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EFFECTS OF PEER MENTORING ON THE FIRST YEAR EXPERIENCE

You've Got a Friend in Me: The Effects of Peer Mentoring on the First Year Experience for
Undergraduate Students

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Abstract

The current study aimed to explore the effects of peer mentoring on perceived levels of academic anxiety for a sample of first year Irish undergraduate students. This study employed a structured self-report questionnaire to collect data from participants (n=156) from four subject backgrounds; horticulture, business, engineering and computing. Participants were assigned to student mentors from senior cycles in the college in a peer mentoring programme. Participants completed a questionnaire at the culmination of the programme which was designed to investigate students' reported levels of anxiety, difficulty settling in and their appreciation of the mentoring programme. Results indicated that difficulty in settling in and anxiety were predictors for considering dropping out. A combined effect of age and gender was identified such that older female students displayed the highest levels of anxiety and difficulty settling in.

Keywords: student, peer, mentor, retention, intervention, anxiety

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Introduction

In an Irish context it is estimated that 15% of students in higher education do not complete the university courses in which they enrol (Higher Education Authority, 2010). There are a variety of contributing factors influencing student retention, such as socio-economic background, lack of career guidance in secondary school and mismatched expectations (Moore, 2004). Poor adjustments to the challenges and demands of third level education can also be influential on the decision for students to drop out (Moore, 2004). In order to support students in meeting these challenges and increase student completion rates at third level, it has been recommended that peer supported learning systems be employed (Mahdi, 2004; Carthy and Slattery, 2015). This is also in line with The National Strategy for Higher Education to 2030, which proposes that “Higher Education Institutions should prepare first-year students better for their learning experience, so that they can engage with it more successfully” (Department of Education and Skills, 2012, p. 56). One approach that has been adopted in Irish universities is the implementation of peer mentoring programmes targeted at incoming students, which is argued to be viewed as a “retention and enrichment strategy for undergraduate education” (Jacobi 1991, p. 505).

Peer Interventions

The idea of education and learning derived from peer interaction has developed in importance over the years, with studies showing the positive benefits of peer education in a number of areas such as social and emotional development (Harmon, 2006), academic accomplishment (Astin, 1993) and retention rates (Potts, Schultz & Foust, 2003). These

variables are crucial elements to the social engagement and social connectedness of students within a university setting. The importance of peer interaction and learning cannot be ignored. Astin (1993, p. 398) states that “The student’s peer group is the single most potent source of influence on growth and development during the undergraduate years”.

A number of strategies and practices have been identified to support students during first year orientation. Some practices such as induction programmes, reading programmes, service learning and problem-based learning along with the development of student services are often incorporated into first year experience support programmes (Upcraft, Gardner, Barefoot and Associates, 2005). Some first year experience programmes have been identified as high-impact practice interventions to improve student engagement (Kuh, 2005). For example, inter group dialogue sessions can be utilised as a strategy for diverse social identity groups to work towards an equitable society (Nagda, Gurin, Sorensen & Zúñiga, 2009). Finally, evidence from the literature shows a large impact for peer education as an effective educational practice, providing multiple opportunities to develop and synthesize their skills (Kuh, 2008).

Peer Mentoring

The lack of a single operational definition of peer mentoring makes it difficult to pin down exactly what this concept involves. Budge (2006) claims that the use of mentoring has been applied in a variety of settings inconsistently, which creates a difficulty in identifying best practices and attempting to evaluate programmes. However, there are models that have been identified in the literature. For example, the apprenticeship model of mentoring, which involves first-hand experience of working with an experienced practitioner (Kerry & Shelton Mayes 1995, p. 18). The competency model adopts a systematic skills approach, where pre-defined competencies are developed through mentor observation and feedback. Another approach to

mentoring is the reflective practitioner model approach. This model allows mentors to direct mentees to reflect on their learning through formal mentoring (which can involve planned meetings, organised mentor to mentee pairings and set target goals).

