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First-year Transition in Teacher Education: The Pod Experience

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Abstract: Research on student retention and transition in higher education has been an ongoing focus since the 1950s and during the past decade research into this area has gathered momentum as institutions of higher education increasingly recognise the economic and social costs of failing to retain and transition future graduates. Measures to improve transition and retention rates have generally focused on developing strategies to engage students in their studies and tertiary discourses by providing institutional, academic and/or social support. In this paper we discuss ‘Pods’ as an effective and innovative approach to transitioning first-year pre-service teacher education students in regional Victoria. This paper argues that students’ sense of connectedness is greatly enhanced through the grouping of students into Pods in order to promote social and academic engagement and a sense of belonging.

Introduction

This paper reports on a Faculty of Education initiative to improve the delivery of the first-year program of study to pre-service teachers in a regional campus of a Victorian university. The project, ‘Connecting with education: The first-year experience’ was conceptualised within a national and State context of improving the provision and delivery of pre-service teacher education (House of Representatives Standing Committee on Education and Vocational Education, Commonwealth of Australia, 2007; Victorian Parliament, Education and Training Committee, 2005) as a recognition of the relationship between quality teacher education and improved student outcomes (Ministerial Council for Education, Employment, Training and Youth Affairs, 2003; Schwille, Dembélé & Schubert, 2007). It was also framed within a global and national understanding of the importance of supporting and facilitating transitioning students in their first-year of study (Krause & Coates, 2008; Kuh, Cruce, Shoup, Kinzie & Gonyea, 2008).

As part of a review of the first-year of La Trobe University’s Bachelor of Education (BEd) and Bachelor of Physical and Health Education (BPHE) courses, teaching, administrative and support staff, collaboratively designed and developed a common first-year program of study for the pre-service primary school teachers. The program design incorporated the concept of organising first-year students into structured groups called ‘Pods’ for all classes. This paper is about the Pods. It investigates the effectiveness of this arrangement as a transitioning tool by drawing upon data gathered from key stakeholders including first-year BEd and BPHE students and the first-year teaching team.
Background to the Study

Research on first-year student retention and transition in higher education has been an ongoing focus since the 1950s (Krause, Hartley, James & McInnis, 2005; McInnis, 2001). During the past decade research into this area has gathered momentum as institutions increasingly recognise the economic and social costs of failing to retain and transition future graduates (Kuh, et al, 2008). It is understood that concepts of engagement are critical to successful first-year transition and persistence (Kift, 2004; Kuh, 2002; Moss, Pittaway & McCarthy, 2006) and accordingly institutions of higher education, individual faculties, schools and programs employ various and numerous measures to improve initial and ongoing student engagement. Duff, Quinn, Johnston and Lock (2007) argue that engagement is about connecting with learning and the institution. Krause (2007) expressed it as:

The time, energy and resources students devote to activities designed to enhance learning at university. These activities typically range from a simple measure of time spent on campus or studying, to in-and out-of-class learning experiences that connect students to their peers in educationally purposeful and meaningful ways. (p. 1).

Measures to support engagement characteristically take the form of institutional, academic or social ‘support’ such as programs to assist students with their academic literacies, new student websites, peer tutoring and mentoring, and extra curricula activities that foster peer and staff relationships (Duff, et al, 2007; White & Carr, 2005). Krause et al (2005) argue that successful initiatives should be broad in scope, encompass all departments in an institution and be co-ordinated at the highest level to alleviate the tendency for such approaches to be piecemeal and unsustainable.

Given the impetus to make first-year transition “everybody’s business” (Kift, 2008) it is inevitable that the transition discourse would influence on first-year program design. Accordingly, designers of first-year programs of study have proactively sought to embed and make explicit concepts of transition such as engagement, persistence, support, and scaffolding in first-year practices, pedagogy and learning (Devereux & Wilson, 2008). While supportive curriculum design is fundamental to a first-year transitional program of study (Yorke, 2007), social connectedness or integration is increasingly recognised as a critical component of successful transition (Colvin & Jaffar, 2007; Duff et al, 2007; Kuh et al, 2008; Lizzio, 2006).

