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Access Foundation Student Progression at Technological University Dublin: A Quantitative Study

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Abstract

Despite a global expansion of higher education in the twentieth century, inequalities in terms of student demographic still remain. The number of mature students (students aged 23 years and over) and students from lower socio-economic backgrounds in full-time higher education in the Republic of Ireland remains low. In order to address this issue, Dublin Institute of Technology (DIT) offered a one-year Access Foundation programme providing a route to higher education for mature students and young adults (students less than 23 years) from lower socioeconomic backgrounds. This study examines the factors affecting the progression of students on this programme to undergraduate studies at DIT.

In 2017, incoming Access Foundation students (n = 59) completed a 29-item questionnaire examining factors affecting progression, and their advancement onto undergraduate studies was chartered at the end of the academic year. Analysis of this data revealed a number of noteworthy findings such as a relationship between attendance and progression. Students who failed to progress also had higher neuroticism scores and intrinsic and extrinsic motivation mean scores than students who progressed to undergraduate studies at DIT. Furthermore, progression was dependent on the optional modules students chose. These findings have implications for funding and providing support services for Access Foundation students.

Keywords: Access Foundation Programme, Higher Education, Mature Students, Non-Traditional Students, Progression, Socio-economic Background.

Introduction

From the mid-twentieth century onwards, there has been a global expansion in higher education (Schofer & Meyer, 2005). Worldwide, the number of higher education students increased more than six fold from 32.6 million in 1970 to more than 214 million in 2016 (Calderon, 2018). In many countries, equality of provision to higher education has become a priority to ensure that its benefits are made available to people from a wider range of backgrounds (Fleming *et al.*, 2017). The societal benefits of higher education include improvements in human capital (Becker, 1994), a better economy (Bloom *et al.*, 2006) and a reduction in crime rates (Trostel, 2015). College graduates also benefit from higher earnings (OECD, 2014) and better health (Wolfe & Zuvekas, 1997). However, inequalities still remain with regard to access to higher education (McCoy *et al.*, 2010; Reimer & Pollock, 2010; Breen, 2010). In the Republic of Ireland (ROI), mature students and students from some socioeconomic groups are still under-represented in higher education (HEA, 2018b).

Even when students do attend college, a high proportion fail to progress to graduation (European Commission, 2015). Non-progression rates are considerable in the higher education sector (McMillan, 2005; Beer & Lawson, 2015). Institutions worldwide are now under pressure to ensure students progress in their studies (Crosling *et al.*, 2018).

Programmes have been developed in many European countries, including the ROI, to encourage groups that are underrepresented in higher education to obtain such a qualification (Eurostat, 2019). Often referred to as ‘Access Foundation programmes’, they provide an important intervention to help marginalised students to prepare for college coursework and to obtain the information they need about accessing higher education (Chait & Venezia, 2009).

The goal of this research is to determine the factors that affect the progression of students on the Access Foundation programme at Dublin Institute of Technology (DIT) (now known as Technological University Dublin (TU Dublin)) to undergraduate studies at the same institution. Upon an extensive review of the literature in the area of progression, it emerged that little/no research exists relating specifically to Access foundation students although there is a body of research on the progression of undergraduate students in higher education.

Literature Review

Higher Education in Ireland

The expansion of secondary education in the ROI since the 1960s has subsequently increased the demand for higher education (Oireachtas Library and Research Service, 2014), and the number of students enrolled has increased steadily in recent years (Department of Education and Skills (DES), 2015).

Entry Routes to Higher Education Institutions in Ireland

Higher education institutions (HEIs) in the ROI consist of state-funded universities, colleges of education and institutes of technology as well as a number of private colleges (Department of Education and Science, 2004). The quality of higher education in ROI is monitored by an agency called Quality and Qualifications Ireland (QQI). QQI maintains Ireland's National Framework of Qualifications (NFQ), a 10-level framework relating to education awards in Ireland (see **Error! Reference source not found.**). Higher education levels range from level 6-10. This is equivalent to levels 1-8 on the European Qualifications Framework (EQF). The Access Foundation programme at DIT is a level 6 programme (Dublin Institute of Technology, 2017).

Table 1 Educational attainment at each of the ten levels of the National Framework for Qualifications

NFQ level	EDUCATIONAL ATTAINMENT	
Level 1	Elementary knowledge skills and competencies	Leaving Certificate
Level 2		
Level 3		
Level 4	Vocational education and training	
Level 5	Vocational and upper secondary education	
Level 6	Vocational and higher education and training	Higher Education
Level 7	Undergraduate higher education and training	
Level 8	Postgraduate higher education (master's degree)	
Level 9		
Level 10	Postgraduate higher education (doctorate)	

(Adapted from QQI (2019). Irish National Framework of Qualifications. Retrieved from <https://nfq.qqi.ie/>)

For most students in Ireland, the route to higher education starts with an application to the Central Applications Office (CAO), the body charged with processing applications to first year higher education courses (CAO, 2018). Generally, the results of a state examination called the Leaving Certificate (State Examinations Commission, 2018) are used to determine whether the student will be offered a higher education course, and, if so, what course they will be offered. An Access course offers an alternative route to higher education for mature students and early school leavers (O'Reilly, 2008). The Access Foundation Programme at DIT (now TU Dublin) is a programme to prepare students for higher education (Dublin Institute of Technology, 2017). It provides students with a Foundation Certificate at level 6 on the QQI framework (which equates to level 5 on the EQF) on successful completion of the programme.