Previous research has found that peer mentoring can be beneficial to first year students both socially and academically (Andrews & Clark 2011; Fox, Stevenson, Connelly, Duff & Dunlop 2010; Topping & Ehly 2001). For example, research has demonstrated that the provision of peer mentoring to first year undergraduate students can lead to increased levels of academic attainment and decreased levels of attrition (Carthy & Slattery 2015). Specifically, research evidence supports the assertion that a key advantage of the provision of peer mentoring is that it promotes a sense of social belonging for students. It is suggested that this may positively impact academic performance and help decrease attrition rates (Kelly 2001; Kingston 2008; Roberts, Clifton & Etcheverry 2001).

The following is an evaluation of the effects of a peer mentoring programme on students' perceived levels of academic anxiety and ease of 'settling in'. This programme adopted a model loosely derived from the reflective practitioner model referring to a supportive mentorship involving an exchange of knowledge or experience between the mentor and the mentee.

Note: In the academic year 2014-2015 an initial, smaller scale pilot study was conducted with students from three courses in the college's business faculty alone. Analysis suggested that the mentoring programme resulted in a statistically significant decrease in the attrition rate for one of the groups involved and a statistically significant increase in GPA for another group (Carthy & Slattery, 2015). It was therefore decided to conduct this larger scale pilot with students from a wider range of programmes and if successful, the mentoring programme will be extended to all incoming first year students in subsequent years.

Methodology

The principal purposes of this study were to gather demographic information of first year students engaging with a peer mentoring programme in an Irish Institute of Technology and to observe the effects of the programme on perceived levels of academic anxiety and ease of settling into first year. The study employed a non-experimental between groups design with quantitative measures.

Participants

Participants were comprised of first year students who took part in a peer mentoring programme in the academic year 2015-2016. As a pilot programme, this study involved a sample of 389 first year students drawn from the four subject areas with the highest levels of attrition, namely horticulture, business, engineering and computing. Of these students 156 participated in the qualitative survey (121 men and 34 women) with 24 aged 17 years or younger, 98 participants between the ages of 18-20, 20 between 21-29 years and 14 participants 30 years or older.

The Peer Mentoring Programme

The peer mentoring programme consisted of six weekly mentoring lunches that were themed and ran across the first six weeks of the first term of the academic year. Further details are provided below. The aim of this programme was to support first year students in academic programmes with high levels of attrition. These academic programmes were identified from 2014-2015 attrition rates. The mentors in the programme were initially recruited across four different subject areas; business (n=10), engineering (n=10), horticulture (n=3) and computing (n=23). Additional mentors were required where numbers were insufficient resulting in recruiting mentors from social care (n=5). The mentors volunteered their time to participate in

training as well as the mentoring programme - they did not receive any compensation for their involvement.

Recruitment of mentors was primarily conducted by delivering addresses to the relevant streams of students in lectures. Information pertaining to the programme was shared which outlined the time commitment, training and professional benefits for volunteering. Students were informed that their involvement would be voluntary in nature and that they would receive a certificate of completion at the conclusion of the programme. This certificate was designed to outline the competencies that mentors developed across the span of the programme, including leadership skills, communication skills and teamwork skills. It was highlighted that these skills would provide the students with a rounded university experience which they could refer to when entering competitive job markets.

Training was provided to the students prior to the commencement of the programme. This training was designed primarily to provide students with information on the running of the programme and their role as mentors. The topics covered in the training included sample scenarios, active listening and an overview of the college's child protection policy. The mentors also received a pack with a weekly briefing folder, business cards with their student email addresses on them and a mentoring t-shirt which they were encouraged to wear at the mentoring lunches. The mentors were also encouraged to engage and promote to their mentees an online Facebook page which was designed to support any additional questions and support engagement with the programme. Mentors were then assigned to groups of between 6-10 incoming first year students. All of the mentees in each group were randomly assigned from the same subject area which enabled students to share experiences whilst also encouraging students to mingle and broaden their social circles.