The benefits of social integration and community building to transition and persistence have been explored from a number of different perspectives such as the institution/student relationship, teacher/student relationships, student/student relationships and even teacher/teacher relationships, and have been generally explicated in terms of the cognitive, psychosocial, attitudinal and physical domains (Reason, Terenzini, & Domingo, 2007; Wilcox, Winn & Fyvie-Gauld, 2005).

According to Krause (2005, p. 7) students not only need social integration and support but are used to it. This is especially important for first-year students whose successful orientation to and engagement with their first-year studies is often dependent upon the social networks that they have formed. The research on students’ initial orientation to their tertiary studies highlights the psychosocial difficulties that new students often face when negotiating the demands of a new environment and unfamiliar discourse (Kuh et al, 2008).

Social networking strategies are commonly employed in programs of study and often commence at orientation, a critical stage in the transition process. These strategies range from the unstructured and informal, such as meeting and greeting fellow students in program information sessions to organised group activities, such as peer mentoring sessions and
scavenger hunts, the goal of which is to foster peer relationships while undertaking investigative tasks (Duff et al, 2007).
Sustained measures to foster social integration and build a sense of student community are also common throughout the first-year of study and include such initiatives as ongoing peer tutoring and mentoring, regular social occasions (such as first-year student barbecues, breakfasts and morning teas) and the promotion of student sporting and academic clubs and organisations. The classroom is also critical to transition and persistence and priority is often given to using classrooms as sites for building community (Zhao & Kuh, 2004). Such community-building initiatives include carefully allocating students to specific tutorial groups, having smaller tutorial groups with teaching staff members as a personal tutor (Wilcox, et al, 2005) and incorporating group-building activities in teaching, learning and assessment.
The Pod concept developed by La Trobe University is another strategy to assist students through his or her first year of study.

Project Design
The ‘Connecting with Education: The First-year Experience’ project was conceptualised as part of a periodical review of the Bachelor of Education degree course offered at the university. The program design incorporated a common first-year for the BEd and the BPHE. The rationale for this project was the need to strengthen and support first-year transition for the students in both of these courses. Other objectives for the project were to:
• promote an agreed and tangible set of essential skills for learning and teaching that would be embedded into the course by both academics and pre-service teachers;
• develop and implement two new units designed to enable pre-service teachers to address aspects of their own Physical, Personal and Social Learning, as articulated in the Victorian Essential Learning Standards (VELS) framework, (Victorian Curriculum and Assessment Authority, 2007) in order to build new understandings and perspectives;
• establish a program of integrated assessment for pre-service teachers that would reflect assessment practices that were known to be effective; and
• embrace on-line teaching and learning mechanisms as an integral part of the teaching and learning program.
A retreat was held for academic staff to develop a comprehensive design for the common first-year program. The outcomes from the retreat were:
• the development of a clear and well-designed curriculum for the program;
• the identification of a set of ‘generic skills’ across the program;
• the conceptualisation of two new foundation units, ‘Concepts of Well-being’ and ‘Concepts of Community’; and
• designs for the structures of semester 1 and 2 including assessment, connections between units, timetabling options and blended learning opportunities.
The retreat was very successful and proved to be a valuable springboard for program development across the semester. This event was not only useful for establishing working teams to progress development in the project but also helped the participants develop a shared set of understandings necessary for the design and development of the common first-year.
Justification for the Pods

Although the Pod idea emerged after the initial planning day, it was informed by the discussions that developed on the day. The term ‘Pod’ was chosen primarily because it did not exist within the existing tertiary discourse and thus did not carry prior connotations, unlike terms such as ‘cohort’ or ‘tutorial group’. This term, coupled with the Alpha prefixes (a-i), also provided memorable titles such as ‘b-Pod’ and ‘i-Pod’.

There were several reasons for developing the Pod system. It was initially motivated by the need to smooth the transition in the first weeks of Semester 1 by providing social support for the students; it was also designed to provide a solution to a confusing class selection procedure, and to help students make realistic decisions about workloads and contact hours.

In previous years, students were required to select their class times on the online ‘Oasis’ allocation system. After the orientation session for the course, the students were escorted to the computer laboratory to select their classes. Typically, students would select their first classes at random and then try desperately to choose complimentary classes as the spaces left in each class rapidly disappeared. Any student who had to wait for a computer to be available or who made a mistake and had to reschedule had great difficulty in creating a workable timetable.

