Student retention trends within a health foundation year and implications for orientation, engagement and retention strategies

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This study explores implications of a retention rate trend conundrum involving two first year student cohorts exposed to new and similar orientation and engagement initiatives within a health foundation year. The retention rate for one of the cohorts decreased by 10% in the past three years, whereas the retention rate for the second cohort increased by 15% over the same period. Additionally, the retention rate for the entire Health Group increased only marginally during the same period. The presented trends highlight the complexity of the task of designing effective orientation and engagement plans that meet the expectations, needs and wants of all students. For students who experienced a smooth transition, the most positive factors that helped with their transition in prioritised order include: academic resources provided for courses (e.g., lecture notes); sense of community; non-academic Mentor programs; and academic staff (e.g., quality of teaching and being approachable to ask questions).

Introduction

The transition from high school to first year university can present a broad range of challenges to an individual student, challenges which ultimately can influence student engagement and retention (Australian Council for Educational Research [ACER], 2008; Pan, Guo, Alikonis & Bai, 2008; Pascarella & Terenzini, 2005; Yorke & Longden, 2008). Indeed, ACER (2008) describes the challenges as forming a "complex web" and stresses the importance of not over simplifying this field of research. Kift (2008) further highlights the "substantial challenge" faced by those working to improve student engagement and retention by highlighting that associated improvement strategies should be applied in an integrated, institution-wide approach, a notion that lies well with a number of comprehensive retention strategy models (e.g., Beatty-Guenter, 1994; Tinto, 1975). The complexity of the situation is well summarised by Kuh et al. (2005) and Kuh (2007) in their assertion that for such a necessarily institution-wide approach, no hard and fast blueprint exists for student success: *"a unique combination of external and internal factors work together to crystallise and support an institution-wide focus on student success"* (Kuh et al., 2005, p. 21).

With appreciation of the above, the present study initially adopts an uncomplicated approach to orientation, engagement and transition issues by focusing on a specific cohort of students who found transition relatively easy, and the most positive factors that made their transition easy. The rationale behind this initial approach is based partly on the fact that there will always be a significant cohort of students who, for a broad range of reasons, will fall within an "at-risk" category and/or experience hurdles during their transition, and thus be likely to benefit from *individualised* attention from an integrated, institution-wide network of First Year Advisors, Mentors, peer support, student services and learning services. Hence, by

identifying the most positive aspects influencing a smooth transition for a significant cohort of students one can at least make certain that these aspects form the minimum elements of any such support network, and also provide important information for those with limited network implementation resources to ensure that the experiences of those students who do not require individualised attention are maximised. Despite the subtle dissimilarity with some studies which focus on students who experience transition difficulty, the identification of the most positive factors affecting transition for a specific student cohort is of course not unique to the present study, as demonstrated for example by: (i) the comprehensive ACER (2008) report showing strong correlations between educational outcomes and academic challenge, staff-student interactions and a supportive learning environment; (ii) the likewise comprehensive multilevel longitudinal study of Pan et al. (2008), showing that early intervention, academic-help and social interaction programs can assist retention and/or grade point average; and (iii) the well known Tinto (1975, 1993) notion that learning and persistence within an institution are aided when the student is academically and socially connected with the institution.

Positive transition factors under consideration by the present study include:

- Academic preparedness from high school
- Academic resources provided for courses (e.g., lecture notes, web-based resources)
- Academic staff (e.g., quality of teaching and being approachable to ask questions)
- Attending and engaging in classes
- Community (friends for social and academic support)
- Degree structure and required academic workload
- Family support
- Non-academic Mentor programs
- Orientation program (including making academic expectation clear from the outset)
- Private tutoring (including academic mentoring)
- Sibling attends or has attended university
- Stable accommodation and financial environment.

