Fostering collaborative learning during student transition to tertiary education: An evaluation of academic and social benefits

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Abstract

Recent research has highlighted the importance of the first year experience in satisfaction with academic and social aspects of university life (McInnis, James, & McNaught, 1995; Tinto, 1989). While orientation programs for new tertiary students are common, many of these fail to integrate social and academic adjustment to university life with collaborative learning in a productive way, especially in large and diverse degree programs. In 1997 we offered a "transition workshop" to new first year science students prior to the commencement of university classes. Student timetables were manipulated prior to the workshop to ensure that attending students would be members of small "peer study groups" (8-15 students) who shared similar subjects and career aspirations, and that these groups would share at least two tutorial classes per week. During the workshop peer study groups spent time getting to know each other, discussing expectations, and considering possibilities for collaborative learning. The workshop also included a tour of local facilities to make students aware of locations where they could meet and work together, and talks from staff and previous first year students on making the transition.

An end of workshop evaluation indicated enthusiastic support for the program, with the most popular aspect being the formation of peer study groups. A followup survey at the end of the first semester included measures of academic and social adjustment, together with the Approaches to Study Questionnaire. Surveys were sent to three categories of students: those attending the workshop, those offered the workshop but who did not attend, and students from a different faculty (with no transition workshop). Transition workshop attenders scored significantly higher on almost all measures that indicated better adjustment to university life. The pedagogical and social benefits to students of this transition workshop are reviewed in the light of current research and theory on the first year experience.
Introduction

The experiences of university students during their first year of study appear to be crucial to their academic performance and personal adjustment. For many students, the first year is a significant time of transition and change, particularly for those entering tertiary education following the end of secondary studies. During recent years there has been increasing interest in the “first year experience”, and various attempts have been made to aid students in making a successful transition to university studies.

For example, in his keynote address to the Inaugural Pan Pacific First Year Experience Conference in 1995, Professor Vince Tinto stressed the importance of the initial experiences of students in their overall university progression. Adjustment problems during the early stages of university are the primary reason for students dropping out or deferring studies not just in the first twelve months, but throughout their degree program. One of the solutions suggested for the problem of student adjustment is the formation of collaborative study groups, where students with similar academic interests work together as a regular part of their university life. Not only do such groups allow students to assist each other in academic study, but they also provide a cohesive peer group that helps to buffer the difficulties of the initial period of transition to university life (Tinto, 1975, 1989, 1995).

Collaborative learning is important not just for coping with academic study and first year difficulties (accruing from the social benefits of a peer group), but also due to its inherent educational qualities. Students working together in an (initially) unstructured group without direction from a tutor or lecturer must learn to organise their time and priorities if the group is to be successful. Further, students learn from each other in a non-hierarchical learning environment, and the kind of teamwork, cooperation and communication skills that this requires are applicable far beyond first year university study - indeed, many of the skills learnt from such an experience are important in fostering life-long learning. In a age where generic skills are increasingly valuable to university graduates, due to the flexibility of careers and the workplace, collaborative learning is a tool that has much to offer students and educators.

However, the traditional concept of collaborative learning as a “peer study group” meeting regularly to work together highlights only one type of collaboration between students regarding their learning. While it is probably one of the most effective examples of this idea, there are many other less intensive activities that can be subsumed under a broader definition of collaborative learning. Activities such as seeking assistance from a more senior student, sharing the tasks of collecting and understanding reference articles, swapping lecture notes, using classroom “free time” to work on student studies rather than social discussions, and even spontaneous discussion of academic work in social settings can all be considered examples of collaborative learning. Viewed in this more general sense, collaborative learning is probably a common experience of many students, regardless of any attempt by a university to foster such activities. However, there may also be ways in which university programs can increase the likelihood of collaboration and support this type of learning. One example of this is the pre-university “transition workshop”.

Workshops for assisting students with adjustment to university life are not new. Within the Australian context, they are common for residential university colleges where many students are from rural areas. They are also reasonably prevalent among small, specialised courses of study where limited student numbers and shared weekly classes make it feasible and valuable to provide transition workshops for students. While these workshops may not make use of findings concerning the transition period, or encourage collaborative study, the high level of contact between a small number of students may in many cases be sufficient to create cohesive peer groups that buffer the academic and social difficulties of early university life, and
hence increase progression rates and improve student adjustment. Due to the combination of the above factors, it is possible for staff in these situations to develop brief workshops that do not require enormous amounts of time, energy and funding in order to be successful, but which can have lasting benefits.