Dublin Institute of Technology

DIT was established on January 1, 1993, by the amalgamation of six higher education institutions that had been providing vocational and technical education for more than 100 years (Duff et al. 2000). It offered courses at level 6 – 10 on the NFQ (equivalent to levels 5-8 on the EQF) in a range of subject areas, including arts and tourism, sciences and health, business and engineering and the built environment (Dublin Institute of Technology, 2017). In January 2019, the ROI's first technological university was formed by the amalgamation of DIT, the Institute of Technology Tallaght and the Institute of Technology Blanchardstown. TU Dublin offers courses at level 6-10 on the NFQ. The university has three campuses, with multiple locations across these three campuses and enrolls approximately 29,700 students (Technological University Dublin, 2019).

Access Foundation Programme at DIT

The Access Foundation Programme was established at DIT in 1999 to help individuals and communities to overcome barriers to accessing higher education (Dublin Institute of Technology, 2017). The programme continues at TU Dublin. In 2017/18, the course was available for up to 150 mature students (aged 23 years and older) and socioeconomically disadvantaged young adult students (aged less than 23 years) (Dublin Institute of Technology, 2017). According to DIT, students need to show that they wanted to study at third level, were academically able to study at third level, and were able to communicate effectively in English.

The one-year Access foundation programme prepared students for entry to undergraduate programmes at DIT, now students enter TU Dublin on successful completion of the Access Foundation course. Students studied six compulsory modules over the course of the year and two optional modules each semester (Dublin Institute of Technology, 2017). Students who successfully completed the Access Foundation programme in 2017/18 received a Foundation Certificate Level 6 on the NFQ (Dublin Institute of Technology, 2017). They were also guaranteed one of their undergraduate course choices at DIT. Students could choose any course but needed to meet the eligibility requirements for that course.

A variety of factors may have affected students' progression to undergraduate studies at DIT. Although there is a lack of research related specifically to the progression of Access Foundation students both nationally and internationally, some of the factors identified in the literature in relation to progression in higher education may be relevant to Access Foundation students and are discussed below.

Progression

Student progression refers to the extent to which learners stay in a higher education institution and complete their programme of study in a set amount of time (HEA, 2016). Across the European Union (EU), many students drop out of higher education before they complete their studies (European Commission, 2015). In 2011, non-progression rates ranged from 19-47 percent across 14 European countries (OECD, 2013). In the ROI, non-progression rates for first year higher education students varied depending on the type of institution (see Table 2), ranging from 8 percent for level 8 courses in Colleges of Education to 27 percent for level 6 courses in Institutes of Technology (HEA, 2018a).

Table 2 Non-progression rates by NFQ level and type of institution in Ireland 2014/15

Institutes of Technology			Colleges of Education	Universities
Level 6	Level 7	Level 8	Level 8	Level 8
27%	25%	15%	8%	10%

(Adapted from HEA (2018). A study of progression in Irish higher education.)

Factors Affecting Progression

Despite the lack of research on the progression of Access Foundation students worldwide, the review of the literature highlighted a large body of work outlining factors affecting the progression of students at undergraduate level. After an extensive and thorough review of the existing literature in the area of factors affecting progression in undergraduate higher education, the author was able to categorise the literature into 5 main categories: demographic, psychosocial, educational, institutional and environmental (see Figure 1). While these factors are not necessarily specific to Access Foundation students, several of them could be applicable for this cohort also and will be discussed accordingly.

