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Student views on transition to higher education: Challenges, impacts and suggestions

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TRiSS Working Paper Series

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Version 1

Student views on transition to higher education: challenges, impacts and suggestions

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Abstract: This paper examines students' perspectives on the main transitional challenges experienced when commencing higher education. It explores which students are most affected by the transition and also provides a summary of student recommendations to help improve the transition. Using a case study of Ireland, the results indicate that students find time management the most significant transitional challenge, followed by written assessments, critical thinking and conducting independent research. Older students are found to be more likely to struggle with the transition. The findings indicate that prior academic success is not correlated with a student's experience of the transition. The paper also analyses almost 1,100 suggestions from students on how to ease the transition to higher education. These suggestions are discussed in detail and are found to fall under four main headings: higher education institute supports; second level

[1] Acknowledgements:

academic support; managing expectations and engagement; and general skills preparation at second level.

Keywords: Higher Education, transition, first year experience

Primary discipline: Economics

Student views on transition to higher education: challenges, impacts and suggestions[2]

1. Background and context

The transition from one stage of education to the next is often a challenging time in the life of a student. In most education systems three key phases of transition have been identified as being significant for students: the first upon starting primary education (e.g. Dockett and Perry, 2005, Fabian, 2013); the transition from primary to secondary education (Weiss et al., 2007, Vierhaus et al., 2016, Langenkamp, 2009); and finally the transition from secondary school into higher education (e.g. Gale and Parker, 2014, Terenzini et al., 1994).

This paper focuses on the third transition, from secondary education (high school) to higher education (university/college)[3]. Students at this stage are often young adults whose move to higher education will coincide with living independently for the first time, often in an unfamiliar

[2] This is a working paper and is subject to change.

[3] For the purposes of this paper, the term 'transition' will be used to refer to the transition from second level to higher education. Secondary level is equivalent to high-school in the United States and higher education refers to University or College. This paper conducts analysis using a case study of the Irish education system where the terms secondary level and higher education are more commonly used.

city, remote from their established support networks (Wilcox et al., 2005) . Similarly, it often involves moving from an environment of small classes with teacher-led learning in secondary education into large lecture halls with a shift towards more student-led independent learning (McInnis, 2004). While many students flourish in their new found independence, for a considerable number, this transition is a challenging period which can potentially have lasting consequences for their success and happiness at higher education.

Concern over adjustment of students to University life is not a recent phenomenon. Spurred by student unrest in the 1960s, the University of South Carolina introduced a module entitled University 101 (UN101) which covered extended university orientation and humanized the transition of first-year students into University culture[4]. UN101 spread throughout Universities in the US, Canada, Europe and Australia in the 1970s (Watts, 1999). This growth in University introductory modules spawned the academic specialisation of 'the first year transition' and since the mid-1970s there has grown a voluminous body of literature dedicated to exploring the first year experience (FYE) of transition.

While there is a broad literature in the area of transition to higher education, the majority of research has focused on the views of academics and experts on the issues surrounding transition. There has been relatively little research examining the views of students on the transition and their suggestions on what more can be done to better prepare and support them for the challenges of higher education. According to Chism Schmidt and Graziano (2016) "we need additional research to determine what works, for which students, and why". This paper aims to contribute to this gap in the literature using a new data set of quantitative and qualitative data on student experiences across a range of higher education institutions.

[4] The terms first year and second year are used in this paper as they are more commonly used in the case study system. The equivalent in the US is Freshman year and Sophomore year respectively.

It aims to determine which students are most impacted by the transition and why and also provides a summary of student recommendations to help improve the transition. It has three main research questions: firstly, it examines quantitatively the factors which are related to a student's overall experience with their transition to higher education. Secondly, it examines the relationship between a student's experience of the transition and their academic performance at higher level. Thirdly, it provides an analysis of the qualitative suggestions from students on how second level can better prepare them for the demands of higher education and how higher education institutions can better support them during their transition. This study uses Ireland as the case study and is based on data collected from students in four representative Irish universities and colleges.

2. Literature on the challenges associated with the transition from second level to higher education

A vast body of literature explores the first year experience both in terms of the challenges faced by students and also the efficacy of the measures introduced to assist them. This section highlights some of the salient challenges which have been identified across institutions and countries which are particularly relevant for this paper, however, readers are also directed to the extensive bibliography on the first year experience at University of South Carolina National Resource Centre (2017) for a comprehensive overview of the field.

The literature on transitions repeatedly asserts that students often struggle with the time management demands of higher education. Time management skills are considered an important element of 'personal skills' and as such, many studies compare academic success to self-declared time management skills (Nelson and Pierce, 1987). First year female students and mature students report significantly greater time-management skills than do other groups (Trueman and

Hartley, 1996). In fact, high initial confidence in the skills of time management, self-reliance and teamwork together with assertive communication skills are among the most significant factors in explaining success in first year (Goldfinch and Hughes, 2007).

Maintaining balance between academic and non-academic activities is linked with the skills of time management. Light (2001) emphasises the importance of balance between course work and extra-curricular activities in making a successful transition to higher education. Engagement is considered a broad phenomenon encompassing academic, non-academic and social aspects of life at higher level and has a significant impact on a student's performance and general satisfaction with higher level (Astin, 1993, Kuh, 1995, NSSE, 2005, Fredericks et al., 2004). Krause and Coates (2008) note that engagement with the institution is particularly challenging for first year students.