Another reason for the introduction of the Pods was to help students make realistic decisions about study/life balance. Even when students could choose the timetable they wanted, a lack of experience often meant that they would try to fit their classes into the minimum amount of time thus giving them more ‘free’ time for employment, family and/or recreation. It was not unusual to find that students would schedule their 12 hours of class contact over a day and a half, with sometimes six, seven or even eight hourly classes in a row.

Timetable considerations

The four Semester 1 units were scheduled from Tuesday to Thursday. Monday was allocated for practicum in schools while Friday was not used for classes as, being a regional campus, many of the students travel to rural locations for the weekends. The class time slots for each of the units were sorted to form nine different timetables with balanced arrangement of classes. Each schedule had either 16 or 17 hours of required time on campus and each schedule had six or seven hours of ‘wait’ time between classes when students could work collaboratively, go to the library or computer laboratory, or just eat, relax or talk to friends (see Figure 1).
The students were allocated to the Pods prior to the semester commencing, with approximately 25 students in each Pod. The random allocation of students to Pods proved to be challenging because the normal alpha methods were problematic. It would be difficult to have a class roll with large groups of the same initial, especially when it got to Smith, Smith, Smith, Smith! Sorting on first names was, understandably, even less desirable and so student numbers were used as unique identifiers that could be easily sorted. Actually, using student numbers did pose a problem. These numbers are not randomly allocated but are allocated as the students are offered places at the university. This system roughly distributed students into like groups, such as school leavers or mature age entry students.

Nine distinct cohorts of students, similar to a primary-school class were created. Each group of students would be together for every class they attended, potentially enabling strong bonds to be developed from the beginning of the course. While this was considered beneficial for the program design, the full ramifications were not initially appreciated. This resulted in some interesting group dynamics and challenges for staff that are discussed later in this paper.

Pod implementation

The students were introduced to the Pod system in Orientation Week. Students identified their Pods, based on their student numbers, from a visual display, for example ‘a-Pod – student numbers 16320312 – 1634794’. Students then collected a colour-coded timetable from stations outside the lecture theatre. Those who had problems with their timetable, such as clashes with childcare arrangements, could request changes by means of a form process. Changes were permitted only to different Pods, not to individual classes within the structure. As the first few weeks of the semester progressed there were a few requests that led to three or four students changing Pods. The changes however, were notably fewer than in previous years where quite a few students had struggled with the impractical timetables that had emerged through the on-line allocation process. In general, the cohort settled into the Semester 1 extremely well.

In our initial design, the Pods were conceptualised as a Semester 1 initiative only, with class selection reverting to the regular process of online allocation for Semester 1. However, as the first semester progressed, students became aware of this intention and expressed some apprehension. Towards the end of the semester, several groups of students approached lecturers and the course coordinator requesting that the Pods remain in Semester 2. In response, further Pod timetables were arranged, although it was necessary to cut back to eight groups due to attrition.

Project evaluation

In the second last week of Semester 2, the students were surveyed to ascertain their impressions of the first-year program. The anonymous Likert Scale survey covered a wide range of aspects of the program, however, under the section on Program Structure and Organisation, five statements related specifically to the Pods.

1. Being a member of a Pod gave me a strong social base from which to learn effectively.
2. Pod members supported each other academically.
3. I would rather choose my own timetable than be in a Pod.
4. I was glad that Pods were kept the same for Semester 1, where possible.
5. Being a member of a Pod was beneficial to my academic success.

There was also an opportunity for an open response to the statement ‘I would like to comment on the first-year structure and organisation’.

The response rate to the survey was 49% (100 out of a possible 205). The students were presented with a summary graph of the survey results and invited to attend a focus group to discuss the program further. Unfortunately, the timing of the session was poor, as it required students to attend after classes had finished for the semester. Consequently only three students chose to attend the focus group session.

Further data for this study were obtained from emails sent to lecturers and the course coordinator during the year, informal discussions between the students, lecturers and the course coordinator and anecdotal information reported to the course coordinator by the lecturers. Lecturers were also interviewed to obtain their perspectives. The data were analysed using simple descriptive statistics (Gray, 2006) and grounded theory processes (Strauss & Corbin, 1990).