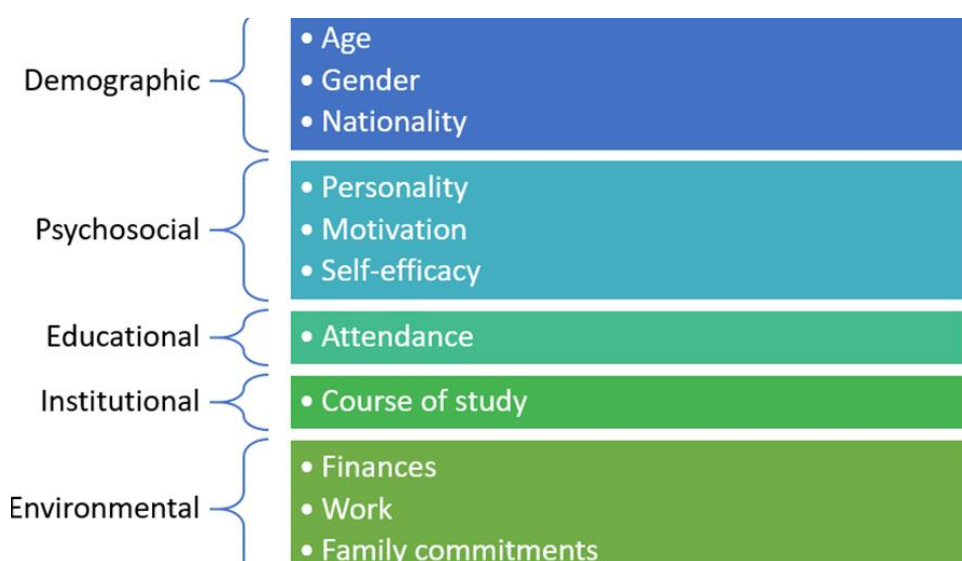


Figure 1 Categories of factors affecting progression in higher education

1. Demographic Factors

Demographic factors must be considered in this literature review because factors such as age, gender and nationality have been shown to affect undergraduate progression in higher education (Bean, 2005; Burrus *et al.*, 2013; McGivney, 2004; Congor & Long, 2010; Gray *et al.*, 1996), and it is possible it will contribute to this investigation. These factors may be relevant to Access Foundation students, particularly as Access Foundation students may be mature students or young adults as well as students of different nationalities.

Age

The majority of participants in the Access Foundation programme at DIT in 2017/18 were mature students (aged 23 years and older). It is difficult for mature students to progress in

longer higher education programmes because they may have out of date qualifications and lack confidence in their academic abilities (McGivney, 2004, p. 34). In the ROI, however, mature students have been found to be more likely to progress to the following year of higher education than young adults at level 6 (certificate level) or 7 (ordinary degree level) but less likely to progress at level 8 (HEA, 2018a).

Gender

Women are more likely than men to undertake and successfully complete an undergraduate degree (Berry, 2011). Age, marriage, and hours worked have a negative impact on the progression of both males and females in higher education (Leppel, 2002). Congar & Long (2010) found that gender differences in course choice result in differences in progression between male and female students in higher education. HEA (2018) data reveal that in the ROI females are more likely than males to progress to the next year of their studies.

Nationality

Recent years have seen the rapid expansion of higher education due to increases in geographic mobility and educational policies that favour increasing numbers of international students (Phakiti *et al.*, 2013). In 2016/17, just under 6 percent of the new entrants to higher education in the ROI were non-Irish national students (HEA, 2018a), i.e. students who were not Irish citizens. Students who speak English as a second language may find it difficult to access and participate in higher education because they have limited English proficiency (Gray *et al.*, 1996), which affects their ability to understand required reading and makes writing challenging (Kanno & Varghese, 2010). Data from the HEA (2018), however, reveal that progression rates for students who are not Irish citizens are higher than those for Irish nationals.

2. Psychosocial Factors

Psychosocial factors must be considered in this literature review because motivation to learn, self-efficacy (Burrus *et al.*, 2013) and personality traits (Smith, 1976; Falconer & Adragna, 2017; Altman, 2017) have been shown to affect progression in undergraduates.

Personality

Personality constructs can be structured in terms of the five factors of neuroticism, extraversion, openness, agreeableness and conscientiousness (Digman, 1989). The Five

Factor Model, based on these five factors, summarizes much of what psychologists mean about personality (McCrae & Costa, 1999). These personality constructs are examined here because a positive association has been found between conscientiousness and openness and academic success (O'Connor & Paunonen, 2007) and a negative association has been found between neuroticism scores and progression (McLaughlin *et al.*, 2008; Moses *et al.*, 2011). It is possible that neuroticism negatively affects progression because students with high neuroticism react negatively to academic stress (Bhagat & Nayak, 2014).

Motivation

Motivation “encompasses the diverse classes of events that move one to action” (Bandura, 1991, p. 69). One theory of motivation is Deci and Ryan’s self-determination theory (SDT), which refers to the three basic psychological needs of autonomy, competence and relatedness that are necessary for students’ active and positive engagement in learning (Haerens, 2019). SDT reveals that students who have higher self-determination levels perform better at school (Stover *et al.*, 2012). Intrinsic motivation, which involves doing something for inherent satisfaction (Ryan & Deci, 2000a), appears to influence a student’s persistence to learn (Augustyniak *et al.*, 2016; Trevino & DeFreitas, 2014).

Self-efficacy

An individual’s perceived self-efficacy relates to their “beliefs in their ability to influence events that affect their lives” (Bandura, 2010). People have different levels of generalized self-efficacy due to differences in their past experiences and whether they attribute success to skill or chance (Sherer *et al.*, 1982). According to Bandura (1977), self-efficacy determines the coping behaviours, effort and length of time an individual will continue with a course of action when faced with negative experiences, thus making it a good indicator of student progression (Becker & Gable, 2009). Students who fail to progress generally have lower self-efficacy scores than their classmates (Devonport & Lane, 2006; Holder, 2007).