Demographic and social considerations, such as race, gender, nationality and physical ability have also been shown to have an impact on transitional experiences and can vary depending on course of study (Reyes, 2011, Nuňez, 2009, Harbour, 2006). Wilcox et al. (2005) show that making compatible friends and students' living arrangements contribute to retention following the transition to higher education.

Group work poses a challenge to many students (Lopez-Real and Chan, 1999, Lejk et al., 1999) as it is not utilised extensively at second level yet often features significantly in the assessment of first year students, particularly in large class cohorts. Despite the challenges of group work, both Garvin et al. (1995) and Bourner et al. (2001) find that it is an appropriate learning technique for students in their first year at higher level.

Krause (2001) explores the challenges students encounter when faced with written assignments at higher level compared to second level and the impact these have on their

academic integration at higher level. Smith (2004) examines student views and experiences of reading requirements and essay writing and finds that there is an abrupt change from limited, intensive reading at secondary level to more wide-ranging, extensive, contextualized reading in higher education and this transition can pose a major challenge for students.

Ballinger (2003) highlights the importance of independent learning and critical assessment for success at higher level. In the UK, the A-level system has been claimed to create a "learn and forget" culture with students entering higher education lacking "a spirit of independent inquiry and confidence" (Bassett et al., 2009). This is a key focus of King and Kitchener (1994) and Kreber (1998) who examine the implications of the developmental stages of critical thinking skills for college students.

The challenge of transition is exacerbated by a number of other factors, often occurring in parallel, namely: lack of accurate initial information on the course components, standards and requirements; poor course choices by the student/failure to get first choice courses; and unrealistic expectations regarding the amount of work and time involved in university study (McInnis et al., 2000). In fact, Ozga and Sukhnandan (1998) argue that the most prominent factor influencing transition is the lack of preparation and understanding of what is required of a successful higher level student.

It is apparent from examining the literature that challenges with transition can be considered to fall into three categories: academic challenges (such as writing skills, critical assessment, study skills and time-management); social challenges (engaging with new peers and the non-academic aspects of university life); and external challenges relating to the course being studied (such as large class sizes, the requirement for participation and group work, information on course content). This paper examines these three aspects of the transitional challenge and how

they contribute to the student's experience of transition and it determines which students report the most difficulty with the transition.

3. Ireland as a Case Study

This paper focuses on the transition to higher education in the Republic of Ireland. Higher education in Ireland is mainly provided by seven Universities (51% of undergraduate education), fourteen Institutes of Technology (43%), and seven Colleges of Education (6%)(DES, 2015). This study is based on data collected from undergraduate students in two representative Irish universities (Trinity College Dublin (TCD) and the University of Limerick (UL)), one institute of technology (Limerick Institute of Technology (LIT)) and one college of further education (Mary Immaculate College (MIC)).

At the end of their second level education, students in Ireland take a State Examination known as the Leaving Certificate[5]. In order to facilitate their application to higher level, students are then awarded points based on their performance in the Leaving Certificate examination with 625 being the maximum number of points attainable (CAO, 2012). The process of awarding points to students on the basis of their Leaving Certificate examination results is commonly referred to as the CAO points system as it is administered by the Central Applications Office (CAO). All universities, institutes of technology, and colleges of education in Ireland use the CAO to select applicants for courses (Hyland, 2011).

Under the terms of the Free Fees Initiative of the Irish Department of Education and Skills, the cost of tuition fees for the majority of undergraduate students at publically funded higher-level institutions are covered by the Irish State. Thus, in significant contrast to higher education

[5] Students can also take the Leaving Cert Vocational Programme or the Leaving Cert Applied Programme www.education.ie, however, for the purposes of this report, the focus will be on the standard Leaving Certificate.

institutions in countries such as the United States, the vast majority of undergraduate students do not pay tuition fees in Irish higher education institutions.

In another deviation from institutions in the United States and elsewhere, the vast majority of higher-institutions in Ireland are non-residential. While the universities and many of the larger institutes of technology have accommodation facilities for undergraduate students, these places are limited and large numbers of undergraduate students live either in private rented accommodation or commute to college from their family home. Further details on the costs of attending higher level education in Ireland can be found in UL (2015).

4. Methodology

Two methods were used to collect data for the analysis in this project. The first was a survey of undergraduate students in each of the four institutions, and the second was through ten focus groups with students. Both methods and the analysis techniques are explained here.

4.1 Student Survey

Based on the literature, a survey was designed to capture students' experiences of transitioning to higher education at the sample of four Irish higher education institutions. The survey asked students to rate their experience across eleven different aspects of the transition on a scale of 'not challenging at all', 'somewhat challenging', 'very challenging' or 'not applicable'. These aspects were chosen to capture three hypothesised facets of the transitional challenge – academic [A], social [S] and external [E].

Q: Did you find any of the following a challenge when you started at College/ University?

- [A] Managing your time and completing assignments on time (*Time)*
- [A] Note-taking in lectures/classes (*Notetaking)*
- [A] Written assignments (*Writing*)

- [A] Mathematics requirements (*Maths*)
- [A] Being able to critically assess materials provided (*CriticalAssess)*
- [A] Researching topics myself (*Research*)
- [S] Integrating socially and making new friends (*SocialFriends)*
- [S] Engaging with college life outside of the classroom (*EngageCollege)*
- [E] Large classes (*Largeclass)*
- [E] Participating in lectures/classes (*Participating)*
- [E] Group work (*Groupwork)*

It should be noted that this survey gathers data on students' stated experiences of the above aspects of their transition. These are subjective measures and thus two students with the same absolute experience could perceive the challenge differently and therefore have different responses. Thus, the results presented represent the relationship between perceived challenges of transition and the other variables of interest rather than actual transitional challenge in the absolute sense (which are unobserved).