Findings

The following findings are drawn from an analysis of the survey results (for the student data), communication artefacts and interview transcripts.

Student perspective

As the year progressed it became obvious that the Pod structure was very popular with the students. A lecturer reported the following class discussion, which had been prompted by the students realising that the Pods were going to be disbanded at the end of Semester 1:

They feel very strongly that the Pods should remain the same for next semester as they feel that they have only just really gotten to know each other.

While these sentiments seemed to be evident in all groups, they were particularly strong in the Pod that contained more mature-aged students. Soon after, several e-mails were received from students requesting that Pods were retained in Semester 2. Comments included:

We all get along great, helping each other out with study and even just having a chat between classes.
We have a wonderful group dynamic, and most importantly we are all good friends.
We have become a close network...both socially and academically and ...splitting up will impact on our stress levels.
It will be more calming to be surrounded by familiar faces.
It has been an important experience to us all being in this Pod and we feel strongly that it will benefit our first-year at university to stay together.

After discussing the requests with the academics involved (some of whom were perhaps less enthusiastic about the concept than the students) it was decided that the Pods would be retained for Semester 2. As previously mentioned, due to student attrition, one Pod was targeted for disbanding. It was decided that a Pod that consisted of recent school leavers would be more resilient and so this group was asked to reallocate. While the students in this Pod generally accepted both the necessity and the process, there were a few comments that indicated a certain degree of regret:

Can’t you split up another Pod? I love my Pod!
Wow that’s really disappointing, wish we didn’t have to split up at all!
I must say I was shocked and disappointed to receive this news as I have grown to really like the people in my Pod, but would also like to acknowledge the professionalism and consideration you have put into this matter.

One of the students was particularly upset that her Pod had been chosen:

I am writing to ask why our group was the most suitable to be collapsed considering the fact that we have had not one member of our Pod drop out. Would it not be theoretical [sic] to collapse the group with the most dropouts? I would appreciate hearing back from you about this matter.

Some effort was put into making sure that students from this Pod got to select a new Pod timetable that best suited them and that they got to choose several friends to be with. Once Semester 2 was under way these students settled into their new Pods, although lecturers reported that, when given the option, they would gravitate into the smaller group from the previous Pod.

The First-year Experience survey was the true litmus test of the success of the Pod structure. As described in the ‘Implementation’ section, five of the Lickert Scale statements referred to the Pods and the results from these statements are shown in Figure 2.

![Figure 2. Responses to Pod statements](image)

On this scale ‘3’ represents ‘neither agree nor disagree’, while ‘4’ is ‘agree’ and ‘5’ is ‘strongly agree’. The overall score for the Pod statements, displayed on the left-hand side of the graph is the best indicator of how the students felt about the Pods. The average response for students across the five statements was 4.34. This meant that most students responded with ‘agree’ or ‘strongly agree’ for all questions. Actually, only one student out of 100 rated below ‘3’ for the overall response, with 2.20. Eighteen of the responses rated all five statements at five, giving them an overall response of 5.00.

The only score that was slightly lower (3.73) was in response to the statement, ‘I would rather choose my own timetable than be in a Pod’. This is displayed on the graph (Figure 2) in the central column, outlined in black. It should be noted though that this was a reversal statement and a number of students selected ‘agree’ or ‘highly agree’ for the entire set. It is possible that they included a negative score for this statement without realising it.

The open response statement asking students to comment on aspects of the organisation and structure of the first-year program and the program overall provided strong affirmation for

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the Pods. Many of the comments simply signified approval, ‘The Pods were great’ although some gave further indication of why the Pods were popular.