The present study examines a cohort of first year Bachelor of Exercise Science and Bachelor of Exercise Science/Physiotherapy students who had just completed their foundation year within Griffith University's Health Faculty, known as Griffith Health. The latter double degree students enrol in one extra course in first year, but otherwise study the same first year courses as the single degree students. During the health foundation year, the student cohort has access to a formalised orientation, engagement and retention plan coordinated by the School of Physiotherapy and Exercise Science's First Year Advisor and overseen by the Dean of Learning and Teaching, Health to ensure some commonality between plans of the various Health Schools participating in the foundation year. Since approximately 2006, Griffith Health has been recognised for its leadership within Griffith University for its implementation of orientation, engagement and retention initiatives based on key University findings and reports (e.g., Griffith University Student Orientation and Engagement Committee 2006; Lizzio, 2006). The orientation, engagement and retention plans for the various foundation year Schools have accordingly become increasingly formalised since that time and continue to work towards exemplars of best practice, e.g., Wilson (2007).

Of all of the Schools within the health foundation year, the targeted School of Physiotherapy and Exercise Science obtained the highest student evaluation scores in 2008 for academic expectations being made clear at School orientation (79.1% agreed or strongly agreed that

expectations were made clear compared to the average 75.0% for all foundation year Schools) and the second highest score for School orientation being well organised and structured (81% agreed or strongly agreed that orientation was well organised and structured compared to the average 77.2% for all foundation year Schools).

The School of Physiotherapy and Exercise Science is the largest of the health foundation year Schools, with students within the Bachelor of Exercise Science and Bachelor of Exercise Science/Physiotherapy degree programs representing a wide-ranging student demographic in terms of their individual university entry score. In Queensland, the State location of Griffith University, the university entry score is known as the Overall Position or OP score, which ranges from 1 to 25. Students with OP scores of 1 and 2 typically compete for places in undergraduate programs of demand such as medicine and physiotherapy. In Australia these OP scores equate to interstate transfer indices, known as the UAI, ENTER or TER depending on the State or Territory, of 99 and 98 respectively, where for example 98 signifies a student being in the top 2% of the year 12 population. Throughout this study, descriptors such as an increase in or higher OP infer a decrease in academic performance.

Despite the exemplary leadership of Griffith Health within Griffith University in the areas of student orientation, engagement and retention since 2006, Figure 1 shows that on average retention within Griffith Health has increased only marginally since that time and the increase has mirrored that of Griffith University's overall marginal increase[1]. Figure 1 is discussed in detail later, but what is of immediate interest to the present introduction is that despite the implementation of strong orientation, engagement and retention strategies by the School of Physiotherapy and Exercise Science and by all Schools of the health foundation year, and various student cohorts being exposed to similar orientation and engagement opportunities, one observes widely varying retention rate trends between cohorts. In particular, in Figure 1 retention rates seemingly respond quite positively to implemented strategies for the Bachelor of Exercise Science/Physiotherapy program, negatively for the Bachelor of Exercise Science program, and inauspiciously overall for Griffith Health as previously noted.

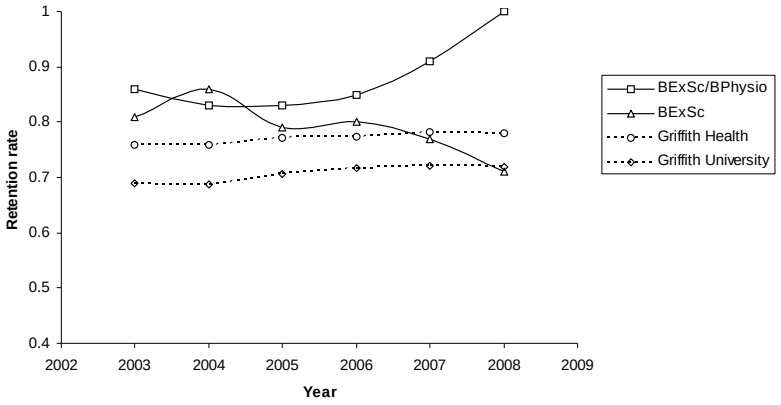

Figure 1. First year student retention rates from 2003 to 2008.

