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## Who benefits most from peer support group? – First year student success for Pathology students

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### Abstract

A myriad of interventions are required to maximize waning student success in higher education. A non-hierarchical peer support group for 'at risk' and 'non-at risk' students is a logistically advantageous form of mentoring that uses mentors from the same cohort. This method was implemented for first year Medical Radiation pathology students in 2014 and 2015 at the University of South Australia, as the 'Study Buddy Support' (SBS) scheme. Students identified as 'at risk' of failing the pathology course from their mid-semester quiz results and who participated in the scheme performed significantly better in the final exam, while those who studied independently did not. There may be a similar positive trend in those who were not considered 'at risk' but participated in the scheme. Implementation of the 'Study Buddy Support' (SBS) scheme is recommended for both 'at risk' and 'not at risk' first year students across disciplines.

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## 1. Introduction

### 1.1 Assistance in first year necessary to maximise the rate of success in higher education

In modern mass higher education there is a lamentably high dropout rate and timely completion (< 5 years) is as low as 60% (Andrews & Clark, 2011; Twigg, 2009). It is widely acknowledged that student retention and success in higher education is heavily shaped by the experience in the first semester of study (Thalluri & King, 2009; Twigg, 2009). Four major recurrent problems leading to termination of studies have been highlighted by students in Australia (McInnis et al., 2000; Zeegers, 2001; Zeegers & Martin, 2001). There has been success in combating the perception of overloaded curriculum and insufficient teaching with attention to transition pedagogy, such that students feel guided in their new endeavour (Wilson & Lizzio, 2012). Loss of interest in the chosen area of study is potentially difficult to address, but emphasis on relevance has enhanced student satisfaction and improved learning outcomes (Thalluri et al 2006). Inadequate advice on overcoming academic problems was another issue raised, and prompts attention to flexibility in the learning environment. Furthermore, timely diagnosis and appropriate support has proven beneficial for students at risk of failing or dropping out (Park & Choi, 2009; Thalluri, 2016). Upon receiving early attention from the academic staff and the university, students reported a more positive experience throughout their first year of university and were less likely to withdraw from their course (Thalluri & King, 2009). It is evident that students benefit from assistance in developing the broad variety of skills necessary for success in higher education, including foundational/assumed knowledge, study skills, and social and academic engagement.

The UniSA Learning and Teaching Unit (LTU) aims to help students succeed in their learning by providing assistance in a variety of forms such as appropriate pedagogies, advisory services, and orientation activities (Benson et al., 2009; Penman & Thalluri, 2014). The 'Study Buddy Support' scheme is a key program that has been introduced to assist students in a smooth transition to university studies (Thalluri et al., 2014).

### 1.2 The 'Study Buddy Support' (SBS) scheme

The effectiveness of peer mentoring in aiding successful transition to higher education is well established. There are many types of mentoring or coaching that aim to improve student happiness, success, and retention in the first year of higher education (Andrews & Clark, 2011; Heirdsfield et al. 2008). Traditional methods are hierarchical, in that the mentor or coach is senior in age, experience, or both (Andrews & Clark, 2011), however this appears to be a logistically inefficient structure due to study/clinical placement commitment clashes. The 'Study Buddy Support' (SBS) scheme was implemented because it uses an innovative non-hierarchical structure, in which an outstanding student coaches a small group of struggling students within the same cohort in science courses of nursing and midwifery programs (Thalluri et al., 2014). In this structure, both Buddies (mentees) and Buddy leaders (mentors) have same study goal and so both parties are benefitted. This enables staff to provide this service free of charge which minimises obstacles to joining the scheme (Thalluri et al., 2014).

The SBS scheme is a targeted style of peer mentoring, wherein the main thrust is peer tutoring in both course-specific knowledge and more general approaches to study. It aims to provide more personalised and interactive teaching/learning, demonstrate ways to manage the size of the curriculum, and provide advice on overcoming academic problems. Further projected benefits of the scheme include enhanced engagement with both the course and fellow peers within the course (Colvin, 2007; Thalluri et al., 2014). In this way the scheme aims to provide a positive experience for first year students, and thereby increase student retention and success in the program and in their future professional life.

### 1.3 Implementation of the 'Study Buddy Support' (SBS) scheme

The 2014 and 2015 cohorts of the first year pathology course in the Medical Radiation Science undergraduate program at the University of South Australia were chosen for the SBS scheme. The first course assessment, a quiz (15% of the final grade), was administered in week 5. 'At risk' students (those who got 60% or less in the quiz) were invited by the course coordinator via email to become a buddy. A second round of invitations were sent to the 'non-

risk' students, to be taken up if a student wished to improve their already adequate performance. High achieving students from the same cohort were invited to become buddy leaders. Groups of 4 buddies per buddy leader were formed by the course coordinator with attention to cultural and academic compatibility. Buddy leaders received training and a handbook in tutoring and coaching prior to the commencement of the SBS scheme.

