Embedded academic writing support for nursing students with English as a second language

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Abstract

Title. Embedded academic writing support for nursing students with English as a second language.

Aim. This paper reports a study which evaluated a brief, embedded academic support workshop as a strategy for improving academic writing skills in first-year nursing students with low-to-medium English language proficiency.

Background. Nursing students who speak English as a second language have lower academic success compared with their native English-speaking counterparts. The development of academic writing skills is known to be most effective when embedded into discipline-specific curricula.

Methods. Using a randomized controlled design, in 2008 106 students pre-enrolled in an introductory bioscience subject were randomized to receive either the intervention, a 4-day embedded academic learning support workshop facilitated by two bioscience (content) nursing academics and a writing and editing professional, or to act as the control group. The primary focus of the workshop was to support students to work through a mock assignment by providing progressive feedback and written suggestions on how to improve their answers.

Results. Of the 59 students randomized to the intervention, only 28 attended the workshop. Bioscience assignment results were analysed for those who attended (attendees), those randomized to the intervention but who did not attend (non-attendees), and the control group. Using ANOVA, the results indicated that attendees achieved statistically significantly higher mean scores (70±8, SD: ±6±1) compared to both control group (58±4, SD: ±3±4, P = 0±002) and non-attendees (48±5, SD: ±5±5, P = 0±001).

Conclusion. A brief, intensive, embedded academic support workshop was effective in improving the academic writing ability of nursing students with low-to-medium English language proficiency, although reaching all students who are likely to benefit from this intervention remains a challenge.

Keywords: academic writing, embedded writing support, nursing students, randomized controlled trial, second language
Introduction

One of the fundamental requirements of higher education is the need for students to develop high levels of academic writing (Elander et al. 2006). While academic writing is important in demonstrating scholarship and promoting student progression (Whitehead 2002), it has been shown to be particularly important in health science courses such as nursing, where there is a demand for specific nursing content language to be communicated in clinical settings (Mattila & Eriksson 2007).

The issue of academic writing skills is well-recognized in the general educational literature (Fallahi et al. 2006), including in relation to nursing students (Bochner 1989, Gimenez 2008). Although academic writing can be a challenge for all nursing students (Gimenez 2008), it is particularly problematic for those who speak English as a second language (ESL). The challenges these nursing students face in acquiring sufficient competency in academic writing have been well-documented internationally (Phillips & Hartley 1990, Jalili-Grenier & Chase 1997) and in Australia (Shakya & Horsfall 2000). Further, the attainment of an adequate level of academic writing by ESL students has been observed to be even more difficult in the biological sciences, where lower levels of English language proficiency can make it difficult for students to both understand (Omeri et al. 2003) and process complex concepts (Cohen 1998). While ESL nursing students are known to have lower academic performance compared to their native English-speaking counterparts (Femea et al. 1994, Malu & Figlear 1998, Brown 2001, Guhde 2003), this has also been demonstrated in relation to the discipline-specific area of the biological sciences (Salamonson et al. 2008).

Background

Nursing academics face major challenges in promoting academic writing skills for ESL nursing students. Strategies vary in institutions that offer support for these students, but can include adjunct courses (Snow & Brinton 1988), bridging programmes (Cargill 1996), supplementary tutorials (Chur-Hansen 1999), individual tutoring (Huijser et al. 2008) and one-to-one writing consultation (Woodward-Kron 2007). The majority of this support, however, is usually provided by academic support units (Wingate 2006), which Chanock (2007) has referred to as a form of ‘crash repair shop where welding, panel-beating and polishing can be carried out on students’ texts’ (p. 273). Although there is some support for this type of generic academic skills unit (Bell & Egan 2009), strategies to support academic writing that are discipline-specific (Cargill 1996), integrated with content knowledge (Evans & Bart 1995) and context-embedded (Abriam-Yago et al. 1999), are most likely to result in improvement of academic writing skills (Huijser et al. 2008).

In a systematic review of educational strategies that could enhance teaching and learning situations in diverse teacher–student encounters, Omeri et al. (2003) identified integrating language and learning skills into nursing programmes as an educational strategy to meet the academic challenges faced by nursing students, including those from non-English speaking backgrounds. This is commonly referred to as embedded support; however, there has been little empirical research into whether intensive, structured and targeted academic writing support, which includes remedial work, is effective in improving the academic writing of ESL nursing students with low English language proficiency.