[1] The stated retention rate for 2008, for example, gives the percentage of 2007 first year students that successfully progressed to second year in 2008, and so on for rates of the other specified years.

The retention data of Figure 1 further highlight the "web of complexity" referred to previously. Why the retention for Bachelor of Exercise Science students has declined so appreciably (≈-10%) since 2006, when substantial time and resources have been invested in orientation, engagement and retention initiatives since that time, will be of interest to all who run such programs and indeed provides the primary motivation for the present study.

Finally, the present study aims to filter evaluation data to study the subset of students who meet the criteria of (i) experienced an ease of transition; (ii) achieved an OP score of 3 or greater (3+); and (iii) rated their senior schooling as not having prepared them well for university. This unique subset is diagrammatically represented by Figure 2.

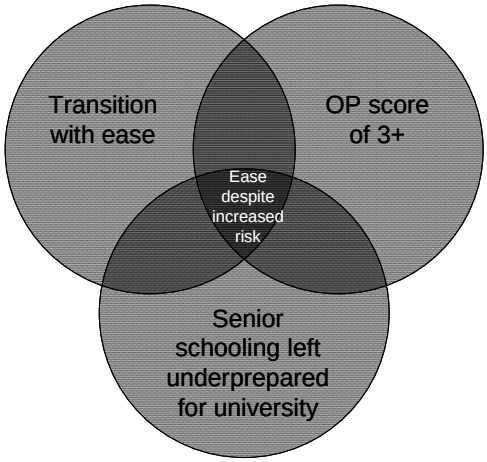

Figure 2. The central subset represents students who experienced a smooth transition to university but who, due to their perceived inadequate preparedness by senior schooling and OP score, could be considered to be at relatively greater "risk" of experiencing a difficult transition.

The student subset represented in Figure 2 is of particular interest since high achieving OP 1 and 2 students can in general be expected to experience an easier transition than OP 3+ students (though this statement is very much a generalisation and OP 1 and 2 students may still experience a difficult transition as the present study will reveal). So knowledge of primary factors which make transition easy for all but the highest achieving students is valuable in terms of establishing the essential elements of any orientation, engagement and retention program. This point is especially true for the significant subset of students who feel that their senior schooling has left them academically underprepared for first year university.

In summary, although findings from previously-mentioned and other studies are suggestive of what "usual suspects" will promote a positive transition, the specific question of "what was the most positive factor in helping your transition from School to University", which has not been specifically asked to the student cohort of the health foundation year at hand, provides important information in terms of establishing the minimum basic elements of any related support network, especially if desired strategic outcomes are confounded by competing factors, as will be discussed in relation to Figure 1. The devotion of additional time and support resources to students who require more individualised attention of course remains paramount.

Method

A short transition survey was distributed to the full-time first year Exercise Science and Exercise Science/Physiotherapy cohort (n=130) enrolled in a major foundation year course at the end of their 2008 health foundation year. The mode of study for these students is based on traditional campus contact, as opposed to on-line. Transferring students with credit from other tertiary institutions were not included in the survey. The OP score of each participating student, provided independently via a University entry statistical database, was matched to her/his completed survey via disclosed student identification details that were appropriately kept separate from survey responses. The survey consisted on the following questions:

1) Rate from 1 to 5 the ease of your transition from School to University (1=transition with ease)
2) Rate from 1 to 5 whether your transition was easier than expected, about as expected, or more difficult than expected (1=much easier than expected)
3) Rate from 1 to 5 how well your senior schooling prepared you to take on 1st year university study (1=well prepared by schooling)
4) What was the most positive factor in helping your transition from School to University?
5) What main factor would have greatly helped your transition?
6) What main factor hindered your transition?

For comparison with the Bachelor of Exercise science/Physiotherapy cohort, the survey was also completed by a cohort (n=14) of high-achieving Queensland Academy for Health Sciences students, whose high school curriculum is based on an International Baccalaureate program, and who had just undertaken their first University course at Griffith Health within a Health Studies Certificate. t-test analysis was applied to ease of transition distribution data between the two cohorts, with the assumption that distributions were approximately Gaussian.