Some students recognised that the Pod concept meant that they did not have to select their own classes. These comments included:

*It is good how our classes were set and we were put into Pods, not giving us the hassle of signing up for tutes.*

*I think the pre-arranged Pods took the stress out of arranging my own timetable.*

Other comments reflected the social benefits of being placed in a Pod. These included the initial process of getting to know people:

*Pods were great – very helpful in meeting people.*

*Pods were an excellent idea for adjusting to the uni life and making social connections.*

The ongoing social advantages of being in a Pod were also acknowledged:

*Pods were a good idea for friendship.*

*Pods were a fantastic idea – gave me a feeling of family.*

Some of the comments related closely to the statement ‘Pod members supported each other academically’. Several students identified that the Pod structure provided an academic network:

*Having a Pod group was fantastic for me both socially and academically.*

*Developing relationships with group members over the year has really excelled [sic] my learning experience.*

*Pods provided a strong support link.*

Finally, some of the responses indicated positive affirmation for the student’s own particular Pod:

*[prefix] Pod was sensational!*

*I loved my Pod.*

There was a further indication of how Pod dismantling could have lasting implications:

*R.I.P. [prefix] Pod [Pod that was redistributed in the middle of the year]. Pod idea was good until we were split up.*

Only one written comment was less effusive about the Pods.

*I rarely worked with my Pod outside class unless group activities were required.*

As this section shows, the Pod concept was very popular with the students. The fact that nine groups with approximately 25 students in each were established for a year’s program with virtually no dissent or conflict was remarkable and perhaps a credit to the cohort’s flexibility and cooperation.

**Academic perspective**

The academic staff met regularly throughout the year to discuss aspects of the common first-year program and, of necessity, these meetings included reflections on the Pod arrangements. As with any new initiative, teaching staff were able to identify areas of strength and issues that needed consideration.

At an organisational level, the academics were convinced that the Pods were an improvement on the previous system of online tutorial enrolment, being fairer and more equitable. They also believed that, because of the Pods, students were able to plan and organise their course more efficiently and were, to some extent, more ‘in control’ of their lives than students had been in previous years.

The academics unanimously agreed that as a strategy to develop social cohesion and a sense of student community, the Pods had been remarkably successful. They noted that enhanced student-to-student communication was evident throughout both semesters but more so in
Semester 1. Students actively and visibly supported each other by providing academic and institutional advice and guidance, giving emotional support and sharing of resources. This alleviated some of the academic and procedural demands on the academic staff. For example, it was noted that in Semester 1 Information and Communication Technologies [ICT] classes, students readily conferred with each other on computer tasks whereas in previous years the lecturer was consulted as the primary resource.

Semester 1 academics also noted that student collaboration impacted on tutorial group work activities and group work assignments. As students had successfully developed close bonds with each other during Semester 1, they proactively formed their own groups for assessment purposes and resolved their own cooperation and contribution problems without appealing to the teaching staff to intervene. As well, students assumed more responsibility and accountability for their own actions and contributions and generally ‘pulled their weight’.

While the Pods were valuable for building social capital, they also benefited the students’ sense of confidence, both in the classroom and in their interactions with the staff. The academics noted that, unlike previous cohorts of first-year students, the Pod students readily confronted them on assignment issues and course related matters. They acknowledged that this outcome could be perceived as both positive and negative. While having confidence is important for first-year students, they also felt that the challenges were sometimes exaggerated and/or uninformed. They also noted that student challenges were often underpinned by misinformation that had been generated through student discussion.

Additionally, students were readily prepared to launch under prepared challenges in class, with a sense of ‘safety in numbers’.

‘Behaviour management’ was also a consideration. The academic staff commented that they sometimes experienced difficulty in maintaining an effective classroom learning environment. It was felt by some that the classes had regressed to ‘Year 9’ behaviour where the students were often unruly and silly. One lecturer described an incident where a student in the process of ‘fooling around’ fell backwards off his chair. Her comment was, ‘I have never had that happen before in a class, well maybe in primary school.’

The final concern for the academics was issues to do with a sense of belonging. It was noted by some academics that the Pod arrangement fostered a ‘them and us’ mentality. They used terms such as ‘feeling like an outsider’ and ‘group mentality’ when describing their interactions with the Pods. One academic expressed it as losing ownership of the class, the Pod arrangement ensured that

Discussion

Grouping of students is standard practice in a tertiary context and occurs in a number of different ways and for a variety of reasons relating to institutional, teaching and learning and timetabling considerations. Whether self-selected or mandated, sorting students into tutorial or seminar groups is part of the standard tertiary practice, is usually undertaken as a matter of course and is generally informed by organisational concerns rather than transition and engagement imperatives.

