INTERNATIONAL STUDENTS: DOES ATTENDANCE AS AN INDICATOR OF INVOLVEMENT CORRELATE WITH ASSESSMENT PERFORMANCE?

David Hamilton, Leone Hinton & David Qian
Central Queensland University

ABSTRACT

This paper provides insights into productive patterns of approach to study and a way of framing successes for international students. It reports the preliminary analyses of data on attendance, performance and student course evaluations and seeks to determine relationships between them.

KEYWORDS

international students, attendance, student results, performance, evaluation

INTRODUCTION

Studies reviewing the relationship between student attendance and performance are plentiful and the result appears to be intuitive – if students do not attend classes they will not gain the full benefits of their programme. The reasons for poor attendance are not well researched or easy to determine as it is a complex and sensitive issue. A student who has poor attendance may be regarded as poorly motivated, but this need not necessarily be the case. A measure of total term attendance, such as an average or percentage of all weeks in the term, does not take into account the variation in activities and their value, from a student perspective, of different parts of the term. These include: the ‘scene setting’ at the beginning; the pace established during the term; the preparation in the weeks preceding each in-term assessment task; the systematic and continuous build up of the student’s knowledge base over the term, and the preparation for a major end of term exam. This paper describes a study that explores the notion of attendance, correlating this to grades received. The study aims to ascertain the importance of attendance for positive student outcomes at a international campus of a regional university in Australia. It demonstrates that the early weeks are especially critical for success in a term and provides an insight into how students can optimise their chances of success and establish patterns of learning which will serve them well in future. This paper highlights strategies for success of international students as part of framing futures for lifelong learning.

The study

The study analyses the relationship between attendance patterns for international students over the term for different types of course and assessment and association with student opinions of the course and teaching in each case. It uses data from four courses to determine relationships between attendance, performance (in both assignments and exams) and student perceptions of the value of the course design and teaching. We worked on the premise that these may show a relationship as attendance in university classes is largely the voluntary decision of the students and they will make this decision largely based on their perception of the value of the teaching to them.

Universities in Australia commonly permit late international enrolments up to 2 weeks after the commencement of classes, either for the whole term or individual changes (drop/adds). At Central Queensland University (CQU) students may enrol as late as the end of the second week and some do. The university’s international campuses provide individual academic consultations with each international student, new and continuing, at enrolment at the beginning of each term, effectively reducing the proportions of drop/adds. By using the date of enrolment as a further parameter we could establish which students had substantially missed the first week or the first and second weeks of term, both tutorials and lectures. This is confirmed by attendance data for the same weeks. From this data we extracted an average tutorial attendance for the term and attendance in all classes, lectures and tutorials, in the first two weeks. The focus on the first two weeks of term followed an earlier study (Hamilton and Hinton, 2008 submitted for publication) showing that missing one or both of the first two weeks of a course (for similar cohorts of students) had a significant impact on their term performance. We proposed that these early weeks would be important for scene setting and clarifying the requirements of each course and the expectations of academics. Yorke (1997) used this assumption in his work on success factors for student retention. These early weeks would also be seen as vital for preparation for early assessment tasks. We also believe that this time will be especially important for international students as they would often need sound grounding to get established in subjects each term.
BACKGROUND

Much of the literature on international students focuses on supposed differences in learning styles, competition to attract enrolments and the appropriate English standards and student capabilities for successful study in Australia to succeed (Langan, Shuker, Cullen, Penney, Preziosi & Wheater, 2007). Other literature identifies that Australian university curricula struggles to meet the learning needs of international students, especially the variety of, and differences in, learning styles, skills and approaches in different learning cultures (Leder & Forgasz, 2004; Harnett, Römcke & Yap, 2004; Guilfoyle, 2006; Leong & Chou, 2002).

There have been numerous studies of the relationship between international students’ attendance and performance at university, with the common conclusion that there is such a link (Durdin & Ellis, 1995; Lamdin, 1996). Others, such as Baldwin, (1994) and Gatherer and Manning, (1998) have not found a strong statistical relationship between lecture attendance and international student performance. Similarly van Walbeek, (2004) found a weak association. Moore, Armstrong and Pearson (2008) have recently conducted a literature review on the benefits of lecture attendance at university and have performed a qualitative analysis of student absenteeism based on comments of the students themselves. The authors believed that an understanding of the basis for absenteeism would assist with efforts to gain greater ‘engagement with higher education learning environments’.