The same cannot be so easily said for large, diverse degree programs. In large generalist faculties where hundreds or thousands of students study, the difficulties of fostering collaborative learning and aiding students in the transition to university life appear to increase exponentially with size. As student numbers increase, lecture classes grow, subject selection becomes more varied, and timetabling becomes increasingly complex. This may result in individual students having few if any other students that share with them more than a few classes per week. The personal isolation and lack of shared subjects resulting from such large and diverse degree programs can be formidable barriers to student adjustment to university life.

Hence, the existing difficulties of the transition period, the problems of adjustment to tertiary study, the benefits of collaborative learning, the size and diversity of large degree programs and the need for realistic and cost-effective methods of student support are all issues that are applicable to the first year experience of students. This paper describes an innovative transition workshop program and subsequent followup evaluation of student adjustment developed by the Faculty of Science at The University of Sydney, Australia. By addressing the issues mentioned above, it provides a model for other universities that wish to assist students in their first year of university study.

Part 1: The Transition Workshop

During 1996, the Faculty of Science implemented a pilot transition program, in which 150 students were invited to a half-day workshop on making the transition to university life prior to the commencement of studies (see Peat & Jelks, 1996). The 68 students who attended were presented with various activities, including a number of talks on surviving the early stages of university life and adjusting to academic studies. Students received a showbag of pamphlets and other resources, and at the conclusion of the morning attended a lunch provided by the Faculty of Science at which staff associated with first year studies met informally with students. The most important aspect of the morning program was the creation of peer groups and time for these groups of students to get to know one another. These groups of 10-20 students had been identified before the workshop, and their university timetables were manipulated so that they would share at least 2 tutorial/practical classes per week (amounting to approximately 6 hours/week), in addition to shared lectures in many cases. The prior manipulation of the timetables of those responding to the workshop (possible due to students returning a reply letter) was important as first year science courses at The University of Sydney have many practical/tutorial classes (from 20 to over 60 per week), and hence students would almost certainly not have shared classes if left to random allocation. After the initial workshop, students were invited to several followup meetings during the first semester, and a core group of interested students formed a focus group in which issues were discussed, and materials for the 1997 workshop were developed.

In 1997, all new first year Bachelor of Science (680) students were invited to attend a one day transition workshop during a weekend just prior to commencement of studies (see Peat, 1997). Students returned a letter indicating their interest to attend, and noting their general career aspirations. Prior to the workshop, the students who returned a letter or otherwise indicated they would attend had their timetables manipulated so that they would spend at least 2 weekly tutorial/practical classes together (in the same way as the 1996 workshop, and in addition to lectures), and these
groupings were based on students who had similar subjects choices and career aspirations. Also prior to the workshop, a showbag of resources was compiled which included a special “Student Orientation Manual” that had been developed by the student focus group from the 1996 workshop, based on information that the 1996 students wished they had received during their first weeks at university.

The transition workshop began with a registration period where students were allocated to one of three groups for the morning sessions and received their showbags. Each of the three groups was based on different broad career aspirations (physical/mathematical/computing sciences, biological/chemical sciences, and psychology and related fields), and a coordinator of first year studies within each of these general areas led the morning sessions. Approximately 230 students attended, with about 80 students in each large group. These sessions included general introductory talks, “survival tips”, and an introduction to the showbag resources. They also included brief talks from previous first year students on their experiences of early university life and how they adjusted. All students were given blank “business cards” on which they were encouraged to write their name and contact details, so that these could be given to other members of their allocated peer group. As in 1996, the central aspect of the morning was the formation of peer groups (based on previous timetable manipulation), in which groups of 8-15 students met, got to know each other, discussed expectations, swapped “business cards”, and considered future possibilities for collaborative learning. The morning also included a brief tour of local facilities to make students familiar with the buildings most associated with Faculty of Science programs.

As in 1996, students were then provided with lunch, this time in front of the main university quadrangle, followed by a formal welcome by the Dean of the Faculty of Science and other senior members of staff in the University’s Great Hall. In addition to the students themselves, parents of students were invited to attend this formal welcome and also to attend a separate parents workshop during the afternoon concerning the ways in which parents could assist students in making the transition. After the formal welcome, students left for a longer and more comprehensive tour of the university campus, while the parents program consisted of talks on current understanding of the transition process, advice for parents from the director of the university counselling service, and reflections on the first year experience from a senior undergraduate student. Following this, parents were able to ask questions of a panel of people involved in the workshop and the transition process.