3. Educational Factors

In the literature, attendance at lectures (Cleary-Holdforth, 2007; Parker *et al.*, 2006) has been found to affect the progression of students in higher education. Attendance is under consideration in this literature review because mature students are significantly more likely to miss classes and fail to progress (Greer, 1980).

Attendance

There are mixed results on the relationship between attendance at college and students' academic performance (Cleary-Holdforth, 2007). Some researchers have found a positive correlation between attendance and academic achievement (Davis, 2011; Halpern, 2007; Paisey & Paisey, 2003; Kelly, 2012) while others have found no correlation between the two (Rogers, 2002).

4. Institutional Factors

The institutional factor of course of study has been found to affect the progression of undergraduates (Quinn *et al.*, 2005; McInnis *et al.*, 2000; Moore-Cherry *et al.*, 2015). Choosing a course of study is an important life decision and can be a source of regret for some students (Beggs *et al.*, 2008). Therefore, it must be included here.

Course of Study

Researchers have identified poor course choice as a major cause of student non-progression in various countries (Quinn *et al.*, 2005; McInnis *et al.*, 2000; Moore-Cherry *et al.*, 2015; Redmond *et al.*, 2011; Johnston, 1997; Prebble *et al.*, 2004; Bean & Metzner, 1985). A qualitative study of students who withdrew from University College Dublin in the academic year 2008/09 revealed that students felt that they had not chosen the right higher education course for them and that this was a major factor in their failure to progress (Redmond *et al.*, 2011). Data from the HEA reveal that progression rates in ROI vary depending on course of study (HEA, 2018a).

5. Environmental Factors

Environmental factors that have been found to affect progression in higher education include finances, working during higher education, and family commitments and responsibilities. Students who lack finances work long hours and have family commitments may be more likely to fail to progress (Bean and Metzner, 1985), so these factors could be relevant to Access Foundation students.

Finances

Funding is a major priority for most students (Fleming & Finnegan, 2011). According to some researchers, finances play a central role in students' progress in higher education (Bennett, 2003; Graham, 2015; McGivney, 2004; Lauder & Cuthbertson, 1998; Bolam &

Dodgson, 2003). Financial aid gives affluent and low-income students an equal playing field while giving students an opportunity to integrate into the academic and social life of the higher education institution (Cabrera *et al.*, 1992). It also has a positive effect on progression (Byrne & Cushing, 2015; Hoare & Lightfoot, 2015; Olbrecht *et al.*, 2016). Grants can mean the difference between staying the course and failing to progress in higher education for students in need (Coalition of Urban Serving Universities & the Association of Public & Land Grant Universities, 2016).

Work

There are different opinions on working and progression in higher education (Riggert *et al.*, 2006). Tessema *et al.* (2014) found that the impact of working on college students' academic performance is inconclusive. Triventi (2014) found that working could negatively affect progression, while Dundes & Marx (2006) found that students who work 10-19 hours per week outperform all other students. A study of Scottish further education students' work/life/study balance revealed that participants were juggling study, work, personal/family life and some found the conflicting priorities stressful (Lowe & Gayle, 2007). A study of Australian college students highlighted gender differences in work-family conflict (Gali Cinamon, 2006). The findings showed that women were more likely to anticipate higher levels of interference between work and family.

Family Commitments

Family circumstances can also lead to student non-progression and mature students have more problems with family commitments than their young adult counterparts (Moore-Cherry, 2015). A brief from the Women's Policy Institute reveals that being a parent substantially increases the likelihood of leaving college without a degree (Cruse *et al.*, 2018). The brief reveals that single student mothers are most likely to be negatively affected (Lyonette & Crompton, 2015).

The goal of this research is to determine the specific factors that affect the progression of students on the Access Foundation programme at DIT to undergraduate studies at the same institution. Details of the methods employed by the authors to achieve this goal are outlined in the next section.

Methods

This study is part of a larger pragmatic, mixed methods approach to examine the research question:

What factors affect the progression of students in the Access Foundation programme to undergraduate studies at DIT?

A mixed methods approach was employed because a combination of quantitative and qualitative data provided a better understanding of the research question than if either approach was used alone. An explanatory mixed methods approach was adopted for the research. The methodology and findings outlined here relate to the quantitative research.

Theoretical Framework

The factors affecting progression identified in the literature suggest that a variety of factors may affect the progression of Access Foundation students to undergraduate studies at DIT, so the following theories were chosen to underpin the current study and are used to form its theoretical framework.