Although discipline-specific teaching staff may be the most appropriate source for providing embedded support to improve students’ academic writing (Cameron 2008), they may not be trained in assisting students in the conventions of good writing, observing syntax and organizing text, or they may believe that they lack the time required to spend on developing students’ academic writing skills (Wingate 2006). Clearly, there is a need to ‘build bridges’ between content and writing experts, to support the development of students’ academic writing skills better.

The study

Aim

The aim of this study was to evaluate a brief, embedded academic support workshop provided by both content and writing experts as a strategy for improving academic writing skills in first-year nursing students with lower levels of English language proficiency.

Design

We performed a randomized controlled trial during the inter-semester break in July 2008 with 106 nursing students who had pre-enrolled in an introductory bioscience unit the following semester. The intervention group \( (n = 59) \) were offered a 4-day embedded academic writing support workshop. As a requirement of the University ethics committee, participants allocated to the control group \( (n = 47) \) were given information on the availability of the generic academic literacy programme offered by the University.

An a priori analysis of statistical power calculation was conducted using G*Power3 (Faul et al. 2007). To detect a
large effect size of 0.8 with power of 90% (two-sided test at alpha = 0.05), 34 participants per treatment group were required. As a 2-day period was necessary for students to receive at least one complete iteration of the intervention process (Figure 1), we targeted the recruitment of 100 participants to allow for approximately 30% attrition, or failure to attend all 4 days of the workshop.

Participants

The study was conducted at a large university in Australia. Five hundred and twenty-eight first-year nursing students who had pre-enrolled in an introductory bioscience course were approached during tutorials in the first semester of their undergraduate nursing programme. They were invited to complete a questionnaire to indicate their interest in participating in an embedded academic writing workshop to be held during their inter-semester break. This questionnaire collected information about demographic characteristics and English language proficiency, as measured by the English language acculturation scale (ELAS, a copy of this scale may be obtained from the authors), as well as their learning approaches.

One-hundred and six (106) students met the inclusion criteria of: (i) low-to-medium English language proficiency, as measured by an ELAS score of < 19 (Salamonson et al. 2008); and (ii) available to attend a 4-day embedded academic writing workshop, hereafter referred to as the embedded workshop. Using a computer-generated randomization list, 59 students were randomized to attend the embedded workshop, and 47 were allocated to usual support, which included an invitation to attend a 5-day preparatory generic programme offered by the University. The aim of this programme was to develop essential skills for effective learning and assignment writing, and covered critical thinking skills, reading strategies, essay question/task analysis, essay structure, academic argument, editing and interpreting feedback.

Intervention

The primary aim of the embedded workshop was to assist students to work through a typical bioscience case study-based assignment. To this end, a simulated case study was prepared and used as the basis for the intervention. The resources required to complete the case study were made available to each student at the beginning of the workshop. This was to avoid the need for them to spend time searching for resources and to maintain the focus of the workshop on improving academic writing skills. The intervention was administered by two nursing academics who each had over 25 years’ experience in bioscience teaching and curriculum design, and a researcher with writing and editing expertise.

Figure 1 is a diagrammatic representation of the intervention process. The workshop began with students being given 20 minutes to make an attempt at answering a short question directly related to the case study. They then came together in small groups of six to seven and spent 15 minutes discussing how each had arrived at their answer. This was followed by a group discussion by 12–14 students led by a bioscience nursing academic.

Based on the group discussion, each student then returned to work independently to complete the short-answer...
question. Once completed, a nursing academic gave each student 10 minutes of individual feedback, focusing on the content of the answer. This feedback included not only explaining to the student what (if anything) was wrong with their answer but, importantly, how the answer could be improved by suggesting changes. The student used this feedback to revise their answer. Using the same feedback process, the writing skills expert then gave the student feedback on their academic writing, with suggestions for improvement. Again, students used this feedback to revise their answers and submit final versions. A nursing academic then graded the quality of their answers using predetermined marking criteria previously supplied to students with the case study. This iterative process of students revising their work based on feedback by a content and a writing expert was repeated for each component of the case study.