The survey also sought general information about a student's age, gender, course of study, commuting time and academic success to date at higher education and information on whether they attended an urban or rural secondary school, their CAO points, their living arrangements and whether they had enrolled in any further education courses. Students were also asked how long it took them to overcome those aspects of starting higher education which they had identified as being challenging. Survey response rates are as follows:

- Trinity College Dublin (TCD): 1180 responses (10% response rate)
- University of Limerick (UL): 108 responses (5% response rate)
- Mary Immaculate College (MIC): 103 responses (14% response rate)
- Limerick Institute of Technology (LIT): 188 responses (13% response rate)

4.2 Focus groups

Students who completed the survey were invited to volunteer for focus groups to discuss the transitional challenge. There were a total of 675 students who volunteered for focus group participation resulting in ten focus groups: 4 at TCD, and 2 at each of the other three institutions. Focus group numbers averaged 5 students each with a total of 50 participants overall and lasted approximately 90 minutes. Participants were selected to ensure representation across age, gender, academic success, CAO points and living arrangements.

4.3 Analysis methodology

There are three main research questions addressed in this paper each using a different statistical analysis technique. The methods for each question are described here.

4.3.1 Methodology for Research Question 1

The first research question examines the role of external factors in explaining a student's experience of the transition using quantitative data. Each of the transitional challenge variables listed previously in Section 4.1 (*Time, NoteTaking, LargeClass* etc) was coded to take on one of three distinct values, with 1 representing an answer of 'Not challenging at all', 2 representing 'somewhat challenging', and 3 representing 'very challenging'. Responses listed as 'not applicable' are omitted in the analysis.

These transitional challenge variables are analysed jointly to provide a measure of a student's overall experience of transitioning to higher leve (*AveTrans).* The average transition score (*AveTrans*) for student *i*, is calculated as the average of their response to each of the listed individual challenges.

$$AveTrans_i = average\begin{pmatrix} Time_i, Notetaking_i, LargeClass_i, Participating_i, \\ Groupwork_i, Writing_i, Maths_i, CriticalAssess_i, \\ Research_i, SocialFriends_i, CollegeLife_i \end{pmatrix} \quad (1)$$

AveTrans$_i$ can take on any continuous value in the range of 1 to 3, with a value of 1 indicating that the student reported experiencing no challenge whatsoever with any of the aspects of transitioning to higher level. A value of 3 indicates that they found all aspects of the transition very challenging. Four respondents were found to have a value of *AveTrans* of 1, and six respondents were found to have a value of 3. The variable *AveTrans* was found to be distributed normally. Since *AveTrans* is a constructed variable, with increments in value having relatively little real-world meaning, the variable is standardised (*StdAveTrans*) to have a mean of zero and a standard deviation of one.

The first research question explores the factors influencing students' overall experience of transitioning to higher education and is estimated using Model 1 below:

<u>Model 1:</u> $$StdAveTrans = \beta_0 + \sum_{p=1}^{P} \beta_p X_{ip} + \varepsilon_i \quad (2)$$

Where *StdAveTrans* is the dependent variable, β_0 is the intercept, β_p is the coefficient of the independent variable *p*, X_{ip} is the observed value and ε_i is the error term.

4.3.2 Methodology for Research Question 2

The second research question explores if a student's experience of the transition is related to their academic performance at higher level. The survey asked students to identify their average grades and the answers to this question were used to generate the variable *Grade* which takes on a value of 5 if a student is averaging first class honours (≥70%), a value of 4 if a student is averaging a II.1 (60 – 69%), a value of 3 for a II.2 (50 – 59%), a value of 2 for a III (40 – 49%)

and 1 for a fail (≤39%). The variable *Grade* is a discrete and ordered variable thus research question 2 is estimated using an ordered logit model.

4.3.3 Methodology for Research Question 3

The final element of the research is qualitative and examines students' suggestions on how the transitional experience could be improved. This qualitative data was gathered in open ended questions in the survey and in the focus groups. Both the qualitative data from the survey and the focus group transcriptions were coded in the software package *NVivo* using themes identified in the literature and based on frequency of reference in the transcripts/surveys.

5. Data summary

It is clear from

Table ***1*** that there are limitations in the sample used for this study. Firstly, only four institutions were chosen. While these were selected to give a general representation of the sector, they do not capture the sector as a whole and in fact, may be over-representative of the university sector (in particular Trinity College Dublin) and of achievement nationally. Table 2 illustrates the values for a number of parameters for the sample together with those of the national student population.

Table 1 presents the descriptive statistics from the survey responses. It is clear from

Table ***1*** that there are limitations in the sample used for this study. Firstly, only four institutions were chosen. While these were selected to give a general representation of the sector, they do not capture the sector as a whole and in fact, may be over-representative of the university sector (in particular Trinity College Dublin) and of achievement nationally. Table 2 illustrates the values for a number of parameters for the sample together with those of the national student population.