Marburger (2001) found that studies exploring such links used ‘broad measure of academic achievement’ to examine the notions of performance and attendance.

Little focus has fallen on those critical weeks at the beginning of term where, arguably, new students are learning to acculturate to their surroundings, generally finding work and accommodation, transportation, dealing with reality shock and language differences. These issues affect continuing students as well as first year new students.

Yorke (2004) found that students’ evaluation of their subjects had the added benefit of further connecting students with their institution. Undertaking student evaluation is a measure of their persistence, a factor in retention, with attendance being another measure. Yorke proposes that students undertaking subject evaluation will be effectively engaging with the learning context, the learning materials and the teaching team.

Evaluation literature identifies much about the role of the teacher, the course materials, assessment and learning journey but little has been identified that correlates assessment, overall performance, attendance and student evaluation. This paper examines how attendance may affect performance of international students and, in turn, how perceptions of the importance of attending class shape attendance and performance. It also recognises the need to explore the impact of attendance at critical points in the term, rather than just the total attendance for the term.

METHODOLOGY

Data for an international student cohort was collected for 2005 from an Australian International Campus in a major capital city. Representative undergraduate and postgraduate accounting and information systems courses (subjects) were selected. The courses are each offered beyond the first term and selected to be representative of their respective fields.

- They have been labelled as follows:
  - UG informatics – UGIF
  - PG informatics – PGIF
  - UG accounting – UGAC
  - PG accounting – PGAC

The total student enrolment for each of the four courses was used for the analysis, omitting only students who had not completed any assignments or the exam.

Class attendance data was collected weekly for tutorials for the period of study over the twelve weeks of term in each of the four courses. We also used a record of overall attendance (lectures and tutorials) for the first two weeks, including data indicating when the student enrolled.

Cognos PowerPlay was used to mine PeopleSoft student data records for each of the four subjects, whilst maintaining the anonymity of individual students. Each of the four courses has assignment and exam components. We accessed campus results for performance in components of assessment, using categories of combined in-term assessment results and exam results for each course. Only students who had completed all pieces of assessment were included.

Spreadsheets were developed which combined the results and attendance data. Analyses were then performed to determine the correlations between assignment, exam and total (final) results on the one hand and attendance in weeks one and two and average attendance for the term on the other. Tests of degree of correlation between results and attendance in the first two weeks were performed using Spearman’s Rank
correlation analysis (Wessa, 2008). Tests of correlation between proportion of attendance for the term and results were performed using Pearson correlation analysis (Wessa, 2008).

The students completed a Student Evaluation survey form for each course to gain their feedback about the course and teaching. The survey posed questions on a Likert scale. Student Evaluation data was combined for each class, preserving the anonymity of responses, and analysed. The Likert scale responses were converted to numerical values then averaged, a higher average value (up to 5) being more favourable. Since the sample sizes ranged from 14 to 19 returns per course, we have decided not to use this as a statistically valid sample and have therefore not attempted to analyse it for statistical significance. It is only used to indicate student perceptions of the value of the course and of the teaching.

**RESULTS**

Results of the Spearman’s Rank Correlation between attendance in weeks 1 and 2 and assignment and exam results, respectively and Pearson Correlation between term attendance and assignment and exam results, respectively, are presented in Table 1, which shows the level of significance for each comparison.