Tinto (1975) focuses on the extent to which the individual is integrated into the social and academic aspects of the university (McCubbin, 2003). According to Tinto (1993), students who interact with faculty and peers both inside and outside the classroom are likely to put in more effort, ultimately learn more and be more likely to progress. One criticism of Tinto's model is that it does not work well for mature students (McCubbin, 2003).

Bean & Metzner (1985) developed a conceptual model of student dropout for undergraduate students who are older, part-time and do not live on the college campus. They noted that although young adult students attend college for academic and social reasons, for mature students, academic reasons are most important. In Bean & Metzner's model, a student's decision to drop out of higher education is based on the four outcomes of academic performance, intent to leave, background variables, and environmental variables. In the model, social interaction variables are assumed to be of little importance for non-traditional students. This is in contrast to Tinto's (1975) Student Integration Model, which sees students' integration into the higher education institution as both academic and social in nature. Later, Bean (2005) highlighted nine themes affecting progression in higher education: the institutional environment, student demographics and characteristics, commitment, academic preparation, psychosocial and study skills factors, integration and fit, intentions, finances, and

environmental factors. Burrus *et al.* (2013) reduced this to eight factors by incorporating Bean's (2005) intentions factor into the commitment factor. Tinto's model of academic and social integration theory remains the cornerstone of research in the area of retaining students in higher education (Morrison & Silverman, 2012). This theory along with the models developed by Bean & Metzner (1985), Bean (2005) and Burrus *et al.* (2013) and the factors affecting progression that have been identified in the literature informed the development of the survey instrument in the current study.

Ethical Approval

Before beginning this study ethical approval was obtained from the ethics committee at DIT.

Survey instrument

A 29-item, self-administered questionnaire offered a practical and efficient way to collect data. A questionnaire was employed because it can be used to scan a wide field of issues and allows the collection of large-scale data (Cohen *et al.*, 2007) and this allows the researcher to have a degree of statistical confidence that observed characteristics are recurring and that clusters of factors are forming. The questionnaire consisted of predominantly closed items but open items were also included. Although closed questions can introduce bias and can limit participant creativity, they can be answered quickly, are easy to code and allow the researcher to introduce more variables (Siniscalco & Auriat, 2005). The first 16 items on the questionnaire address issues related to the demographic, financial and environmental factors affecting progression that were identified in the literature. The three constructs of self-efficacy, motivation and personality that were identified in the literature review were measured using the following three validated scales:

- The Academic Motivation Scale (AMS) (Vallerand *et al.*, 1992). Vallerand *et al.*'s AMS is a 28-item scale that measures seven factors: intrinsic motivation to know, intrinsic motivation to accomplish things, intrinsic motivation to experience stimulation, external extrinsic motivation, introjected extrinsic motivation, identified regulation extrinsic motivation, and amotivation. It is based on self-determination theory, which is centred on the social conditions that encourage or prevent humans from flourishing (Ryan & Deci, 2017). The AMS uses a 7-point Likert scale ranging from "does not correspond" at all to "corresponds exactly". Fairchild *et al.* (2005) found adequate internal consistency for all seven factors, with Cronbach alpha scores that ranged from .85 to .90. The ability of the AMS to measure the same traits in

the same way across diverse groups has been suggested by Akoto (2014), Zhang *et al.* (2016) found the AMS is reliable and valid for Chinese students and Tóth-Király *et al.* (2017) revealed the cross-cultural reliability of the AMS with French and Hungarian students.

- The General Self-Efficacy Scale (Schwarzer & Jerusalem, 1981) is a ten-item scale that was developed to assess a participant's ability to deal with unusual or difficult situations. It has a 4-point Likert scale that ranges from "not true at all" to "exactly true". A study of 19,120 participants in 25 countries revealed that self-efficacy is a universal construct (Scholz *et al.*, 2002), suggesting cross-cultural validity for the scale. The scale has Cronbach's alphas between .76 and .90 (Schwarzer & Jerusalem, 1995).
- The Big Five Inventory (John & Srivastava, 1999) is a 44-item questionnaire that examines five broad dimensions of personality, each of which summarizes personality traits that are more specific. It provides a representation of personality structure that consists of five factors - neuroticism, extraversion, openness, agreeableness, and conscientiousness (Costa & McCrae, 1992). The Big Five uses a 5-point Likert scale that ranges from disagree strongly to agree strongly. A study by McCrae and Costa (1997) with highly diverse cultures across distinct language families suggests the cross-cultural validity of the five factors. According to Soto & John (2009) the Big Five inventory's domain scales have shown high reliability, and in their 2009 study, they found Cronbach alpha scores that ranged from .81 to .88, with a mean of .85.

The three scales that were employed in this study were used in their entirety and no changes were made to the original wording or structure so the validity of the scales was not compromised. All three scales are in the public domain.

The questionnaire was piloted with lecturers on the Access Foundation programme, the coordinator of the Access Foundation programme and former students of the programme and adapted based on their recommendations.