Results

All results exclude the above Academy students unless otherwise stated. The average±SD OP score for all responding students is 7.1±5.1, with scores ranging from 1 to 21. Figure 3, based of survey question 1, gives the average ease of transition versus OP scores for all respondents, with standard regression analysis revealing an R^2 value of 0.134. Consequences of the weak correlation of Figure 3 are discussed in the next section. The correlation between ease of transition and grade point average (graph not shown) was extremely weak at R^2 = 0.07.

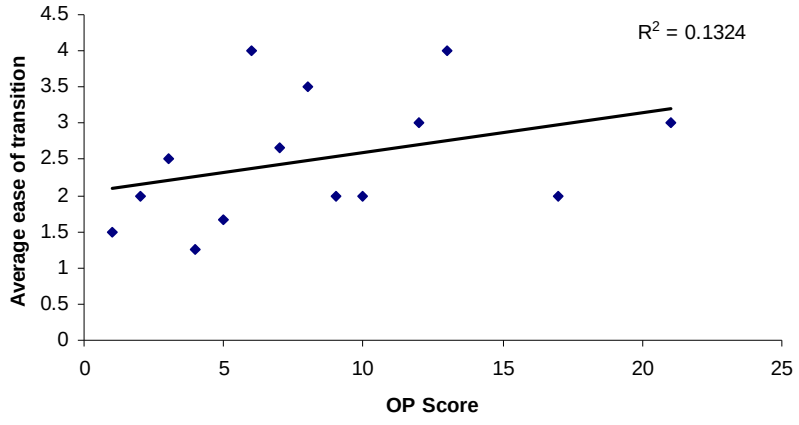

Figure 3. Average ease of transition versus OP score for all survey respondents.

Of the respondents, 27 students (21% of cohort) responded with a 1, 2 or 3 to survey question 1 (i.e., these students experienced an easy *n*=7, relatively easy *n*=11 or average *n*=9 transition experience), and it is this sub-cohort of students, from this point referred to as smooth transition (ST) students, on which the study directs its focus. The cumulative survey responses to the question, *what was the most positive factor in helping your transition from School to University?*, for the ST group are summarised in Table 1. In responding to this question, students were encouraged to nominate one main positive factor. However, if a student was evenly split between factors they had the capacity to express multiple factors (which were fractionally added during the cumulative process so that a single student did not have more "votes" than another).

The above survey results were then filtered further to identify ST students who felt a lack of preparedness from high school (i.e., responded with either a 4 or 5 to survey question 3), and who achieved an OP score of 3 or above, to generate a subset of ST students who could be considered to be at relatively greater "risk" of experiencing a difficult transition, as per Figure 2. The cumulative responses for this subset are given within Table 2. When filtering constraints are tightened further so as to include only students with an ease of transition of 1 or 2 (i.e., filtering out students with a transition ease score of 3), the remaining single most positive transition factor identified by students is that of Academic resources.

Table 1. Most positive factor in helping with transition from senior school to university for students who experienced a smooth transition

Positive transition factor	Relative score	Positive transition factor	Relative score
Academic resources provided for courses (e.g., lecture notes, web-based resources)	1.00	Academic preparedness from high school	0.33
Community (friends for social and academic support)	0.92	Attending and engaging in classes	0.22
Non-academic Mentor programs (both School- and University-run)	0.92	Family support	0.22
Academic staff (e.g., quality of teaching and being approachable to ask questions)	0.67	Private tutoring (including academic mentoring)	0.22
Orientation program (including making academic expectation clear from the outset)	0.52	Stable accommodation and financial environment	0.12
		Degree structure and academic workload	0.11
		Sibling attends or has attended university	0.07

Table 2. Most positive factor in helping with transition from senior school to university for students who experienced a smooth transition and who achieved an OP score of 3 or above and who felt that their high school studies did not sufficiently prepare then for university.