The Peer Mentoring Programme was designed by an educational consultancy firm, Peer Mentoring Resources Limited and consisted of 6 weekly hour-long meetings. The first four meetings took place in the early weeks of the first semester with 2 follow up sessions which took place at the beginning of the second semester. Each weekly meeting covered a particular topic for the students to explore and discuss in their groups. The themes were as follows:

Semester 1

- o Week 1 – Getting organised at ITB
- o Week 2 – Getting to know your lecturers and the SU
- o Week 3 – Supporting you in ITB
- o Week 4 – How to study effectively for top marks in your assignments

Semester 2

- o Week 5 – Getting exam results – what next?
- o Week 6 – Planning ahead – second year and beyond

An important element of the programme was that support was provided primarily by student peers. Students had access to a range of formal support mechanisms. However, the purpose of the peer mentoring sessions was to allow students to discuss issues or concerns in an informal manner with peers. Essentially, it was hoped that students would benefit from hearing directly from other students who had recently navigated their way through first year and could act as positive role models. There were also questions that it is likely students would prefer to have answered by fellow peers rather than academics or support staff. Nevertheless, during each weekly session the mentors and mentees were facilitated by a peer mentoring coordinator and supported by an academic contact. The academic contacts attended each session and were available to support the students and answer questions or deal with issues they had in an informal

manner. One particular advantage of having an academic contact present was that they could then relay students' concerns and questions back to their departmental colleagues, to address where necessary. Guest speakers were also invited to meetings to speak on a range of topics related to each week's theme. As participation in the programme was voluntary, the numbers in attendance at meetings had the potential to fluctuate. However, students were also given the opportunity to contact their mentors via email or the Facebook group with their questions outside of the weekly meetings.

Data Collection

Mentees completed a questionnaire survey in person at their final peer mentoring lunch, which is included below as appendix 1. In addition to this questionnaire, GPA and attrition rates were measured and further analysis in this regard is ongoing and will be published separately. The primary purpose of the questionnaire was to measure students' perceived levels of academic anxiety, how well they settled into their first year at college and whether or not they had considered dropping out.

Results

The following are findings from questionnaire data, which identify certain patterns or links that emerged between the attitudes reported by the students and factors such as their backgrounds and programme of study.

Anxiety and Settling In

A test for independence was carried out on the relationship between two of the variables on the questionnaire administered to students that have been linked with attrition in previous studies, namely anxiety and difficulty in settling in. The categories 'I found it very hard to settle in' and 'I found it a bit hard to settle in' were combined due to low counts to avoid having too

many cells with expected values less than 5. The counts for this test for independence are shown in Table 1.

Table 1.

	I have felt Very anxious	I have felt a bit anxious	I did not feel Anxious	
I found it hard or very hard to settle in	10	33	3	46
I did not find it hard to settle in.	5	40	56	101
Totals	15	73	59	147

One cell had an expected value count of less than 5. The test for independence on this data was hugely significant (p value of 4×10^{-8}). From observation of the data, it appears that students who did not feel anxious did not find it hard to settle in. Those who reported feeling somewhat anxious are evenly divided among those who reported finding it hard to settle in or not and those who felt very anxious mostly found it hard to settle in. This suggests that while the levels of anxiety and the difficulty in settling in are similar variables, the overlap is not total. Students appear more likely to experience anxiety than difficulty in settling in; the latter is a stronger reaction. The proceeding analyses examine how these two variables interacted with information about the students coming from the questionnaire.

The Roles of Age and Gender

A test for independence was conducted on the variables of gender and difficulty settling in; the answers “I found it hard to settle in” and “I found it very hard to settle in” were combined as the second answer had very low counts. The Null Hypothesis of a link was not rejected. The same test on a link between gender and anxiety yielded a significance $p = 0.003$ with one cell with an expected value count below 5. This suggested a significant difference between male and female students with respect to perceived levels of anxiety.