Sample

In September 2017, the researcher attended a meeting of students enrolled in the Access Foundation programme and invited them to complete a hard copy of the questionnaire. In total, 59 student questionnaires were returned (a response rate of 65 percent). An analysis of

1,607 studies published in peer-refereed academic journals between 2000 and 2006 revealed that the average response rate for individuals was 52.7 percent (Baruch & Holtom, 2008). Fincham (2008) recommended that researchers should be aiming for a response rate of 60 percent. Therefore, the response rate in the current study appears reasonable. In cases where students only answered part of a question their entire response to that question was omitted.

Analysis

The questionnaire data was entered into SPSS (Version 24) for analysis. Parametric statistics, statistics designed to represent the entire population, and non-parametric statistics, tests designed for a specific population, (Cohen *et al.*, 2007) were used in analysing data. The parametric statistics and nonparametric statistics used are outlined in Table 3.

Table 3 Statistical tests for use with different data types (Adapted from Cohen *et al.*, 2007)

Test type	Test	Data Type	Measurement
Parametric	T-test	Interval and ratio	Measure of difference
Non-parametric	Chi-square test	Nominal	Measure of deviation from an expected value
Non-parametric	Fisher's Exact	Nominal	Association
Parametric	Pearson correlation	Interval and ratio	Correlation

Further analysis was conducted using data that charted the academic performance of students using their total programme score at the end of the academic year and whether or not they progressed to an undergraduate course at DIT. Access Foundation students receive a score out of 100 for each module they take and a total programme score is calculated at the end of the year in the form of a percentage. In order to progress to undergraduate studies at DIT, students must obtain an overall total programme score greater than 40 percent and at least 40 percent in each individual module.

In the current study, students were deemed to have progressed if they were offered a place on an undergraduate course at DIT at the end of the Access Foundation year.

Results

Preliminary analysis revealed that 77 percent of participants ($n = 46$) progressed to higher education at DIT. Progression was measured by whether they were offered a place at DIT (yes) or not (no). The data reveal that varieties of factors were found to affect student progression.

Demographics

Gender

Forty-six percent of the participants from the Access Foundation programme in 2017/18 were female and 54 percent were male. More than 80 percent of females and 75 percent of males progressed to undergraduate studies.

Age

Participants ranged in age from 17 years to over 53 years – 25 percent were young adults and 75 percent were mature students. An independent samples t-test revealed that mature students had significantly higher mean total programme scores than young adults ($t(56) = -2.311, p = 0.025$) but progression appeared to be independent of whether students were young adult learners or mature students ($p = 1.000$, Fisher's Exact).

Nationality

Almost 70 percent of participants were Irish nationals. The remaining 30 percent of students represented 12 different nationalities (non-Irish nationals). In all, 94 percent of non-Irish nationals but only 70 percent of Irish nationals progressed to higher education. Non-Irish nationals also appeared to have significantly higher mean conscientiousness scores ($t(45) = -3.929, p = 0.000$) and amotivation scores ($t(53) = -2.49, p = 0.016$) than Irish nationals.

Psychosocial Factors

Personality

Overall, independent sample t-tests revealed insufficient evidence of difference between progression and the personality factors of extraversion and agreeableness. However, students who failed one or more modules (unsuccessful candidates), had lower mean conscientiousness scores than their peers ($t(10.523) = 2.321, p = 0.042$) and students who did not apply for a college place or deferred their place on the Access Foundation programme (non-applicants) had lower mean openness scores ($t(43) = 1.938, p = 0.059$). The mean

neuroticism score was slightly higher for students who failed to progress than students who progressed ($t(53) = -1.741, p = 0.088$).

Motivation

Students who failed to progress had higher scores for “intrinsic motivation to experience”, which measures a student’s need for sensory stimulation from an activity, than students who did progress ($t(52) = -2.216, p = 0.031$). They also had higher scores for “intrinsic motivation to accomplish,” which measures a students’ motivation to create or accomplish something (Vallerand et al., 1992) ($t(54) = -1.847, p = 0.07$) and total intrinsic motivation ($t(51) = -1.903, p = 0.063$) than students who progressed. A closer examination of the data revealed that non-applicants had higher intrinsic motivation scores than their peers.

Unsuccessful candidates appeared to have higher mean scores ($t(33.911) = -2.064, p = 0.048$) for “extrinsic motivation external regulation”, which measures the need for external rewards and constraints (Vallerand *et al.*, 1992). Non-applicants had significantly lower mean scores ($t(53) = 2.183, p = 0.033$) for “extrinsic motivation identified” which measures a student’s internalisation of the value and importance of a behaviour (Vallerand *et al.*, 1992).

Self-efficacy

Participants obtained a mean score of 30.05 out of 40 on the General Self-efficacy Scale (standard deviation = 4.87, $N = 56$). Overall, there was no difference in mean self-efficacy scores for students who progressed to undergraduate studies and those who did not ($t(53) = 1.031, p = 0.307$).