**Table 1: Level of significance of the correlations between attendance and results**

<table>
<thead>
<tr>
<th>Course</th>
<th>Assessment</th>
<th>Attendance Correlation Coefficient</th>
<th>Significance</th>
<th>Coefficient of Determination</th>
<th>Attendance Correlation Coefficient</th>
<th>Significance</th>
<th>Coefficient of Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>UGAC</td>
<td>In Term</td>
<td>0.0270</td>
<td>NS</td>
<td>0.0007</td>
<td>0.0288</td>
<td>**</td>
<td>0.0008</td>
</tr>
<tr>
<td></td>
<td>Exam</td>
<td>0.1350</td>
<td>NS</td>
<td>0.0180</td>
<td>0.1145</td>
<td>NS</td>
<td>0.0130</td>
</tr>
<tr>
<td>PGAC</td>
<td>In Term</td>
<td>-0.1730</td>
<td>NS</td>
<td>0.0300</td>
<td>0.0759</td>
<td>NS</td>
<td>0.0060</td>
</tr>
<tr>
<td></td>
<td>Exam</td>
<td>-0.1190</td>
<td>NS</td>
<td>0.0140</td>
<td>0.0318</td>
<td>NS</td>
<td>0.0010</td>
</tr>
<tr>
<td>UGIF</td>
<td>In Term</td>
<td>0.3650</td>
<td>***</td>
<td>0.1340</td>
<td>0.2480</td>
<td>**</td>
<td>0.0610</td>
</tr>
<tr>
<td></td>
<td>Exam</td>
<td>0.3590</td>
<td>***</td>
<td>0.1290</td>
<td>0.4230</td>
<td>***</td>
<td>0.1790</td>
</tr>
<tr>
<td>PGIF</td>
<td>In Term</td>
<td>0.4050</td>
<td>***</td>
<td>0.1640</td>
<td>0.4380</td>
<td>***</td>
<td>0.1920</td>
</tr>
<tr>
<td></td>
<td>Exam</td>
<td>0.2020</td>
<td>***</td>
<td>0.0410</td>
<td>0.2830</td>
<td>***</td>
<td>0.0600</td>
</tr>
</tbody>
</table>

**Probabilities**

NS > 0.1  ** < 0.05  *** < 0.001

A summary of the assessment type for each of the four courses is presented in Table 2.

**Table 2: Assessment type for each course, including proportion of mark allocated.**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Type</th>
<th>Marks</th>
<th>Type</th>
<th>Marks</th>
<th>Type</th>
<th>Marks</th>
<th>Type</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assign 1</td>
<td>Program case study</td>
<td>10</td>
<td>Technical simulation</td>
<td>20</td>
<td>Report Wk 5</td>
<td>10</td>
<td>Test (Theory, Probability, Case Study)</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Wk 4</td>
<td></td>
<td>scenario Wk 6</td>
<td></td>
<td>Wk 8</td>
<td></td>
<td>Wk 8</td>
<td></td>
</tr>
<tr>
<td>Assign 2</td>
<td>Program case study</td>
<td>25</td>
<td>Technical simulation</td>
<td>20</td>
<td>Prac Exercise Wk 11</td>
<td>20</td>
<td>Class Participation</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Wk 4</td>
<td></td>
<td>scenario Wk 10</td>
<td></td>
<td>Wk 11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exam</td>
<td></td>
<td>65</td>
<td></td>
<td>60</td>
<td></td>
<td>70</td>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

A comparison of the attendance for weeks 1 and 2, attendance for the term, evaluation average for the questions relating to teaching and the aggregate results obtained for assignments and results obtained for exams are presented in Table 3.

**Table 3: Comparison between attendance, evaluation and results for each course**
DISCUSSION: OBSERVATIONS

The following observations are made for each course.

Undergraduate Accounting (UGAC)
Assessment for this course consisted of a 70% exam and two term exercises, a 10% report and a 20% practical exercise. There was no significant correlation between the level of student attendance in weeks 1 and 2 and performance in either total assignment marks or exam marks. By comparison, total assignment results are significantly correlated with average term attendance whereas exam results were not. Table 3 shows that exam results were poor when compared with the exam results for each of the other three courses studied. Results were more widely distributed for students with lower attendance, a characteristic shared by the results for both undergraduate courses studied when compared with the postgraduate results. This possibly reflects a greater diversity of the background of (international) undergraduates, compared with postgraduates.