The motivation for the Pod arrangement differed. It was undertaken specifically to support the transition and engagement of first-year students. Unlike other tutorial arrangements in which there are different students for different classes, the Pod arrangement ensured that the
same group of students spent all their class time together throughout their first-year of study. As an organisational structure for building community, social cohesion and social capital it was undoubtedly considered a success by all stakeholders. Indeed, the community building aspect of the Pods has become a ‘selling point’ for attracting future students. As one staff member noted, students are attracted to the concept that they will transition through the first-year with the same group of students and see it as a means of addressing issues of isolation and loneliness. She reported a case where a potential future student was comforted with the thought that she would be grouped with the same 25 students for all classes. The potential student saw this, not only as a guaranteed means of finding friends and forming relationships, but also as befitting for future primary school teachers.

*If you are going to be a primary school teacher, then you should be in a primary school class.* Developing social networks and a sense of belonging are critical to first-year transition (Kift, 2008; Krause et al, 2005). The Pod arrangement was successful in this regard and arguably, more effective for this purpose than the traditional tutorial arrangement. From the students’ perspective, the Pods assisted their transition into their studies by facilitating friendships and social networks and helping them to develop a strong sense of belonging and community. For example, students took on the role of pastoral care. Absent students were quickly identified and contacted by their peers to enquire after their wellbeing. It is feasible that the students’ speedy response to their fellow students’ absences may have contributed to student retention. It is well known that relevant faculty staff may be the last to be notified about ‘at risk’ students and intervention measures are often applied when it is too late. The students in the Pods fulfilled this valuable role of monitoring, supporting and caring for each other. The Pods also fostered personal independence, confidence and had a positive influence on how the students collaboratively engaged with their peers and studies. Academic advice and resources were readily shared amongst members of the Pods; students pro-actively formed their own study groups, happily participated in classroom group activities and undertook group assessments in a spirit of cooperation.

The academics’ considered their experiences of the Pods had been mostly positive, believing that the Pods benefited students socially and psychologically. They also acknowledged the benefits to themselves, such as decreased academic and administrative demands. Any negative concerns generally focused on issues to do with authority and control and may be more indicative of an academic’s own pedagogical styles and beliefs about tertiary teaching than serious issues to do with the Pods. An example of this is evident when an academic’s reaction to perceived behaviour problems highlights a clash of discourses. The first-year cohort includes a significant number of school leavers. The Pod groups, in essence, were not dissimilar to their grouping experiences throughout their primary and middle schooling years. It is feasible that the students reverted to a familiar behaviour given a familiar context. Unfortunately, this behaviour may have clashed with some of the academics’ tertiary discourse that presupposes more mature and composed conduct; incidentally, a behaviour that is not taught but never-the-less expected in a tertiary context.

Further, some academic expressions of an oppositional discourse, in which students were identified as ‘them’ and the teacher as ‘us’, reflect power relations inherent in the tertiary context. In these cases the academic’s authority was challenged and while challenges are encouraged at a tertiary level, it is rather within the realm of ideas not about ‘who is in charge’. It is understandable that an academic might feel threatened and see this as a negative aspect of the Pods. As the Pod arrangement is obviously a beneficial tool for transition, the future onus will be on academic managers to support teaching staff in re-examining their own pedagogical beliefs and behaviours and adjusting their teaching and learning practices to accommodate and respond to the Pods with their associated behavioural outcomes.
Future directions

It is anticipated that the Pod arrangement will continue, although modifications will be made to how students are allocated to each Pod to ensure that they do not end up in ‘like’ groups. Further consideration will also be given to the mid-year arrangements. While it obviously was a popular choice to continue with Pods in Semester 2 in this iteration, it will be interesting to see if this arrangement equates to the best outcomes for the students’ progression in the long term.

An option considered for future implementations is to provide a scaffolded transition to generalist timetables in the second semester. In this situation, students would be told at the beginning of Semester 1 that the Pods will be short-term arrangement and then students will be supported in selecting a well thought out timetable for Semester 2 that considers both a balance of class times and the establishment of a useful peer network. It is envisioned that similar data will be collected on the commencing cohort in future implementations. This will enable a comparison across iterations and will collect data to inform the optimum length of time and structure for the Pod arrangement.

References

Krause, K. L. (2005). The changing face of the first-year: Challenges for policy and practice in research-led universities. Keynote paper presented at the University of Queensland First-