Table 1: Data summary from survey responses

Independent Variables					
Continuous variables	**N**	**mean**	**std dev**	**min**	**max**
Age	1,579	20.93	4.896	18	70
CAO points	1,253	509.2	75.43	185	625
Binary variables	**N**	**% of sample**			
Male	566	36			
Entered straight from Leaving Cert (*LC)*	1336	85			
Attended urban Secondary School (*Urban)*	916	69			
Undertook Further Education (*Further Ed)*	167	11			
Living with Parents (*Parents)*	840	54			
Course of Study					
Medicine	80	5			
Nursing/Midwifery	69	4			
Law	80	5			
Engineering	191	12			
Arts/Humanities	427	27			
Business/Economics	192	12			
Computer Science	99	6			
Social Work	71	5			
General Science	364	23			
Health Science	126	8			
Creative Arts	71	5			
Average grades at higher education					
First (≥70%)	428	27			
II.1 (60 – 69%)	731	46			
II.2 (50 – 59%)	340	22			
Third (40 – 49%)	58	4			
Fail (≤39%)	15	1			
Commuting time					
0 - 15min	316	20			
15 - 30min	426	27			
30 - 45min	361	23			
45min - 1hour	289	18			
Over 1 hour	169	11			
Institution					
Trinity College Dublin (TCD)	1181	75			
University of Limerick (UL	108	7			
Mary Immaculate College (MIC)	103	7			
Limerick Institute of Technology (LIT)	188	12			

Table 2: Representativeness of the Sample

Variable	Sample	Population [1]
Average Age (years)	20.9	20.8
Average CAO points	509	338 [2]
Male	36%	50%
Entered directly from Leaving Cert	85%	88%
Course of study:		
- Arts and Humanities	24%	24%
- Natural Science	21%	11%
- Engineering	11%	11%
- Social Science, Business, Law	15%	18%
- IT	6%	7%
- Health Sciences	20%	21%
- Social work and policy	4%	5%
- Generic skills	0%	1%
- Agriculture	0%	2%
Commuting time		
- 0 to 15 min	20%	20%
- 15 to 30 min	27%	27%
- 30 to 45 min	23%	21%
- Over 45 min	29%	26%
Institution type		
- University	81%	53%
- College/Institute of Technology	19%	47%

[1] Population values represent the values for the student population at Universities, Colleges and Institutes of Technology in Ireland (ISSE, 2015, CSO, 2016)
[2] The population value for CAO is skewed downwards as it includes students who did not qualify for higher education and is thus an underestimate of the CAO points of the higher education student population. CAO points for the subset representing the higher education population are unavailable.

This study is not a controlled experiment, rather a self-selected panel, and while many of the sample characteristics reflect those of the population, there are some sample selection issues with respect to certain variables of interest. For example, average CAO points in the sample are 509 which reflects the achievement of a very small percentage (circa 10%) of achievement nationally. Males are underrepresented in the sample and 81% of the sample is from the University sector whereas on a national basis, Universities represents just 53% of the total population of full-time

undergraduate students in Ireland. Given these limitations in the sample selection, the results and conclusions of this study should be read in the context of the chosen case-study and generalisations beyond this specific cohort should be conducted with caution.

Table ***3*** below illustrates the descriptive statistics for the transitional variables data. It can be seen from

Table ***3*** that there is a clear presence of transitional challenges.

Table 3: Descriptive statistics for transition variables

VARIABLES	N	mean	Std dev	min	max
Dependent Variables					
Continuous and bounded					
AveTrans	1,580	1.939	0.365	1	3
StdAveTrans	1,580	0	1	-2.79	2.98
Categorical and bounded					
Time	1,570	2.199	0.621	1	3
NoteTaking	1,571	1.881	0.707	1	3
LargeClass	1,504	1.665	0.761	1	3
Participating	1,551	2.074	0.745	1	3
Groupwork	1,455	1.907	0.702	1	3
Writing	1,513	2.101	0.641	1	3
Maths	1,174	1.776	0.771	1	3
CriticalAssess	1,520	2.074	0.689	1	3
Research	1,553	2.049	0.704	1	3
SocialFriends	1,560	1.852	0.774	1	3
EngageCollege	1,538	1.977	0.794	1	3
Grade	1,572	3.953	0.849	1	5
HowLong	1,563	3.139	0.961	1	4

Students were also asked the following question: “How long did it take you to overcome those aspects of starting College/University which you identified as being challenging?”. The

answer options were “A few days”, “A few weeks”, “A few months” and “I still find some/all of them challenging”. The responses to this question were used to generate a variable called *HowLong* which takes a value of 1 if a student reported the taking ‘a few days’ to overcome the transitional issues, a value of 2 represents a response of ‘a few weeks’, and 3 and 4 represent ‘a few months’ and ‘still challenging’ respectively. 50% of the respondents stated that they still find aspects of the transition challenging (survey was conducted in February, five months into the academic year).

5 Results and Discussion

This section discusses the results and is broken into three subsections, one for each of the three research questions.

5.1 Research Question 1: What factors exacerbate the overall transitional challenge?

Table 4 presents the results from the estimation of Model 1 with a number of permutations using an ordinary least squares estimation[6]. A positive coefficient in

[6] Since the variable *AveTrans* is bounded from above by 3 and below by 1, the regression was also estimated using a bounded Tobit model. The results were highly consistent across both methods (most likely due to the small number of observations at either bound in the Tobit model), thus the OLS model is used for ease of interpretation.

Table ***4*** indicates that a variable increases the probability of finding the transition challenging, whereas a negative coefficient indicates a reduction in the transitional challenge.