Evaluation of the student and parent workshops by a brief end-of-session questionnaire indicated an enthusiastic response to the program, with students particularly appreciating the formation of peer groups and the advice of past first year students. Parents appreciated advice concerning the transition process, and the general commitment of the university to provide assistance to new students during the transition period. Many unsolicited comments of thanks and congratulations were given to the workshop team for the high quality of the overall program.

Part 2: The Followup Evaluation

To assess the potential benefits of the transition workshop, a survey was developed which examined academic and social dimensions of students’ initial experiences of university life. Survey questions included: demographics and prior schooling, qualitative-answer questions concerning positive and negative aspects of early university life, questions about specific aspects of adjustment (such as experiences of collaborative learning), and a number of relevant scales. Academic adjustment was assessed using the “First Year Experience Questionnaire” (FYEQ) developed by McInnis et al (1995) in their comprehensive study of Australian students’ experiences of the
early stages of university life. This measure contains seven subscales: academic orientation (eg, “I enjoy the intellectual challenge of subjects I am studying”), sense of identity (eg, “I really like being a university student”), sense of purpose (eg, “I am clear about the reasons I came to university”), academic application (eg, “I worked consistently throughout first semester”), teaching (eg, “The teaching staff are good at explaining things”), course (eg, “Overall I am really enjoying my course”), and workload (eg, “My course workload is too heavy”). In addition, the “Approaches to Study Questionnaire” (ASQ) as presented by Gibbs (1992) was included to examine differences in student approaches to learning, as demonstrated by the three subscales of achieving (eg, “When I’m doing a piece of work, I try to bear in mind exactly what that lecturer seems to want”), reproducing (eg, “When I’m reading I try to memorise important facts which may come in useful later”), and meaning (eg, “I usually set out to understand thoroughly the meaning of what I am asked to read”). Both of these scales are scored on 5 point agree/disagree Likert scales, with the middle value indicating a neutral view.

Social adjustment was examined using the college student version of the Interpersonal Support Evaluation List (ISEL), developed by Cohen and Hoberman (1983), which includes four subscales of: tangible support (eg, “I know someone who would loan me $50 so I could go away for the weekend”), belonging (eg, “There are people at university who I regularly run with, exercise with, or play sport with”), appraisal (eg, “I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about problems I might have budgeting my time between university and my social life”), and self esteem (eg, “Most people who know me well think highly of me”). Each ISEL statement is answered as either “probably true” or “probably false”. Finally, as a control for the personality trait of extroversion, the six item extraversion subscale of the EPQR-A (Francis, Brown, & Philipchalk, 1992) was included within the ISEL questions (some items were reworded slightly to suit the ISEL style and answer format - “I am a talkative person: probably true/probably false” - rather than “Are you a talkative person? yes/no”).

To study the effects of the transition workshop, three groups of first year students were surveyed at the end of the first semester of 1997. These three groups were (1) First year Faculty of Science students who were invited to, and attended, the transition workshop, (2) First year Faculty of Science students who were invited to, but did not attend the transition workshop, and (3) First year students from other faculties (which do not have transition workshops). Group 3 students were predominantly Bachelor of Arts students, but also included some from the Bachelor of Economics and Bachelor of Education programs, as well a few students from many other programs.

The reason for two “control” groups for this study was to provide different comparison groups - one for those who chose not to attend the workshop, and another of students who were not offered the possibility of attending a workshop (due to being in different faculties), as there are potential problems with simple comparisons between those who attended and those who did not. From a methodological perspective, the ideal experimental design for the followup section of the transition project would have been to randomly allocate some students to the transition workshop program, and others to a control group. This procedure could attempt to account for differences between attenders and non-attenders that existed prior to the workshop (indeed, differences that could affect self-selection for the workshop in the first place, such as the motivation to do well at university). If there are pre-existing differences between attenders and non-attenders, these could confound the findings of observed differences between survey groups 1 and 2 (findings that would otherwise have been attributed to the transition workshop).

However, a random allocation experimental design encounters ethical problems in allocating some, but not all students to a potentially beneficial program. Further, as
the primary motivation for the transition workshop project was pastoral rather than scientific, all students were offered the opportunity to attend. Thus, comparisons between attenders and non-attenders need to take this methodological problem into account. An alternative comparison that may help answer this difficulty is using students from other degree programs (group 3), where these students did not have the any opportunity to attend a transition program. This group (3) do not necessarily encounter the same problems of selection bias as for the comparisons between group 1 and 2. For this reason, comparisons between group 1 and 2, and 1 and 3 are both of value.