Undergraduate Informatics (UGIF)
There were two assessment tasks in this subject totalling 35% and an exam of 65%. The correlation between attendance in weeks 1 and 2 and each of the aggregate assignment, exam and final results were each highly significant. Results were more widely distributed for students with lower attendance, a characteristic shared by the results for both undergraduate courses studied when compared with the postgraduate results. This possibly reflects a greater diversity of the background of (international) undergraduates, compared with postgraduates.

Postgraduate Accounting (PGAC)
The assessment for this course is notable for the inclusion of a term test worth 30% of the marks, with marks for work done under exam conditions totalling 90%. There is no significant correlation between results for assignments or exams, and attendance, whether for overall attendance in the term or in weeks one and two.

Postgraduate Informatics (PGIF)
Assignment, final and total results are all highly correlated with attendance, including both term attendance and attendance in weeks 1 and 2. The assessment tasks in the subject consisted of two assignments of 20%, each with an exam of 60%. Both the assignments were technical simulation scenarios which require significant classroom involvement by students. This course had the highest pass rate of the four courses studied.

Referring to Table 1 and comparing the analysis of correlation between results (assignments and exams) and attendance (the first two weeks and total for the term) reveals that for all but the
undergraduate informatics course (UGIF) the highest level of correlation is between assignment results and attendance. For both UGAC and PGIF this is true for both attendance in the first two weeks and for average attendance for the term. The only exception is for UGIF where the exam results are more highly correlated with total attendance.

In all four courses the correlation is highest between attendance in the first two weeks and assignment results (though not significantly so in the case of the two accounting courses). In each case the correlation is higher between results and total attendance than for results and attendance in the first two weeks.

The aggregate results, taken overall, show that a low or high overall class attendance for the term is associated with low or high average class marks, as expected. A more detailed analysis of individual attendance and performance reveals that the stronger correlation is with assignment marks. This is true of both total attendance and attendance in the first two weeks but greater for total attendance.

Comparing the four courses, Table 3 shows that the undergraduate accounting course UGAC had the lowest attendance and lowest exam results, and student evaluation of the teaching and course was also lowest of the three. By contrast the course producing the highest exam mark, the postgraduate informatics course PGIF, had the highest term attendance and students had the highest opinion of the course and teaching. Results, attendance and student evaluations are all intermediate for the other two courses, postgraduate accounting PGAC and undergraduate informatics UGIF. This preliminary result from the class results of the Student Evaluations suggests that there is a connection between student opinion of their course and their total attendance. PGIF has the highest total attendance and the highest Student Evaluation score, while UGAC had the lowest of each.

Whether students formed an early impression about their course and this coloured their attendance patterns or whether there are other reasons have not been determined, but the relationship between the two and their effect on performance warrants attention. It is planned to widen this work to explore consistencies across campuses and to broaden the scope of the analysis by increasing the number of courses studied. The results also build on our earlier study (Hamilton & Hinton, 2008) emphasising the critical role of the early weeks of the term for student performance. There may be a number of reasons for the importance of attendance in early weeks and this warrants further investigation. We make some suggestions for this below.

**RECOMMENDATIONS**

The findings of our study suggest that students who do not enrol on time or miss classes in early weeks are less motivated to do well their subsequent results. It is expected that students will benefit from the ground work established in the early weeks of term gaining, critically: an orientation to the course and its requirements; early access to resources; and an early start in preparation for assessment. A lecturer will typically clarify their expectation of their class in these early weeks, and clarify their teaching approach; their expectations of students; clarify how resources are to be used; describe the assessment and guide students’ preparation for it. Students might then start a pattern of effective study from the beginning and retain this throughout the term. They are then more likely to achieve early mastery of content provided in those early weeks, and may better lay the foundation for subsequent material and make links between the new material and that which they have learned in the previous term. We expect there to be an early alignment of the motivations, expectations, priorities and values of the students and academics teaching the subject. Students making an early start will make good contact with other students and teaching staff, increasing the chance of active engagement in class. They are more likely to start earlier on assessable tasks that are scheduled within the term. They are more likely to purchase and use text books and other set learning resources (and, of course, use them from the outset). Students will also be placed under less pressure in the subsequent weeks of term as they will not have to deal with the content they missed while trying to master current content - especially daunting where the subject is designed so that knowledge is built progressively.