Educational Factors

There was a high positive correlation between student attendance and total programme score ($r = 0.817, p = 0.000$) (see Figure 2). Students who progressed to undergraduate studies ($\bar{x} = 76$ percent) had significantly higher attendance than students who did not progress ($\bar{x} = 46$ percent). A linear regression model predicted the dependent variable (GPA) very well ($p < .000$) with a linear regression equation

$$y = 36.397 + 0.428x$$

(where x = attendance and y = GPA)

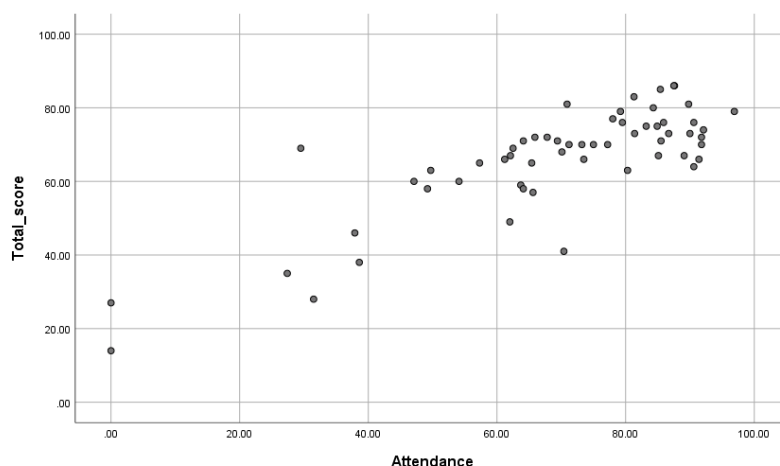


Figure 2 Graph of Access Foundation students' total programme score (%) versus their attendance (%)

Institutional Factors

Course of Study

As outlined in the literature review, the institutional factor of course of study has been found to affect progression in higher education (Quinn *et al.*, 2005; McInnis *et al.*, 2000; Moore-Cherry *et al.*, 2015; Redmond *et al.*, 2011). Access Foundation students who were unsure of what modules to choose at the beginning of the year appeared to be significantly less likely to progress to higher education than their peers ($p = 0.003$, Fisher's Exact). Also, approximately 27 percent of students changed their minds about module choice between semester 1 and semester 2 of the programme. Eighty-three percent of these students progressed to undergraduate studies.

Environmental Factors

Finances

Fifty-eight percent of students who participated in this study received some form of financial support (see Figure 3). There appeared to be no apparent significant difference in progression between students who obtained financial support and those who did not ($p = 0.743$, Fisher's Exact).

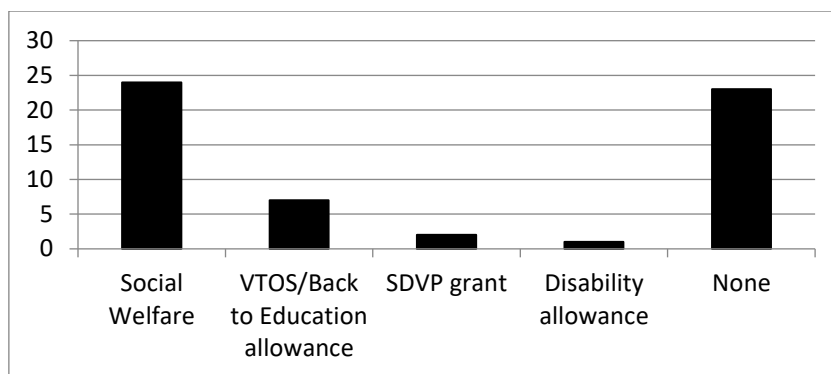


Figure 3 Source of finance for Access Foundation students in 2017/18

Work

Twenty-seven percent of participants had a paid job while in the Access Foundation programme. There appeared to be no significant difference in progression between students who worked and those who did not ($p = 1.000$, Fisher's Exact).

Family Commitments

Nineteen percent of participants cared for children. They appeared to have significantly higher total programme scores on the Access Foundation programme than their peers ($t(49) = 2.043$, $p = 0.046$). They also appeared more likely to progress to higher education than their peers ($p = 0.093$, Fisher's Exact).

Discussion

The findings from this study suggest that a variety of factors affect the progression of students from the Access Foundation programme to undergraduate studies at DIT.

Demographic

In contrast to HEA (2018) data, which outlined findings in relation to undergraduate students, there was no evidence of a significant difference in progression in terms of age or gender when it came to Access Foundation students. However, male students in the Access Foundation programme had a higher rate of progression (81 percent) than males at level 6 in institutes of technology (69 percent) (HEA, 2018a). This may be due to the smaller class sizes in the Access Foundation programme as several studies have indicated a relationship between class size and progression (Kanuche, 2006; Dillon *et al.*, 2002).

