A first year-final year peer mentoring program for Diagnostic Radiography students in medical radiation physics

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Abstract

Peer mentoring programs have shown to increase a sense of belonging and impart valuable transition skills between first year and senior year university students. A peer mentoring program was initiated between first year and final year Diagnostic Radiography (DR) students with the aim of promoting social inclusion, widening participation and assisting with the transfer of medical physics knowledge and study skills. Final year DR students (n=15) underwent mentoring training and together with 45 first year DR students formed 18 mentoring teams. The DR mentoring teams meet throughout the entire academic year. Strengths of the program include the promotion of leadership skills by the mentors and an enhanced sense of belonging and comfort with physics terminology by the mentees. Weaknesses included overall mentee participation through semester 2 suggesting the transition to university life may be completed by the first semester.

Background

A positive first year experience of Diagnostic Radiography (DR) students enrolled in the Bachelor of Applied Science, Diagnostic Radiography degree at the University of Sydney is strongly linked to their understanding of Medical Physics curricula. Medical Physics in its theoretical and applied form comprises of approximately 25% of the first year curriculum. Additionally, the semester 1 and 2 Units of Study (UOS) in Medical Physics are taught on a different campus to that of the remaining 3 year degree program. Students without high school physics and students from different cultural backgrounds (international and indigenous students) may feel alienated by the first year of the course (Leask & Carroll, 2011). Conversely, other students entering the degree with a physics background can be frustrated by the pace of learning materials and peer group work (Lewis & Robinson, 2011). The University of Sydney DR degree is the only undergraduate DR program in Australia that does not set a prerequisite of high school physics and thus it has a wide social, educational and cultural inclusion within the cohort.

The question was asked: how can first year DR students without prior physics learning feel welcome and transition successfully into a science degree? The answer was proposed through a first year-final year mentoring program that brought together DR students from year 1 and 3 and engaged them in peer support. The mentoring program was based on the principles of peer mentoring, and Just in Time (JIT) Teaching. Recent studies have shown that social interaction based on peer mentoring can improve retention and recruitment as well as pedagogical goals (Jacobi, 1991; Secombe, 2007; Heirdsfield, et al., 2008; Tremblay &
Rodger, 2003). Additionally, Krause & Coates (2008) have suggested that peer mentoring can assist with identification of students “at-risk”. However, these studies have focused on peer mentoring within clinical education and in teacher education and there is no reported literature on university student peer mentoring as a program to assist with transition to university with a focus on direct physics knowledge.

**Objectives of the study**

This project aimed to implement a peer mentoring program between first and third year DR students in order to support basic physics learning, lifelong learning and transition to university life.

Specific objectives include:

1. To promote confidence in physics terminology
2. To develop a sense of belonging and inclusion through the DR degree
3. To determine the success of third year DR students as mentors in the context of medical physics mentoring
4. To map the strengths and weakness of pilot mentoring programs that aim to promote widening participation and social inclusion

**Methods**

A recruitment email was sent to all students enrolled in the final (third) year of the degree program, inviting them to participate in a medical physics mentoring program. It was explained that participation meant

a) Attending a day long Peer Mentoring workshop to learn appropriate skills, techniques and particulars of the program,

b) Being a mentor to a small group of first year students within a peer mentoring program lasting a two semesters, and

c) Having the opportunity to be involved in research into the feasibility of the program through qualitative and quantitative measures.

Out of a possible 89 third year DR students, 17 volunteered to be involved. These students attended workshop in February 2012 aimed at empowering them to effectively communicate with first year students, develop skills in team building, be familiar with the university’s student support services and be able to mentor within a specific subject of medical/radiation physics. This group became known as the DR Mentees.

Recruitment of first year students took place at an information session during orientation week (the week before university officially starts). All students enrolled in the first year of the DR degree program were invited to participate however it was clearly articulated that the mentoring program was designed to assist students with basic physics knowledge up to the level of a finishing high school student. Thus students that had done higher school physics may not find it helpful but were welcome to participate. Additionally, students without prior physics knowledge were encouraged to attend the University’s Physics Bridging Course, a 3
day course to transition students without a prior science background into a degree with science study. The mentoring program was not designed to replace the Physics Bridging Course but rather be a more informal and complimentary resource that would span through the first year experience. In total, 45 out of a possible 90 first year students signed up for the mentoring program. This group became known as the DR Mentees. Together, there were 18 teams consisting of approximately 1 DR Mentor to 3 DR Mentees. A particular feature of the mentoring teams was the mixing of international and local students to enhance cross-cultural diversity of the mentoring program and support student engagement in intercultural learning through “physics” talk (Leask & Carroll, 2011).