Table 4: OLS estimation of average transition experience

VARIABLES	Model 1a	Model 1b	Model 1c	Model 1d	Model 1e
Age	0.0465**	0.04**	0.044***	0.044**	0.0443**
	(0.0183)	(0.017)	(0.016)	(0.018)	(0.0182)
Male	-0.203***	-0.224***	-0.237***	-0.216***	-0.198***
	(0.0610)	(0.058)	(0.059)	(0.0608)	(0.0606)
CAOpoints	-0.00006	0.0007*		-0.000	-3.55e-05
	(0.000544)	(0.0004)		(0.000)	(0.001)
Urban	-0.0758	-0.057	-0.065	-0.092	-0.0640
	(0.0658)	(0.065)	(0.064)	(0.065)	(0.062)
Parents	0.0548	0.055	0.062	0.133**	
	(0.0697)	(0.07)	(0.067)	(0.061)	
Medicine	-0.197		-0.186	-0.199	-0.201
	(0.150)		(0.142)	(0.151)	(0.149)
Nurse/Midwifery	0.00805		-0.050	0.024	0.004
	(0.169)		(0.161)	(0.169)	(0.167)
Law	-0.131		-0.130	-0.121	-0.134
	(0.136)		(0.128)	(0.137)	(0.136)
Engineering	-0.0404		-0.056	-0.039	-0.041
	(0.106)		(0.102)	(0.106)	(0.106)
Arts/Humanities	-0.0822		-0.07	-0.095	-0.081
	(0.0861)		(0.082)	(0.086)	(0.085)
Business/Economics	0.177*		0.142	0.168*	0.180*
	(0.101)		(0.0980)	(0.101)	(0.0999)
ComputerScience	-0.0694		-0.056	-0.064	-0.041
	(0.127)		(0.122)	(0.127)	(0.125)
SocialWk	0.196		0.166	0.208	0.203
	(0.182)		(0.179)	(0.183)	(0.182)
Science	-0.0470		-0.031	-0.05	-0.057
	(0.0875)		(0.084)	(0.087)	(0.086)
HealthScience	0.0730		0.072	0.082	0.077
	(0.126)		(0.121)	(0.126)	(0.125)
0 – 15 min	-0.324***	-0.355***	-0.318***		-0.358***
	(0.120)	(0.115)	(0.118)		(0.106)
15 – 30 min	-0.150	-0.166	-0.152		-0.171*
	(0.105)	(0.105)	(0.103)		(0.0971)
30 – 45 min	-0.173*	-0.189*	-0.145		-0.178*
	(0.104)	(0.104)	(0.101)		(0.099)
45 min – 1 hr	-0.134	-0.159	-0.121		-0.137
	(0.107)	(0.107)	(0.104)		(0.104)
TCD	0.540***		0.540***	0.607***	0.532***
	(0.143)		(0.115)	(0.140)	(0.142)
UL	0.563***		0.581***	0.549***	0.559***
	(0.159)		(0.148)	(0.159)	(0.159)
MIC	0.601***		0.570***	0.584***	0.588***
	(0.174)		(0.165)	(0.173)	(0.173)

Constant	-1.077**	-0.846**	-1.072***	-1.251***	-1.004**
	(0.462)	(0.424)	(0.372)	(0.453)	(0.446)
Observations	1,240	1,240	1,319	1,240	1,240
R-squared	0.053	0.031	0.054	0.047	0.052

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

From

Table ***4*** it is seen that *Age* has a positive, consistent and significant relationship with the transition across all model specifications. The coefficient in the full model, Model 1a, is 0.046 which indicates that for every year older a student is, they find the transition 0.046 standard deviations more challenging. In other words, comparing an 18 year old and a 28 year old, the latter is likely to find the transition almost half a standard deviation (0.46) more challenging than the former. The older the student, the harder they find the transition into higher education, a result supported by research by Fragoso et al. (2013).

It is seen that the coefficient for Male is negative and significant. The coefficient of -0.203 suggests that, controlling for all the other factors listed in

Table ***4***, males are 0.203 standard deviations less likely to report finding the transition to higher level challenging. While this is a statistically significant result in the survey responses, it was not apparent in the focus groups or in the qualitative survey responses. It is unclear whether males genuinely experience less difficulties with transition, or if they are simply less likely to report difficulties with transition. The lower response rate for males, representing just 36% of the overall survey responses, suggests the latter.

A student's academic performance at secondary level (as measured by *CAOpoints*) does not appear to have any relationship with the transition to higher education, a result which is consistent across all model specifications. *CAOpoints* is correlated with institution attended, and to a lesser extent to course studied, and as such Model 1b estimates *CAOpoints* by dropping course of study and institution variables. It can be seen, that although the coefficient becomes significant, the coefficient remains very small. This is a very interesting result and perhaps counter to common belief; academic performance at second level has little or no relationship with a student's experience of transitioning to higher education. Students with strong prior academic success (as measured by high CAO points) appear to struggle just as much as those with weak prior academic success (as measured by low CAO points).

In terms of course of study, there is some variation in the size and direction of the coefficients however, for the most part these are non-significant. The only course showing a significant coefficient is Business and Economics courses (*BusEcon*) which has a positive and significant coefficient of 0.177. Supplemental statistical analysis (omitted here for brevity), suggests that these students struggle in particular with large class sizes and the mathematics components of these courses, with the odds of business and economics students finding mathematics challenging over twice as high than for any other discipline.