Students were divided by age into two groups, those aged up to 20 years old and those aged 21 years and older, due to the small numbers at higher ages. The lowest age recorded was 17 years. Again the levels of anxiety were combined so there are two values of this variable. A test for independence suggested a link between age and reporting anxiety, with $p = 0.0063$. A test of significance regarding age and difficulty in settling in yielded a significance level of $p = 0.0015$. These two tests suggest older students were significantly more likely to report feeling anxiety and to report difficulty settling in.

These results suggested carrying out a three-way test for independence with gender, age (divided into the two groups as before) and reported difficulty in settling in (divided into two groups as before). When this was done, only one cell had an expected value below 5 (2.28); the sample value of χ^2 is 22.3 yielded significance of the order of 10^{-6} , indicated a robust result. See Table 2 for the counts; each cell contains the male and female numbers in the form male/female.

Table 2

	17 to 20	21 and over	Totals
I found it hard or very hard to settle in	22/6	10/8	46
I did not find it hard to settle in.	68/18	16/0	102
	114	34	116/32

The same test was conducted for age, gender and reported levels of anxiety. Only one cell had an expected value below 5 (3.11). A similar strong effect is seen; the sample value of $\chi^2 = 11.95$ yielded significance of the order of 5×10^{-4} , see Table 3. This suggests that there is a combined effect of age and gender with older female students reporting the highest levels of difficulty in settling in and anxiety; of the 8 female students over 21, all reported some degree of difficulty settling in and all reported some anxiety.

Table 3.

	17 to 20	21 and over	Totals
I have felt very or a bit anxious	46/17	19/8	90
I did not feel Anxious	47/9	7/0	63
	119	34	119/34

The Role of Academic Programme

The students surveyed came from four academic programmes in the Institute; horticulture, business studies, computer science and engineering. Analysis revealed a strong link between programme of study and levels of difficulty settling in and anxiety.

A test of significance for reported difficulty in settling in and academic programme, yielded a sample value of $\chi^2 = 10.679$, giving $p = 0.014$., see Table 4.

Table 4

	Horticulture	Business Studies	Computer Science	Engineering	Total
I found it hard or very hard to settle in	5	19	17	4	45
I did not find it hard to settle in.	9	22	41	30	102
	14	41	58	34	147

A test of significance for reported anxiety and academic programme, yielded a sample value of $\chi^2 = 12.973$, giving $p = 0.005$., see Table 5.

Table 5

	Horticulture	Business Studies	Computer Science	Engineering	Total
I have felt very or a bit anxious	10	31	37	12	90
I did not feel Anxious	4	12	23	23	62
	14	43	60	35	152

An initial attempt to test for significance across gender, programme of study and difficulty in settling in was planned. However 5 out of 16 cells had expected values below 5.0. When the academic disciplines were grouped into business and the STEM disciplines (horticulture, engineering and computing) a more robust analysis was possible: the numbers quoted in each cell in Table 6 below are male/female. With this analysis, only one cell has an expected value below 5 (3.88); the sample value of χ^2 is 32.8 yielding significance of the order of 10^{-8} .

Table 6

	Business	STEM	Totals
I have felt very or a bit anxious	15/15	49/10	15
I did not feel Anxious	6/6	47/3	59
	46	101	147

The high significance of these result may be viewed as a function of the disparity in genders pursuing the academic programmes; STEM (engineering in particular) is overwhelmingly male and as per above gender is linked to the level of anxiety students reported.

The Role of Family

A new variable was calculated from the survey data which counts the number of categories of family members who have attended third level education. The categories were father, mother, sibling or child. The interpretations of the values of this variable are listed here:

0. No member of the immediate family was in third level education
1. The student has at least one of sibling, parent or child who have or are in third level education
2. A sibling and a parent, both parents, a sibling and a child
3. The student has a sibling, parent and child in third level education

The variable distinguishes between having two parents with experience of third level education and having two siblings with this experience.

