant information.

Final Approval Signed-Off by a member of the Research Ethics Committee

Signed: _____

Date: _____

Name of member (in block letters): _____

APPENDIX 7 – DESCRIPTIVE STATISTICS

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Q17.13C	1050	1	5	3.94	1.068
Q17.2UI	1050	1	5	4.44	.754
Q17.3SO	1050	1	5	3.83	1.006
Q17.4MP	1050	1	5	3.15	1.243
Q17.5ST	1050	1	5	3.23	1.004
Q17.6AA	1050	1	5	3.37	.998
Q17.7FIC	1050	1	5	3.31	1.123
Q17.8SOJ	1050	1	5	3.57	1.053
Q17.9DSC	1050	1	5	3.66	.963
Q17.10PWF	1050	1	5	3.51	1.056
Q17.11LTO	1050	1	5	3.70	1.145
Q17.12FICC	1050	1	5	3.92	1.023
Q17.13CC	1050	1	5	3.73	1.046
Q17.14PCV	1050	1	5	3.65	1.144
Q17.15CCNL	1050	1	5	3.06	1.273
Q17.16DIJ	1050	1	5	3.42	1.195
Q17.17TL	1050	1	5	3.08	1.184
Q17.18MCD	1050	1	5	2.65	1.159
Q17.19GLR	1050	1	5	3.56	1.139
Q17.20CCNS	1050	1	5	3.27	1.270
Q17.21DVO	1050	1	5	3.85	.865
Q17.22ASGS	1050	1	5	3.57	1.059
Q17.23CCAP	1050	1	5	3.41	1.250
Q17.24WE	1050	1	5	4.06	.921
Q17.25RP	1050	1	5	3.87	1.110
Descriptive Statistics					

	N	Minimum	Maximum	Mean	Std. Deviation
Q17.26MAA	1050	1	5	3.36	1.219
Q17.27SDOJ	1050	1	5	3.55	1.022
Q17.28SCOS	1050	1	5	3.65	1.006
Q17.29FUPO	1050	1	5	2.86	1.155
Q17.30MCFJ	1050	1	5	3.73	1.226
Q17.31DAA	1050	1	5	3.97	.961
Q17.32FOT	1050	1	5	3.46	1.073
Q17.33CCFI	1050	1	5	4.02	.894
Q17.34DFS	1050	1	5	3.77	1.069
Q17.35RAM	1050	1	5	3.35	1.209
Q17.36WPI	1050	1	5	4.03	.897
Q17.37FAE	1050	1	5	3.95	.993
Q17.38CCSA	1050	1	5	4.06	.886
Q17.39EAS	1050	1	5	3.61	1.097
Q17.40CCA	1050	1	5	3.69	.937
Q17.41DS	1050	1	5	3.55	1.158
Q17.42TWE	1050	1	5	4.04	.948
Q17.43CCBS	1050	1	5	4.09	.963
Q17.44IEFI	1050	1	5	3.77	.969
Q17.45RTE	1050	1	5	2.95	1.286
Q17.46DL	1050	1	5	4.18	.886
Q17.47FIM	1050	1	5	3.56	1.072
Q17.48CCD	1050	1	5	2.98	1.160
Q17.49MJI	1050	1	5	3.60	1.096
Q17.50WS	1050	1	5	3.23	1.254
Valid N (listwise)	1050				