A further recommendation is that we explore ways to increase the advantage of involvement in the classroom to improve exam results, including providing early and practical advice in class about exams and how to tackle them.

It is important to recognise that students may be establishing or re-establishing their living arrangements early in the term, whether as new students or students returning after a working break or a holiday, compounding the problems of getting a sound start to the term. The overlay of catching up on missed terms can create significant stress. It is a tiring time for students.
Into this mix, good attendance is a requirement for international students [the group under study] under their Visa regulations. For all students there are competing demands on their time at the start of term and they must make decisions based on a range of needs: food, travel, work, accommodation, enrolling, purchasing text books and study materials, family and social life (Guilfoyle, 2006). If students start classes after the term has commenced this can both be the result of outside pressures in their lives. It will in most cases place further pressure on their studies. It is in this critical period that students who miss early classes will need a sound orientation to their studies and this should include a supportive learning plan and assistance with fast-tracking them into their courses. There are competing demands on new international students who must have time to settle into a new environment, home, university and social assimilate the course content and adjust to studying in Australia (Leder & Forgasz, 2004).

The research presented in this paper offers a preliminary examination of the importance of student attendance to pre-term activities like orientation, engagement in assessment tasks, and attendance with success in their courses. It should be remembered that the students studied were predominantly international students for whom English is their second language. This makes it even more important that they get a sound grounding in their subjects and the best teaching and learning environments possible. This study also suggests that evaluation may be useful not just for feedback for pedagogical improvement but also as an indicator of the degree to which students are motivated to engage with the course. This aspect of the study is preliminary but deserves further work.

The main focus of this study has been on attendance which we regard as an indicator of intrinsic motivation and the result of a number of factors, including quality of a course and its teaching. It is certainly a result of an individual decision by the student, even when assessment includes a requirement of attendance -as in postgraduate accounting, PGAC, with 10 percent ascribed to class participation. In the case of Australian international students, their visa has a requirement that students have good attendance – serving as an indicator that they are serious students. Whatever the reason that a student attends a class they are then involved, albeit to varying degrees. They are then more likely to become engaged in the course and to gain a better appreciation of what is required. The results indicate that this will be especially true of assignments where the students will explore their understanding and gain feedback in class from their early forays into the topic.

Attendance over the term is a reflection of the degree of a student’s involvement in a course. Obviously there will be times in the term when attendance is especially critical. We have shown in this and a previous study that the early weeks are critical for a variety of reasons, discussed above. This study has shown that there are strategies for educational success for international students. So in reflecting on what is required to be done, it frames the future for educators of international students to examine how attendance can influence success.

CONCLUSION

Our study’s findings suggest that students should be actively encouraged to attend classes from the outset if they are to optimise their chances of success. Overall attendance is correlated with performance in assignments and exams, depending on the course and the circumstances. We can state that increased attendance, including in the first weeks, is an indicator of the probability that students may gain improved marks in different assessment tasks, but especially assignment work. Whether this is cause and effect and the result of good teaching or a reflection of intrinsic motivation, or a complex interaction between the two has not been determined in this study. Both could be expected to enhance student involvement and engagement to some degree, and we would expect that good teaching would enhance student motivation.

Means of achieving good attendance, and from the outset, will depend on the university and the course but could include ensuring that enrolment is complete by the start of term, that students are counselled ahead of term about the risk of missing classes especially early classes (including in the previous term in the case of continuing students). Students who do miss early weeks of term need to be systematically picked up and regarded as ‘at risk’ students. Of more fundamental concern, we do need to better understand what motivates students to attend classes, both from the outset and throughout the term. Attendance in class is for the most part voluntary at universities and hence an understanding about how courses are best designed and taught, and students’ engagement becomes even more critical. Closing the feedback loop between course and teacher evaluation and course design to achieve improved engagement is one of the challenges this study presents.
The study demonstrates the merit in encouraging students to attend classes through the term. Their attendance will reflect that they are involved to some degree. It is the teachers’ role to convert this into enhanced engagement.

REFERENCES