Table ***4*** shows that short commuting distances are significantly related to reduced transitional challenge. Those with a commute of 15 minutes or less are 0.324 standard deviations less likely to have transitional issues compared to a student with a commute of over 1 hour, a result which is highly significant. It is likely that commuting times influence a student's ability to engage with College, in particular to participate in extracurricular events and social activities in the evenings. Also, a longer commute is likely to be more tiring and may have a negative impact on academic success.

Living with parents has a positive but insignificant relationship with the transitional challenges across models 1a, 1b, and 1c. The decision to live with ones parents while at higher level is related to where parents live relative to the higher education institute campus thus, Model 1d estimates the coefficient for *Parents* in the absence of commuting distance and it can be seen that it changes in magnitude and significance. However, given the stability of the estimates for commuting time across the other model specifications, it is concluded that this result is driven by the omission of the commuting variables, thus, it is concluded that the role of living with parents, controlling for commuting distance, is small and insignificant.

The dummy variable for institution of study is Limerick Institute of Technology. It is seen that students attending the other institutions report statistically significantly greater difficulty with the transition to higher level. This may be due to the supports and awareness of supports available at LIT, or it could be due to the fact that the learning environment at an Institute of Technology is more closely related to the learning environment at secondary school/further education and as such is less of a transition for students.

The analysis above considers *StdAveTrans* as a measure of the overall transitional challenge capturing the responses to eleven different questions across three categories (academic, social and

external factors). A number of statistical tests were conducted following the regression analysis to determine the reliability of these results, such as Cronbach's alpha test, principal component analysis and Confirmatory Factor Analysis (CFA). The Cronbach's alpha of 0.66 is acceptable. The item-rest correlations are largely the same for all items, although the value for Maths is lower than the corresponding values for all other items. However, this does not seem to affect the overall reliability of the scale as removal of this variable alters the Cronbach's alpha by just +0.0013. Removal of any other variable reduces the alpha score. In addition, the screeplot after principal component analysis indicates that there is no obvious break-point below which components can be omitted i.e. all components can be retained.

A latent construct was considered to explain the overall transitional challenge which is comprised of three latent factors. These latent factors are *Academic Skills* (represented by the variables *Time, Notetaking, Writing, Maths, Critical Assessment and Research), Social* (represented by variables *SocialFriends* and *Engage College*) and *External factors* (by *Largeclass, Participating,* and *Groupwork*). The CFA indicates a high and statistically significant level of standardized factor loadings onto the latent constructs with one outlier being for *Maths* which had a loading of just 0.18 (s.e. 0.037). All loadings are significant at $p < .01$. Goodness of fit measures are provided in Table 5.

Table 5: Goodness of fit measures for Confirmatory Factor Analysis

Chi Sq	RMSEA	CFI	SRMR	CD
211.97***	0.06**	0.893	0.045	0.978

*** p<0.01, ** p<0.05, * p<0.1

The chi square test is statistically significant at $p<0.01$, however, given the large sample size and the high correlations in the model this is not surprising. The root mean square error of approximation (RMSEA) indicates a good fit, which is supported by the other goodness of fit

measures. By examining the qualitative results, it is recommended that future studies also include "commuting", "financial issues", "increased responsibility" and "academic requirements less well defined" in the variables capturing the overall transitional challenge to improve the internal reliability of *AveTrans.*

5.2 Research Question 2: Is experience of transition related to academic performance?

This section explores if a student's experience of the transition is correlated with their academic performance at higher level. For example, what is a student's probability of getting a higher grade given their experience of the transition, and what elements of transition have the greatest relationship with achieved grades.

Given the ordered and discrete nature of the variable *Grade*, models are estimated using an ordered logit model. In all models in Table 6, the dependent variable is *Grade.* Model 2a comprises just the transition variables whereas Model 2b includes all of the control variables previously presented in Table 4 (*Age, Male, CAO points, course of study, institution* etc). Model 2c and 2d omit the *Maths* variable to widen the dataset to those students who responded 'not applicable' for this variable. It can be seen that the coefficients are consistent across specifications however the discussion will focus on the results of Model 2b which is identified as the best fit (under both AIC and BIC criteria).

Table 6 presents the odds ratios (rather than the coefficients of the logit model) for ease of interpretation. An odds ratio greater than 1 implies that the explanatory variable increases the odds of achieving a higher value of *Grade*.

In all models in Table 6, the dependent variable is *Grade.* Model 2a comprises just the transition variables whereas Model 2b includes all of the control variables previously presented in Table 4 (*Age, Male, CAO points, course of study, institution* etc). Model 2c and 2d omit the *Maths* variable to widen the dataset to those students who responded 'not applicable' for this variable. It can be seen that the coefficients are consistent across specifications however the

discussion will focus on the results of Model 2b which is identified as the best fit (under both AIC and BIC criteria).