HEA (2018) data revealed that non-Irish nationals can have higher progression rates in Irish higher education than their Irish national counterparts. The current study suggests similar findings. Non-Irish nationals also had significantly higher mean conscientiousness scores than their peers. In their review of the empirical literature on the relationship between the Big Five personality dimensions and post-secondary academic achievement, O'Connor & Paunonen (2007) found a positive association between conscientiousness and openness and academic success, so being more conscientious may have helped non-Irish nationals to progress to undergraduate studies.

Psychosocial

Students who failed to progress had higher mean neuroticism scores than their peers ($p < 0.1$ level). Students with high neuroticism react negatively to academic stress (Bhagat & Nayak, 2014), so it is possible that academic stressors will have had a negative impact on students with higher neuroticism scores and affected their progression. When Shillingford & Karlin (2013) administered the AMS to non-traditional undergraduates, they found that intrinsic motivation plays a significant positive role in the academic lives of mature students. Unexpectedly, the current study revealed that students who failed to progress to undergraduate studies had higher intrinsic motivation scores than their peers. Looking more closely at the data revealed that some students had achieved the necessary grades to progress but did not apply for a place at DIT. It is possible that these students accepted a place at another institution. However, on the questionnaire these students indicated that they did not intend going beyond level 6. It appears that even students with high intrinsic motivation may never have intended progressing to undergraduate studies at DIT.

Students who withdrew left the programme in semester 1. Therefore, it may be that they decided early on that the Access Foundation programme was not right for them. As previously noted poor course choice is recognised as a major cause of student non-progression (Quinn *et al.*, 2005; McInnis *et al.*, 2000; Moore-Cherry *et al.*, 2015; Redmond *et al.*, 2011; Johnston, 1997; Prebble *et al.*, 2004).

Educational

The findings also revealed that attendance had a significant effect on Access Foundation students' progression to undergraduate studies at DIT, confirming the positive correlation

between attendance and academic achievement in the literature (Davis, 2011; Halpern, 2007; Paisey & Paisey, 2003).

Institutional

Access Foundation students' ability to change optional modules in semester 2 may aid student progression. As noted, 83 percent of students who changed their minds about module choice between semester 1 and semester 2 progressed to higher education. This is similar to a finding by Case *et al.* (2018) that flexibility in course choice helps support the success of higher education students.

Environmental

Contrary to Cruse *et al.*'s findings (2018), there was no evidence that students with family commitments were less likely to progress to undergraduate studies than other students. In fact, Access Foundation students who are parents all progressed to undergraduate studies. The literature offers different opinions on working and progression in higher education. In the current study, work did not appear to affect progression. Dundes & Marx (2006) found that students who worked 10-19 hours during their studies outperformed all other students and suggested that working while studying establishes structure and forces students to be disciplined. Working may help Access Foundation students to be disciplined also. Although students may be effectively managing their time to ensure that work and family commitments do not affect their studies, there might be long-term implications for Access Foundation students' health and well-being. Carney *et al.* (2005) found that students who work part-time while completing a full-time undergraduate degree, rate their physical and mental health lower than the general population. Working may become an issue for Access Foundation students in their undergraduate studies as long working hours, over a prolonged period, could have physical and mental health implications for them.

Limitations

The findings in the current study are limited because:

- the data was collected at one institution, and in one academic year. However, the study is being repeated over academic years 2018/19 and 2019/20. Moreover, interviews with participants in the programme will be conducted to highlight other issues that have affected students in the programme and shed more light on the reasons for the current findings.

- This was a cross-sectional study in that it provides a snapshot (Cohen *et al.*, 2007). They contend that such studies are not appropriate for establishing causal relationships between variables.
- Additionally, a self-report measure was used in the current study and self-reports can introduce bias (Cohen *et al.*, 2007).

Conclusion

This study set out to examine the factors that affect the progression of Access Foundation students to undergraduate studies at DIT. The findings suggest that some of the demographic, academic, environmental, psychosocial and financial variables identified in the literature affected progression from the Access Foundation programme to undergraduate studies at DIT in 2017/18. It is likely that these variables will also affect the progression of students in TU Dublin. Contrary to the findings of Tinto (1987) and Bean (2005), the findings here suggest that age and gender have no effect on progression to undergraduate studies, while high attendance and being a non-Irish national seem to have a positive effect on progression. In contrast, neuroticism, living arrangements and module uncertainty appear to have a negative effect on progression. Unexpectedly, some students with high intrinsic motivation failed to progress to undergraduate studies, but this may have been because they progressed to another education institution or because they had already achieved what they set out to achieve. Although this study was conducted in only one institution, the findings may have implications for other higher education institutions, particularly given increasing diversity in higher education. The qualitative findings from this study may reveal further factors that affect progression and may shed further light on the quantitative findings here. Future research might consider some of the factors identified here in more depth. Additionally, a future study might track students' progression beyond the Access Foundation programme and through their undergraduate studies.

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