An inaugural “get to know your team” meeting was held in week 1 of semester and boundaries were articulated to students about methods of communication within the team (university student email was best, social media such as Facebook was least preferred). It was explicitly detailed that the DR Mentoring program did not replace attendance at scheduled physics classes, was not designed to be a mechanism for third year students to complete assessments on behalf of first year students and did not run additional learning classes as this would obviously disadvantage those who chose not to be involved.

In semester 1, a weekly meeting on the Faculty of Health Sciences campus was scheduled for the mentoring teams to meet and for a member of academic staff to be present as a facilitator and support person to all students. Outside this arrangement, students were also welcome to establish their own team routine of communication and meetings. The staff member at these meetings circulated around to each team and assisted with any physics questions, general curriculum of university questions and gave suggestions for resources to assist physics learning. In second semester, the meetings were held once a fortnight, with the program ending in week 10. The program was evaluated through qualitative methods and a quantitative survey at the end of the program. A focus group session with mentors was held at the end of each semester. Additionally, a survey was distributed to all mentees and mentors in the program to explore student experiences at the completion of the program.

Results

Focus group and survey: Mentors

Responses from mentors indicate that the benefits of participating included demonstrating leadership, developing “people skills” and assisting first students to transition to university life and study patterns. Mentors believed that they were “giving back” to the Faculty of Health Sciences and helping fellow students in the process. Some mentors commented that they had developed friendships with their mentees and that they were likely to socialise or assist their mentees with other university queries outside the mentoring program. It was clear that the mentors believed that participating in mentoring gave them an edge over other students in competing for graduate positions and that employer's would look favourably on having both mentoring skills and a strong knowledge of medical physics.

Perceived negatives to participation for mentors included being asked by the mentees to assisting with tutorial/assessment pieces and repeated lack of attendance by mentees. This was in contrast to the near- full attendance by mentors. Additionally, the mentors expressed some concerns about being “out of their depth” in terms of explaining some physics concepts although a small number of mentees relished this opportunity to show their knowledge.
Survey: Mentees

Mentees indicated through survey that the mentoring session had contributed to a positive transition to university life and that participation in the program would lead them to consider becoming a mentor in the future. Mentees were less sure that the program had enhanced their knowledge of physics although it had influenced their understanding of university processes. The mentees believed their mentors were welcoming and knowledgeable however they were less likely to access their mentor’s advice as the academic year progressed.

The attendance of mentees at the scheduled meetings was a source of frustration for both mentors and academic facilitators. Initially attendance was strong from mentees however towards the end of the first semester, attendance dropped markedly. Reasons for this as offered by the mentees included any mid-semester exams on the same day (although not at the same time) and low campus attendance in general due to the electronic availability of UOS resources. In semester two the mentoring sessions transgressed into less formal patterns, such as via social media, however mentors felt that face to face contact promoted the best mentoring and that sessions worked best when there was a structured topic or theme of the week. Survey results indicate that the mentees felt that the mentoring program was only required in semester 1.

Discussion and Conclusions

It was clear there are some strengths and weakness to the DR Peer Mentoring program. The enthusiasm and dedication to the program by the mentors was obvious and they highly rated the experience in terms of developing mentoring skills, showcasing leadership ability, forming useful connections/collaborations with the FHS and their deepening their respect for cultural diversity. This concurs with previous studies that have shown that leadership is a clear benefit to students acting in the role of mentors (Heirdsfield et al., 2008). Mentees were initially very keen on participation and interaction with their mentors and this petered out in semester 2. Mentees appeared to prefer a less structured mentoring arrangement, such as social media, whereas the mentors regarded face to face contact more beneficial.

In the case of the DR Peer Mentoring program, it appeared that first year students believed they had completed their transition to university life at the end of semester 1. This is congruent with some literature where early or pre-learning engagement with mentors has shown to reduce anxiety and enhance learning preparation (Secombe, 2007). Mentees felt a lesser need for regular contact in semester 2 and one suggestion for this was that successful completion in the first semester medical physics UOS promoted confidence and thus the peer-mentoring program had fulfilled its objectives. The experiences of the DR Peer Mentoring program will be used to build pedagogy for medical radiation physics to promote widener inclusion of all enrolled students with respect to their entry background. Furthermore valuable insights into the peer mentoring structure will be used to assist in the implementation of a wider Faculty of Health Sciences cross-disciplinary peer mentoring initiative, known as Belong@FHS, in 2013.

Questions for Discussion

1. What are the reasons why students choose not to participate in mentoring?
2. How can mentors be better supported in their role: does peer support work better in larger teams?
3. Should peer mentoring be integrated into the curriculum as a key teaching strategy or should it remain separate?

References