Positive transition factor	Relative score
Academic resources provided for courses (e.g., lecture notes, web-based resources)	1.00
Non-academic Mentor programs (both School- and University-run)	0.83
Academic staff (e.g., quality of teaching and being approachable to ask questions)	0.5
Community (friends for social and academic support)	0.44
Private tutoring (including academic mentoring)	0.25

No significant difference was found in the comparison with Queensland Academy for Health Sciences students in relation to ease of transition (t=1.67, df=22, p<0.2).

Identified factors that most negatively impacted on transition experiences, according to survey question 6, were expectedly wide-ranging and included: moving from interstate or a long distance from home; lack of general university knowledge such as how the public transport works, where to park, how to find books in the bookshop; lack of knowledge of university life; academic workload; travel time to university; conflicting and demanding timetables; lack of self confidence; not knowing what to expect; difficulty in meeting new people and time taken to make friends; poor preparation by high school; difficulty in finding accommodation and employment; different style of learning required; examination content compared to high school.

Discussion

The R^2 = 0.13 value of the regression analysis of Figure 3 is expected. Viz., The R^2 value suggests that the correlation between ease of transition and student OP is weak. However, in accordance with the standard definition of R^2, its value also indicates that 13% of the variation in ease of transition is directly attributable to corresponding variations in OP score, i.e., a relatively good OP will equate with an ease of transition approximately 10% of the time, however 90% of the time an ease of transition is not “predetermined” by OP due to the complexities previously discussed (and more generally due to the fact that academic success at school will never exclude the prospect of having to overcome tertiary adversity). The extremely weak correlation, R^2 = 0.07, between ease of transition and grade point average is not surprising. Pan et al. (2008) do find that social interaction programs can improve grade point average but only in selective colleges. Furthermore, it is not uncommon for a student to overcome adversity to achieve high grades, while some students associate simply passing with academic success (as is appropriate) and may or may not have achieved passing grades with relative ease, again supporting expectation of the weak correlation.

In Figure 1, the widely varying retention rate trends between the identified Griffith Health programs since 2006, during a period where all students were exposed to similar and substantial time and resource investments within new orientation and engagement initiatives, is of much interest. The marked retention rate increase (≈+15%) for Bachelor of Exercise Science/Physiotherapy students and corresponding marked decrease (≈-10%) for Bachelor of Exercise Science students are thought to primarily be due to factors related to differences in (i) OP score and academic preparedness; (ii) student numbers and identify issues; and (iii) perceptions of value, respect and connectedness to one's School and intended profession. These likely factors will now be discussed.

From past discussion, OP score cannot be cited as a major determinant of a student's perceived level of transition ease. However, one should be mindful of the subtle yet important distinction between ease of transition and retention. A student that is more academically robust, but who experiences a difficult transition, is more likely to persist than a less academically robust student who experiences a difficult transition. Since 2004, the maximum OP entry score for the Bachelor of Exercise science has continuously increased each year from 7 to the present 16, while the OP cut-off for the Bachelor of Exercise Science/Physiotherapy has remained relatively low and constant. Pan et al. (2008) found that for those students who are better prepared for university, social interactions with faculty, staff and peers are more likely to enhance retention. Given that OP score has a significant overlap with academic preparedness, the above finding by Pan et al. (2008) may partly explain why the retentions rates of the two cohorts in question respond so differently to similar orientation and engagement initiatives. Pan et al. (2008) also state that for underprepared students, focus on academic help may be more beneficial, while still acknowledging social interaction to be important. Accordingly, *Academic* Mentoring was recently introduced for first year Bachelor of Exercise Science students, highlighting the necessity for ongoing refinement of orientation and engagement practices if the needs of some students are not optimally being met. Finally, the Tinto (2009) reminder that the desire by academics for "better students" is not uncommon and an unavoidable consequence of the current direction of higher education is timely, as it highlights the importance of not using OP and similar scores, which are outside of academic staff control, as a reason to stop trying to maximise student success.