In preparation for the final exam (60% of the total assessment, in MCQ format), the course coordinator provided 50-70 practice multiple-choice questions (MCQs) each week to be discussed in a dynamic group format in the resource room on campus for two hours, or until correct answers were gained and understood. Buddy leaders were provided with answers in advance for teaching purposes, and a coordinator was present for consultation if necessary. The MCQs and answers were afterwards distributed to non-SBS participants also. In the swot vac week, a celebration was organised to thank buddy leaders and lunch were provided for all SBS participants. Buddy leaders also received a book voucher and certificate of high achievement.

#### *1.4 Aims of this study*

This study aimed to assess the effectiveness of a non-hierarchical peer-coaching scheme in comparison to solo independent learning, through analysis of final exam scores and participant feedback via survey.

## **2. Methods**

Results of the initial quiz and the final exams of 2014 and 2015 were divided into the five identified groups: 'at risk' students who participated in the SBS scheme, 'at risk' students who did not participate, 'non-risk' students who participated in the scheme, 'non-risk' students who did not participate, and buddy leaders. Raw data was utilised for quantitative analysis of the efficacy of the SBS scheme through two way ANOVA with Tukey's post hoc test.

In 2014 only, a survey was administered after completion of the SBS scheme to both the buddies and buddy leaders, to provide qualitative information about its strengths and weaknesses on a classic Likert scale. The survey contained a foreword on its purpose and consent was assumed from participation. Confidentiality was maintained through anonymity. Ethics approval was obtained from the Human Research Ethics committee of the University of South Australia.

## **3. Results**

In 2014 and 2015, a total of 159 students enrolled in first year pathology for Medical Radiation Science students. Three withdrew not fail (WNF) before the quiz and seven did not sit the final exam. Of the 15 who were identified as at risk of failure due to their quiz results and participated in the SBS scheme as buddies, only 13 sat the final exam (2 absent for health or humanitarian reasons). Eighteen 'at-risk' students did not accept the invitation, and of these 15 sat the exam. There were 25 buddies who were not considered at risk of failure ('non-risk' students) but chose to attend the SBS scheme. Less than half (15 out of 33; 45.5%) of the students deemed 'at-risk' became buddies. There were a total of 40 buddies (15 'at-risk' plus 25 'non-risk'). The majority of students (89) were considered not at risk and chose to study independently, and of these 87 sat the exam. Nine exceptional students were recruited as buddy leaders for the SBS scheme. Thus, a total of 149 students were included in this study.

Quiz scores of 'at-risk' students who partook in the SBS scheme and who studied independently (non-SBS) were similar (49.2% and 49.6% respectively). However, while 'at-risk' non-SBS students' average exam score rose marginally to 55.4% (+5.8), 'at-risk' SBS students' exam scores were significantly increased (73.8%; +24.6;  $p < 0.0001$ ). There was minimal difference between the quiz scores of 'non-risk' students who joined the SBS scheme and who studied independently (71.9% and 76.2%) as non-SBS students. While there was no significant difference in average quiz and exam score for those in the SBS scheme (71.9% to 76%), those who studied independently fared less well in their exam than in the quiz (76.2% in quiz to 69.5% in exam; -6.7;  $p < 0.0001$ ). By definition, 'at-risk' SBS students exhibited a lower quiz score than 'non risk' SBS students ( $p < 0.0001$ ). However, there was little difference between their exam scores (73.8% and 76%). Buddy leaders' performance slid marginally from quiz (91%) to exam (84.4%).

Table 1. Students' assessment performance

|  | n  | Quiz average score (%) | Exam average score (%) | Difference in score |
|--|--|------------------------|------------------------|---------------------|
| <b>'At-risk' students in the SBS scheme</b>      | 13 (2 student excluded due to non-attendance of final exam)  | 49.2                   | 73.8                   | +24.6               |
| <b>'At-risk' students in the non-SBS scheme</b>  | 15 (3 students excluded due to non-attendance of final exam) | 49.6                   | 55.4                   | +5.8                |
| <b>'Non-risk' student in the SBS scheme</b>      | 25   | 71.9                   | 76.0                   | +4.2                |
| <b>'Non-risk' students in the non-SBS scheme</b> | 87 (2 students excluded due to non-attendance of final exam) | 76.2                   | 69.5                   | -6.7                |
| <b>Buddy leaders</b>                             | 9  | 91                     | 84.44                  | -6.7                |