The hypotheses for the current study were that students who attended the transition workshop, as a result of the benefits of this program, would score higher values on the FYEQ scales, higher values on the ISEL scale, and the higher values on the ASQ scales of achieving and meaning, but lower values on the ASQ scale of reproducing. Also, workshop participants were expected to consider deferring or dropping out of university studies less than other groups. Finally, due to the emphasis on collaborative learning and peer groups, workshop participants were expected to engage in more collaborative learning activities and to meet outside university for social activities more than the other groups. By way of control, the groups were not expected to differ on measures of personality (extroversion), previous school performance (as measured by the “TER”), or relative preference for collaborative learning (as compared to working individually).

Method

Students in group 1 and 2 were sent the survey by mail, and those who did not return it within several weeks were sent a reminder letter. Students from these groups who were also first year psychology students were able to gain credit for involvement in research by returning the survey. The students for group 3 were all non-Science students who chose to participate in the survey as part of the research participation component of first year psychology studies, and students either collected surveys to complete in their own time, or completed them during lunchtime sessions. On return of the survey, these students were given credit for research participation. For all discussion that follows, group 1 refers to those who attended the workshop, group 2 those who were invited but did not attend (both group 1 and 2 are Faculty of Science students only), and group 3 is made up of students from other faculties which did not have transition programs. Appendix A contains the individual questions asked in the survey which are not from previously reported scales.

Results

Using university enrolment records, 181 Faculty of Science students who attended the transition workshop were sent surveys, and 72 of these were returned (40% - group 1). Five hundred and sixty six (566) Faculty of Science students who did not attend the workshop were sent surveys, of which 131 (24% - group 2) returned surveys. Each of these response rates, particularly the second, should be viewed as minimum rates, as some students remain on the university records despite withdrawing from studies, and some students would have had incorrect postal addresses (these problems are estimated to account for 10-30% of the total sample). Seventy six (76) students from other faculties were surveyed (group 3), bringing the total sample size to 286.

Students were asked to indicate whether they had considered deferring or dropping out of university studies (Appendix A, Q1). Figure 1 indicates relative percentages across the three groups. If these categories are treated as a scale with values
1 (none), 2 (occasional) and 3 (serious), then group 1 students are significantly less likely to consider deferring/dropping out than group 2 (gr 1 mean=1.5, gr 2 mean=1.8, t=-2.2, p<.05), or group 3 (gr 1 mean=1.5, gr 3 mean=1.9, t=-3.5, p<.001).

To examine participation in a variety of potential collaborative learning activities, percentages for each group were calculated for nine different activities (Appendix A, Q2). Figure 2 indicates the patterns across each activities for the three groups studied. When taken as a whole, group 1 students were involved in significantly greater number of collaborative learning activities than group 2 (gr 1 average number of activities=4.8, gr 2=4.1, t=2.5, p<.01) or group 3 (gr 1=4.8, gr 2=3.9, t=2.9, p<.01). These differences did not appear to be due to differences in personal preferences for collaborative/individual study (Appendix A, Q3) across the three groups (see table 1 below). Regarding social events outside of university (with other newly met university students - Appendix A, Q4), a higher percentage of students from group 1 (68%) had participated in this kind of activity that those from group 2 (55%) or group 3 (62%).

![Student thoughts about dropping out/deferring studies](image)

Figure 1: Percentage of students considering deferring/dropping out of university studies across the three groups studied.
Figure 2: Percentage of students involved in various collaborative learning activities across the three groups studied.

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<th>Mean Gr 2</th>
<th>Mean Gr 3</th>
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Table 1: Mean scale scores and significance results for students in group 1 (transition workshop), group 2 (non-transition workshop Bsc), and group 3 (other faculty).
Table 1 presents the results for the 3 scales used (FYEQ, ISEL and ASQ), together with the three control variables (introversion/extroversion, overall school performance - TER score, and individual/collaborative learning preference). The means for each group are shown, and the final two columns contain the results of planned contrasts statistical tests. To account for multiple comparisons, an alpha of .05 with a Bonferroni correction was used.

The reliability (using Cronbach’s alpha) of each FYEQ scale was satisfactory and equivalent to McInnis et al (1995) findings: academic orientation = .85, sense of identity = .85, sense of purpose, .71, academic application = .64, teaching = .82, course = .78, workload = .80. The reliability for the four ISEL scales was: tangible = .75, belonging = .64, appraisal = .89, self esteem = .70. The reliability of the three ASQ scales was: reproducing = .40, meaning = .71, achieving = .59. The reliability of .40 for the reproducing scale indicates that the values for this scale should be viewed with some caution.