Between 2005 and the implementation of the health foundation year in 2007, the number of students enrolled in the Bachelor of Exercise science continuously increased each year and, with the implementation of the foundation year, these students went from lecture sizes of the order of 100 to the order of 600. Additionally, prior to the foundation year, several first year courses for the Bachelor of Exercise Science students were hosted by their own School and School staff. However, after foundation year restructuring only one first year (second semester) course remained hosted by their School and School staff. Issues of on-campus identity and connectedness to one's School, academic program and intended profession, have for some time been recognised as challenges faced by those convening the Bachelor of Exercise Science. The Bachelor of Exercise Science/Physiotherapy, with significantly lower enrolment figures, by comparison is generally perceived as more prestigious (with strong competition for internal transfers from the Bachelor of Exercise Science), and has a very clear on-campus identity with a well-defined career pathway and student links to the Australian Physiotherapy Association leading to a strong sense of community. Similar comments may be said of, and expectations of high retention set for, the cohort of Queensland Academy for Health Sciences students (with similar ease of transition scores to Bachelor of Exercise Science/Physiotherapy students) who formed a close and supportive on-campus community

and who have clear career pathway goals into (primarily) medicine and physiotherapy. While many dedicated staff are mindful of the importance of addressing identity, connectedness and community issues for the Bachelor of Exercise Science cohort, and indeed specific targeting strategies have been attempted (e.g., social events and free student membership to the Australian Association for Exercise and Sport Science, the relevant professional body), it seems again that the generally less academically robust Bachelor of Exercise Science students are more susceptible, in terms of persistence, to identity issues associated with anonymity within large student numbers and lack of School connectedness that can be associated with a large cohort foundation year. Perhaps the observed effect is best summarised by Levitz, Noel & Richter (1999) who suggest that retention can be used as a measure of how valued and respected students feel on campus (and additionally a measure of student growth and how effectively the campus meets student expectations, needs and wants). Thus, it is essential that a School makes as strong a personalised connection with its students as possible from an early stage (Krause, 2009) and, wherever possible, additionally embed connection enhancement strategies within curriculum.

From a different perspective however, Figure 1 in part also suggests that statistical outcomes alone can make a strategic plan to implement best practice appear ineffective and in turn be disheartening to staff despite their best and wholehearted efforts, perhaps even leading to staff attrition in these roles[2]. Whereas in reality, a large number of students may benefit greatly from implemented strategies despite seemingly contradicting statistical outcomes which may be heavily influenced by competing and increasingly compounding external factors, such as those discussed, that are largely out of the control of academic and support staff in key first year roles. For the students who experienced a smooth transition, the most positive factors that helped with their transition in priority order include: quality of academic resources provided for courses (e.g., lecture notes, web-based resources); sense of community (friends for social and academic support); non-academic Mentor programs (both School- and University-run); and academic staff (e.g., quality of teaching and being approachable to ask questions). A deeper insight into the family background of participating students was beyond the scope of the present study but it is acknowledged that such issues may also play a role in retention differences between the cohorts under investigation.

Conclusion

Despite student exposure to similar new orientation and engagement initiatives over recent years, retention rates have varied markedly for some health programs, highlighting the complexity of the task at hand and the fact that no-one-plan-fits-all. Such plans, especially for academically and socially non-robust students, thus require continual refinement, e.g., in the area of academic support, to face external competing challenges often outside the control of first year academic and student support staff. For students who experienced a smooth transition, the most positive factors that helped with their transition in priority order included; provision of quality academic resources, sense of community, non-academic Mentor programs, and academic staff. For the student cohort under investigation, these identified positive factors should form the minimum elements of any strategies applied in an integrated, institution-wide approach, but do not exclude additional academic, learning and social support that may be required on a more individual basis by some students.

[2] Delvin (2009) warns of staff burnout, and the total retention of approximately 60% for First Year Advisors within the health foundation year over the past two years is less than the retention rate of the students.

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