Out of 16 buddies, 15 responded to the 2014 post-scheme survey. All buddies and buddy leaders thought the scheme assisted their summative assessment preparation (15 and 4 students respectively). The majority of buddies (12 students; 80%) and all buddy leaders (4) felt comfortable asking questions. All buddies and buddy leaders agreed that the study plan and practice questions that the coordinator provided assisted them in learning the course content (15 and 4 students respectively). Ten (63%) of the buddies thought that because of the SBS group lessons they felt less anxious going to the exam, four were neutral, and one disagreed. Three (75%) of the buddy leaders agreed, while one replied neutrally. Twelve buddies felt prepared for their final exam due to the weekly SBS meetings, while 4 did not; conversely all (4; 100%) of the buddy leaders felt prepared as a result of the scheme. All buddies and buddy leaders felt that the SBS group meetings provided them with opportunities and a friendly atmosphere to learn with their peers. A large proportion (10; 63%) of buddies made friends in their class due to the SBS meetings, and all of the buddy leaders did. Eight buddies affirmed that the initiative increased their interest in the subject (53%), while 5 responded neutrally. Interestingly, a minority (2; 13.3%) of buddies disagreed or strongly disagreed with this statement. All of the buddy leaders considered their interest in the subject increased as a result of the scheme (4; 100%). Eleven buddies thought that the scheme honed their learning methodology and skills (86.6%) and 4 were neutral in their response (26.6%), while all buddy leaders agreed (100%). All buddies (100%) declared themselves satisfied with their buddy leader. All buddies and all buddy leaders recommended this initiative to other students who have difficulty with the course content (15 and 4 students; 100%).

The survey invited participants to comment on the best and most important outcomes of their participation in the SBS scheme. The chance to clarify information was highlighted: "BL (buddy leader) explained the things I didn't understand at the lectures". Several buddies touted the enforced revision: "forced me to study pathology with helped me prepare for the final exam". There was also some acknowledgement of the social engagement: "knowledge and friends". Buddy leaders thought the scheduled revision was beneficial to themselves as well: "gives you the motivation to study progressively for the exam rather than cramming so reduces stress around exam time". They also referenced the benefit of multiple iterations of material: "going over course material multiple times, the more I study, the better my understanding and my breadth of knowledge". The one suggestion for future offerings of the scheme was a smaller group size (less than 4).

#### 4. Discussion

Mentoring or coaching is an established adjunct to formal learning arrangements (Andrews & Clark, 2011). A non-hierarchical approach wherein students of academic excellence coach struggling students within the same year level and cohort is a relatively new form of mentoring which was implemented and assessed in this study. The

scheme was successful in bolstering marks, engagement, and satisfaction of student experience in their first semester of study. The 'Study Buddy Support' (SBS) scheme is therefore recommended for implementation for future first year students who are particularly at risk of failing or dropout from their degree.

Week 5 quiz scores of 'at-risk' students who did and did not participate in the SBS scheme were similar. While the non-SBS students' exam scores showed marginal improvement, those at risk who participated in the SBS scheme boasted greatly improved exam scores ( $p < 0.0001$ ). This improved final exam performance is attributed to the SBS scheme. 'Non-risk', non-SBS students' performance declined ( $p < 0.0001$ ). This drop may be due to being comfortable with the quiz marks, lack of motivation to do set weekly revision, lack of group discussion with their peers, the larger body of material included in the exam, the convergence of final assessments for several courses in a short space of time, and fatigue from a semester of study. Conversely, 'non-risk' SBS students showed improved exam performance, so non-hierarchical peer coaching appears to bolster learning and motivation. Furthermore, buddy leaders asserted that the study plan and practice questions that the coordinator provided assisted them in learning the course content, and that the scheme honed their learning methodology and skills. Although buddy leaders academic performance dropped slightly, they develop other valuable skills in mentoring and tutoring, self-confidence and time management skills. It appears the SBS scheme may be beneficial regardless of initial academic performance, so implementation for the full cohort (those who are interested) could be considered in the first semester of study.

Less than half (45.5%) of the 'at-risk' students participated in the SBS scheme, perhaps due to work commitments and anxiety which impedes engagement and academic success. Indeed, 80% of the buddies but all buddy leaders were comfortable asking questions in the sessions. Nevertheless, all endorsed the friendly atmosphere for learning and a large proportion made friends in the class (63% of buddies and 100% of buddy leaders). Participation in the scheme decreased anxiety about the exam in 63% of buddies and 75% of buddy leaders, perhaps in part due to the opportunities to engage with the course and fellow students. The SBS scheme appears to improve engagement as well as course performance.

#### 4. Conclusion

In the modern climate of mass education and poor retention, it is increasingly important to aid student academic success and positive engagement in their first year of tertiary education. The 'Study Buddy Support' (SBS) scheme is a non-hierarchical coaching scheme that aims to nurture learning, learning methodology, and student engagement, thereby setting up students for academic success in their first year and beyond. Exam performance of 2014 and 2015 first year pathology students and survey responses from 2014 students demonstrate the success of the SBS scheme for students across the board (but potentially not for buddy leaders although they gain many important skills such as leadership skills). Thus, the SBS scheme is recommended for implementation alongside other interventions for student success in higher education.

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