A test for independence was carried out on this 'family' variable and the reported difficulty in settling in, the counts are shown in Table 7.

Table 7

	'0'	'1'	'2'	'3'	<i>Totals</i>
I found it hard or very hard to settle in	11	16	15	4	46
I did not find it hard to settle in.	26	49	22	6	103
<i>Totals</i>	37	65	37	10	149

These counts gave a sample value of $\chi^2 = 3.226$ and so $p = 0.358$, therefore the Null Hypothesis of no link between family and difficulty in settling in is not rejected. A similar result is found from a test for independence on family and levels of anxiety, with two categories of anxiety used, shown in Table 8.

Table 8

	'0'	'1'	'2'	'3'	Totals
I have felt very anxious or a bit anxious	26	34	26	4	90
I did not feel Anxious	15	30	11	6	62
Totals	41	64	37	10	152

This gives a sample value of sample value of $\chi^2 = 4.683$, with $p = 0.196$. Again the Null Hypothesis is not rejected, suggesting no link between family engagement with third level and the anxiety levels of the students.

Opinions of the Mentored Population on the Mentoring Programme

Of a total of 46 students who reported some difficulty in settling in, 41 claimed that the mentoring programme was of benefit and 5 claimed that it was not. Of the 153 participants, 27 students considered dropping out with 3 not answering, leaving 126 who did not consider dropping out.

Students who answered that they had considered dropping out were then asked whether the peer mentoring programme had helped to influence them not to do so. Of 27 students who did consider leaving, 13 said it did change their mind; just under half. Additionally, 9 students who said they had not consider leaving still answered this question, with 5 saying the mentoring programme changed their minds.

Predictors for “Considered Leaving”

For the test for independence on ‘considered leaving’ against reported difficulty of settling in, the ‘hard’ or ‘very hard’ levels were combined as several cells had low counts and expected values less than 5. The test gave a sample value of $\chi^2 = 5.590$, which has a significance of $p = 0.018$., see Table 7.

Table 7

	I did not find it hard to settle in.	I found it hard or very hard to settle in	
I considered leaving in the first few weeks	13	13	26
I did not consider leaving in the first few weeks	89	32	121
Totals	102	45	147

A test for independence on ‘considered leaving’ against reported level of anxiety yielded one cell with expected value of below 5 (3.02). The sample value of $\chi^2 = 11.853$ has a significance of $p = 0.003$, see Table 8.

Table 8

	I have felt very anxious	I have felt a bit anxious	I have not felt anxious	
I considered leaving in the first few weeks	8	12	7	27
I did not consider leaving in the first few weeks	9	61	55	125
	17	73	62	152

These numbers show a strong link between those who considered leaving and those who reported anxiety and difficulty settling in, suggesting anxiety and difficulty of settling in are predictors of considering leaving.

A test for significance across programme of study with respect to students who indicated they had ‘considered leaving’ gave a sample value of $\chi^2 = 10.471$ with a significance of $p = 0.015$, see Table 9. One cell had an expected value below 5 (2.32). This suggests the programme of study does have an impact on whether a student considered leaving.

Table 9

	Horticulture	Business Studies	Computer Science	Engineering	
I considered leaving in the first few weeks	0	14	9	4	27
I did not consider leaving in the first few weeks	13	29	51	31	124
	13	43	60	35	151

Discussion

Results from this study revealed that anxiety levels were reported at a higher level than difficulty settling in. Additionally, female students were more likely to report feelings of anxiety than male students. The results show that there is a link between age and reporting anxiety as older students were more likely to report feeling anxiety and older female students in particular reported the highest levels of difficulty in settling in and anxiety.

Reporting difficulty in settling in and especially anxiety were strong predictors of considering leaving the Institute. However, students also reported a highly positive response to the question on the value of participation in the mentoring programme. Almost half of those who said they considered leaving said the mentoring programme changed their minds.