Table 6: Relationship between transition and academic performance, odds ratios

VARIABLES	Model 2a *Grade*	Model 2b *Grade*	Model 2c *Grade*	Model 2d *Grade*
HowLong	0.811***	0.732***	0.802***	0.746***
	(0.0551)	(0.0588)	(0.0487)	(0.0535)
Time	0.602***	0.624***	0.625***	0.682***
	(0.0667)	(0.0801)	(0.0611)	(0.0766)
NoteTaking	1.025	0.989	1.061	1.000
	(0.0932)	(0.105)	(0.0851)	(0.0945)
LargeClass	0.967	1.031	0.911	0.918
	(0.0824)	(0.104)	(0.0691)	(0.0835)
Participating	0.828**	0.678***	0.881	0.762***
	(0.0742)	(0.0733)	(0.0699)	(0.0723)
Groupwork	1.119	1.223*	1.128	1.162
	(0.103)	(0.136)	(0.0915)	(0.116)
Writing	1.018	0.937	0.999	0.906
	(0.108)	(0.116)	(0.0945)	(0.0997)
Maths	0.756***	0.745***		
	(0.0609)	(0.0748)		
CriticalAssess	1.027	0.963	0.915	0.874
	(0.107)	(0.119)	(0.0842)	(0.0948)
Research	0.790**	0.821*	0.779***	0.788**
	(0.0796)	(0.0947)	(0.0699)	(0.0814)
SocialFriends	0.808**	0.913	0.852*	0.927
	(0.0827)	(0.109)	(0.0782)	(0.0995)
EngageCollege	1.368***	1.228*	1.374***	1.275**
	(0.135)	(0.140)	(0.120)	(0.129)
Control variables included	No	Yes	No	Yes
cut 1	-7.55	-3.4	-6.92	-2.43
	(0.538)	(1.299)	(0.45)	(1.145)
cut 2	-5.65	-1.53	-5.21	-0.77
	(0.427)	(1.255)	(0.37)	(1.11)
cut 3	-3.68	0.69	-3.25	1.43
	(0.399)	(.25)	(0.347)	(1.11)
cut4	-1.66	2.95	-1.08	3.89
	(0.383)	(1.255)	(0.334)	(1.12)
Observations	960	780	1,230	986
AIC	2299	1776	2914	2205
BIC	2377	1953	2991	2386

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The proportional odds assumption was tested using a log likelihood ratio test (omodel) and the Brant test, both of which indicate there is no violation of the proportional odds assumption (omodel, chi2 of 40.29, p = 0.286; Brant, chi2 = 41.27, p=0.25).

Looking first at the variable, *HowLong*, it can be seen that the length of time it takes for a student to overcome the transitional challenges, has a statistically significant relationship with their academic performance. The odds ratio is less than 1 which implies the longer it takes to overcome the transitional challenge, the less likely the student is to get a higher grade. The odds of getting a first class honours are 27% (1-0.732) lower for a student who takes months rather than weeks to overcome the challenges of transition.

Time management, *Time*, has the most significant relationship with grades in higher education i.e. it has an odds ratio furthest from one. The odds ratio is less than 1 which means that students who find time management more challenging are statistically significantly less likely to get higher grades. Similarly, participating in class (*Participating)*, conducting independent research (*Research)*, and experience with mathematics (*Maths)* all have statistically significant odds ratios of less than one. Students who find these aspects challenging are statistically significantly less likely to get higher grades.

Surprisingly, students who report challenges with groupwork (*Group)* and engagement with college life (*Engage)* are slightly more likely to get higher grades. It is possible that these students are highly academically focused who prefer to work independently, rather than in groups, and don't tend to engage in college activities, although further research is recommended to explore this result further.

Models 2b and 2d include the full range of control variables as presented previously in

Table ***4***, although coefficients are not illustrated here for brevity. Of particular note is that the coefficient for CAO points in both models 2b and 2d is positive and significant indicating that prior academic performance is a significant determinant of academic success at higher level, a finding supported by the literature (Park and Kerr, 1990, D'Agostino and Bonner, 2009).

5.3 Research Question 3: How could students be better prepared for higher education?

Survey respondents and focus group participants were asked if they had any suggestions on how students could be better prepared for the transition to higher level. This was an open ended question and there were almost 1,100 suggestions made which fell into over 35 separate categories across four general themes. Table 7 summarises the qualitative responses in the survey and the focus group contributions.

Table 7: Suggestions to assist with transition, qualitative responses

Themes	**# references survey**	**# references focus groups**
1. Higher Education Institute supports	**304**	**45**
Intro to Note Taking, Time Management, Study skills, Essays, Grading etc	137	15
More use of Higher Level Student Mentors	42	15
More/better Course Specific Orientation/communication	40	11
Course Orientation by Existing Student	12	
More general orientation (e.g. campus tours, life at college)	27	
Social Interaction with Future Class	21	
Higher level Staff Mentor	11	
Better accommodation support for 1st years	9	
Social Support for Mature students	5	
Smaller classes at higher level		5

2. Academic skills preparation at Secondary School	**259**	**78**
Less Rote learning and more critical thinking at Secondary School	100	23
More research at Secondary School	64	8
Take more responsibility at Secondary School	30	12
Introduce Referencing at Secondary School	16	9
More Group Work at Secondary School	12	9
Presenting and public speaking skills and experience at Secondary School	11	7
More Computers skills at Secondary School	9	
More Continuous Assessment at Secondary School	9	8
Higher Maths Standard at Secondary School	5	
More courses like History at Secondary School	3	2
3. Managing Expectations & Engagement	**247**	**42**
More info on what course actually entails - reality different to expectations	57	25
More info on what College life entails	56	9
Provide this information at secondary school by 3rd level students	23	8
Emphasise how important Extra Curricular engagement is at higher level	43	
College is hard work (false expectations on how difficult it would be)	39	
More recognition from higher level institutions that transition is difficult	26	
Encourage more discussion on loneliness	3	
4. General Skills preparation	**95**	**32**
Have a college experience programme	38	28
Preparation for living on one's own in secondary school	20	
Do a further education course	12	
Introduce lectures at 2nd Level	6	
More alcohol and sex information at secondary school	5	
Learn how to take notes at secondary school	5	1
Take a year out	5	
Time Management skills to be taught at secondary school	4	3

5.3.1 Higher Education Institute Supports

As evident from Table 7, there were a large number of respondents who identified that they would like introductory classes at higher level on how to take notes, how to cite and reference properly, skills for time management and organisation and an introduction to how academic assignments are graded. While all the institutions sampled actually provide seminars, it was apparent from the qualitative responses that students aren't aware of these, did not attend them, or did not find them particularly useful.