Discussion

In general, the results presented here support the contention that students who attended the transition workshop are making a more successful transition to university life than students who did not, both in academic and social spheres. As the results indicate, workshop attendees think less about deferring/dropping out of university studies, are more likely to have been involved in collaborative learning activities, and are more likely to have met in social settings outside of university. They are more academically motivated, have a greater sense of purpose and identity, and rate their courses more highly. They are also more likely to have adopted a “meaning” or “deep” approach to their learning. All of this adds up to a very positive picture for students who chose to attend the transition workshop, and suggests strongly in favour of the workshop program’s beneficial nature.

As noted earlier, one qualifier of these findings is the possibility of differences prior to the beginning of university between students who attended the workshop and students who did not, for example, perhaps only those students who are already motivated to do well at university and to work hard would attend a workshop of this kind. While this is possible, the evidence presented here argues against this interpretation. The pattern of differences between group 1 and group 2 was the same in most instances for group 1 and group 3, the only major exception to this being the results for some of ISEL measures, which are probably due to the differences between Faculty of Science programs and other faculty programs. That is, Faculty of Science programs are generally very demanding, and require a large number of contact hours per week in first year, thus reducing the potential time available for social activities outside of classtime. Students from other faculties with less demanding programs may have more time for social contact, and hence the benefits this provides (as demonstrated in the higher ISEL scores for group 3).

The lack of significance of past school performance and extroversion also argue in favour of the beneficial effects of the workshop, as workshop attenders are not more extroverted or higher achieving than those who did not attend - indeed, in each case the value for workshop attenders was lower than for non-attenders. Further, all three groups were equivalent in preferences for collaborative learning, and hence the differences observed for collaborative learning activities are not due simply to a selection effect of those who enjoy collaborative learning choosing to attend the workshop. It should be noted that the results presented here regarding collaborative learning have been based on a broader view of this concept, and this approach appears to have been valuable in the current context.
While the results to date are positive, further development of this program would be of additional value. It would be useful to find more ways of encouraging additional peer group contact during the first semester beyond the confines of the classroom, such as through lunchtime barbeques and other social activities. Also, a staff development program aimed at educating first year staff in the nature of the transition period and the special needs of new first year students could be of potential value. Due to the fact that students surveyed here provided extensive qualitative data regarding their early experiences of university life, further work on this project may consider the relationship of these comments to the scale scores of the present study. Finally, as most students gave permission for the current research project to examine the relationship between the variables discussed here and overall course marks, followup studies will examine the relationship between adjustment to university life and academic performance.

References


Appendix A: Individual Survey Questions

Q1. The following question asks about deferring your studies/dropping out of university. Please circle the statement that best represents your view on this.

(1) I have not thought at all about deferring/dropping out
(2) I have occasionally thought of deferring/dropping out, but I have not seriously considered it
(3) I have seriously considered deferring/dropping out
(4) I have seriously considered deferring/dropping out and am reasonably certain I will not complete this year

Q2. During your first semester of university, have you done (or are you about to do) any of the following? Please circle ALL that apply to you.

(1) Spontaneously discussed aspects of your studies with friends while having lunch, coffee, drinks, etc.
(2) Swapped notes with a fellow student to help get a better understanding of a subject
(3) Helped another student to catch up on missed material by going over content with them
(4) Sought the help of an advanced/higher year student to explain difficult material to you
(5) Used free time during class to talk with fellow students about subject content (rather than social discussions)
(6) Worked together with another student(s) to collect readings and references
(7) Met with at least one other student to study material together
(8) Regularly (eg weekly) meet together with at least one other student to study together
(9) Formed a deliberate, organised network of students who regularly meet together and assist each other in study, collecting references, and other aspects of university studies

Q3. Which of the following statements best describes your personal learning preference?

(1) I prefer to study entirely on my own
(2) I mainly prefer to study on my own, but I sometimes like to study with fellow students
(3) I equally prefer studying on my own and studying with fellow students
(4) I mainly prefer to study with fellow students, but I sometimes like to study on my own
(5) I prefer to study entirely with fellow students

Q4. Have you gone to any social occasions with other students from this university (who you did not know before you came here) outside of university hours?

(1) Yes   (2) No