These results are consistent with those from the previous smaller scale pilot study that was conducted the previous academic year (Carthy & Slattery, 2015). As a consequence of the positive findings from both this study and the previous pilot study that has been conducted at this college, peer mentoring was provided to all incoming first year students for the academic year 2016-2017 and the impact of the programme on GPA and attrition rates is currently being analysed. The results from this study are also consistent with those from previous studies that have been conducted internationally (Andrews & Clark 2011; Fox, Stevenson, Connelly, Duff &

Dunlop 2010; Topping & Ehly 2001). For example, Andrews and Clark (2011) reporting on the results of a study conducted across three UK universities (Bangor, Aston and Sheffield) found that the provision of peer mentoring on a college wide basis at each institution yielded a number of key results. Quantitative analysis revealed that attrition rates were significantly lower at each institution than the national average and qualitative studies additionally confirmed that students believed that peer mentoring enabled them to develop the capacity to learn independently and to make social connections. Collectively, these findings support the notion that peer mentoring could be an effective means of supporting students social and educational development and suggest that further study should be conducted in this area.

One of the key strengths of this study is that mentoring was provided on an opt-out basis, whereby all incoming students in designated classes were targeted. This meant that every student was provided an optimum level of support and mentoring was perceived as normative and inclusive. In this regard Andrews and Clark (2011) claim, “University-wide ‘opt-out’ programmes in which peer mentoring is offered to all new students, are particularly successful because in capturing the whole population of new starters peer mentoring is not viewed by students as a ‘deficit model of provision’ but is instead seen and accepted as part of the university culture.” (p. 9). Arguably, the most important strength of this study is that it has shown the potential value of providing a student mentoring programme to incoming first year students. Traditionally, there has been an emphasis on delineating the negative predictors of school related outcomes and so, “Determining which variables ‘positively’ influence the trajectories of these students’ school-related outcomes has important implications for developing successful intervention and prevention programs in all countries and among all cultures.” (Edwards, Mumford & Serra-Roldan 2007, p. 30).

This study was also subject to some limitations. Firstly and most importantly, as this study was a pilot and targeted just a subset of first year students, it is not feasible to generalise the results to all first year students. Also, as just one previous study has been conducted in an Irish context that has attempted to assess the impact of the provision of mentoring on key academic variables, which this study builds on, much further replicative research will be required to add to the findings of this research.

Based on the findings from this research, it would be pertinent to further investigate gender differences with respect to levels of academic anxiety and difficulty settling in. Future research could also assess the extent to which the impact of mentoring is sustained over time. There may for example be a delayed reaction whereby improvements in GPA and attrition rates are only seen in the second semester of first year, or in contrast, initial improvements may dissipate without further exposure to mentoring throughout first year, or beyond. Investigation into the intervention of a peer support programme on the mental health of student populations would also be worthwhile. Indeed the development of school-based interventions that promote and support help-seeking skills among young people has been recommended in an Irish context (Cannon, Coughlan, Clarke, Harley & Kelleher, 2013). Additionally, there is an identified inconsistency in the literature regarding peer support programmes and terminology. A review of the literature would be invaluable to identify universal terminology as this would benefit future evidence based peer support interventions.

Conclusion

The findings from this study show that anxiety and difficulty settling in are significant factors that influence a student to consider dropping out during the first year of their course in an Institute of Technology. Age and gender are also influential, with mature students more likely to

experience anxiety and females more likely to experience difficulty in settling in and anxiety.

These are factors that can be taken into account when developing first year experience initiatives in the future. Overall, participants in this study claimed that they believe it was beneficial, with a significant number of students identifying the programme as a factor which influenced them to continue their education past first year. This suggests that peer mentoring programmes may act as strategies for retention in Irish Institutes of Technology.

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Appendix 1 – Questionnaire Template