The responses in the focus groups and surveys illustrate a dilemma facing higher level institutions; students state the resources that they need, such as introductory classes etc., and the higher level institutions try to put these supports in place, yet once in place, there is low-attendance by students. This issue was raised with the students in the focus groups and participants were asked why they believe attendance is low at introductory classes, some illustrative responses are:

"If there were credits available you'd get a lot more students"

"I suppose there hasn't been too many times in secondary school where you had the choice about doing something that was good for you. It was something that was good for you but you had to do it anyway."

Despite requesting them, many first year students are reluctant to take on the responsibility for attending introductory modules and instead want to be incentivised to attend. However, to provide incentives for attendance would be nurturing the habits they have developed in secondary level rather than requiring them to take responsibility for themselves. Rather than providing incentives for attendance, students suggested making the introductory module less generic and

more course specific. Students also suggested that attendance would be higher at introductory talks and workshops if these were presented by students in more advanced year groups in their course rather than by faculty and staff.

The anecdotal evidence also suggests that these introductory classes happen too early, before students need to use these skills. Thus, there may be justification in running these introductory courses a few weeks/months into first year when students begin to have to submit assignments rather than in the first week.

Orientation around campus was also identified as a challenge. While this is to be expected at the beginning while students get accustomed to their new surroundings, it was evident in the focus groups (which were held five months after students commenced at higher level) that orientation continued to pose a challenge with one focus group participant stating, *"I got lost on the way here."!*

Better campus tours, better maps and room guides were also highlighted, however, it is critical that students are made aware of these. For example, one of the institutions has initiated a phone app where students can enter the room number for their class and be directed to that exact room. However, none of the students in the focus groups were aware of this support. Communication of supports is thus an area which requires improvement for the higher level institutions.

5.3.2 Academic Skills Preparation at Secondary School

As can be seen from Table 7, a large number of students would like to see less rote learning and more critical thinking and research at secondary school. The general consensus in the focus groups is that students do not have to take enough responsibility for their own learning at school which means they face a large shift in mind-set when they commence at higher education. They would also appreciate more continuous assessment at secondary level. These views are also

supported in the open responses to the survey and are raised as potential leaving certificate reforms in Hyland (2011).

The students did acknowledge that some subjects at secondary level were leading the way in terms of preparing them for higher level study. The history curriculum in particular was cited on multiple occasions as being particularly beneficial with Geography, Home Economics and Construction studies projects were also mentioned.

> "[In history] *they do a project and it does seem to be good, they have to go research in libraries, they choose the topic themselves and it can be anything in the History curriculum, anything they want and it has to be really specific and it's really a lot more like a college essay than what the rest of us are used to and I think that probably did help anyone I know who did history. For us who didn't, we didn't get that experience.*

5.3.3 Managing Expectations and Engagement

Among the most frequent suggestion under this heading was to improve the information provided to prospective students about the realities of courses of study. A number of students stated that their courses were very different from what they were expecting and that the higher level institutions should provide more transparent information on the realities of studying each course. Some suggestions on how information could be better relayed included giving students a 'starter pack' with information on their timetable and lecture locations prior to the commencement of teaching.

A number of students cited that their expectations for the maths requirements on their

courses were significantly underestimated. It was suggested that the low minimum entry requirements for mathematics for their courses incorrectly signalled to them that their course would not require a high level of mathematical literacy.

In addition to better information on actual course content, students also suggested that more information at secondary level on the realities of life as a higher education student would have helped them with the transition. In particular, students would have appreciated information from existing students on what it is like to be a higher level student.

The students also felt that the higher level sector could do more to openly acknowledge that there is a transitional challenge and that more discussion and information should be provided in the areas of transition to let students know that they are not alone.

5.3.4 General Skills Preparation

The most frequent suggestion from the students in both the survey and the focus groups regarding general skills preparation was to be provided with the opportunity to 'experience' higher level in advance. A large number of students referenced the work placements they undertook in secondary school and stated that they wished they could have done a similar 'college placement' in a course they were interested in.

Students highlighted other aspects of their secondary school life which they found particularly helpful with building their general skills which included research projects, note taking, referencing, debating and public speaking. Many of these initiatives were individual to the school attended and did not appear to be universally undertaken across the secondary school sector.

6. Conclusions

This project examines the views of students on their transition from second level into higher level. It involved a large survey and focus groups across four higher-level institutions in Ireland.

Time management was identified as the most significant element of the transition from second level to higher education, followed by written assessments, critical thinking and conducting independent research. Older students were found to be more like to struggle with the transition to higher education.

Prior academic success is not related to a student's experience of the transition. High achievers at second level struggle with the transition just as much as students with lower secondary school academic achievement. Students with longer commuting distances find the transition more challenging than those living closer to campus. Students who reported finding the transition challenging were less likely to achieve high grades.

The students were asked to suggest measures which would help future students in the transition process. There were almost 1,100 suggestions made which fell across four themes of: higher education institute supports; second level academic supports; managing expectations and engagement; and general skills preparation.

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