Outcome measures

The assessment component of the second semester introductory bioscience course required students to submit an essay based on a wound care case study. Marks for this assignment were used as the primary outcome measure. The assignments were marked by nursing academics not associated with the study. Marks for the final examination for this course, which consisted of multiple-choice questions, were used as the secondary outcome measure.

Ethical considerations

Ethics approval was obtained from the university ethics committee. Participants were informed that participation was voluntary, and they were able to withdraw from the study at any time. Written informed consent was obtained from all participants.

Data analysis

All statistical calculations were performed using the computer software SPSS 17.0 for Windows (SPSS Inc., Chicago, IL, USA). We used chi-square analysis to test for differences in proportions, and independent t-test analysis for differences in means between normally distributed continuous variables (ELAS score, average hours of paid work, and assignment marks). The Mann–Whitney U-test was used to test differences in age, which was not normally distributed. For comparison with academic performance (assignment marks and final examination marks) between embedded workshop attendees, non-attendees and the control group, one-way analysis of variance (ANOVA) was used, followed by post-hoc Sidak’s test to determine which groups were statistically significantly different from each other.

Results

Baseline data

There were no statistically significant differences between intervention and control groups at baseline. Eighty-four percent of the participants were female, with a mean age of 27.2 years (SD: 9.9), and 59% were engaged in paid employment (mean hours of paid work per week: 17.3, SD: 11.6). Almost all (93%) were born outside Australia, and approximately half (49%) were international students who had come to Australia to study. The ELAS scores ranged from 8 to 18, with a mean of 13.5 (SD: 2.9). These results are shown in Table 1.

Of the 59 participants randomized to the intervention, 31 agreed to attend the embedded workshop. Twenty-eight of the 59 (47%) originally randomized to the intervention declined the offer to attend the embedded workshop, despite having indicated earlier that they were interested

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Overall (n = 106)</th>
<th>Intervention group (n = 59)</th>
<th>Control group (n = 47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (SD) years (Range: 18–60)</td>
<td>27.2 (9.9)</td>
<td>27.2 (9.5)</td>
<td>27.1 (10.5)</td>
</tr>
<tr>
<td>Sex, female (%)</td>
<td>84</td>
<td>88</td>
<td>82</td>
</tr>
<tr>
<td>Non-Australian born (%)</td>
<td>93</td>
<td>92</td>
<td>96</td>
</tr>
<tr>
<td>International students*, %</td>
<td>49</td>
<td>54</td>
<td>43</td>
</tr>
<tr>
<td>English language acculturation score, mean (SD) (Range: 8–18)</td>
<td>13.5 (2.9)</td>
<td>13.7 (2.9)</td>
<td>13.2 (2.9)</td>
</tr>
<tr>
<td>Paid employment (%)</td>
<td>59</td>
<td>54</td>
<td>64</td>
</tr>
<tr>
<td>Average hours of paid work during semester, mean (SD), hours per week (Range: 0–60)</td>
<td>17.3 (11.6)</td>
<td>15.5 (10.5)</td>
<td>19.5 (12.6)</td>
</tr>
</tbody>
</table>

*Students who had come to Australia to study.
and available to attend. Reasons given for declining the offer included involvement in paid work, family commitments and transport difficulties. A further six participants were unable to attend for at least 2 days, and two did not enrol in the second semester bioscience course, meaning that their results were not available for analysis. This resulted in 23 participants being eligible for inclusion in the final analyses. Because of the high attrition from the intervention group, for the purpose of analysis this group was further divided into embedded workshop attendees and non-attendees.

Of the 47 participants allocated to the control group, three attended the generic workshop offered by the University. Thirteen had no assignment mark as they had either left the unit or had not submitted the assignment, leaving data from 34 students available for comparison (Figure 2).

Primary outcome

Table 2 presents the results of the one-way ANOVA of assignment marks which show a statistically significant difference ($P < 0.001$) between the three groups: (i) those allocated to the intervention group and who received the intervention (attendees); (ii) those allocated to the intervention group and who did not receive the intervention (non-attendees); and (iii) those allocated to the control group. Post-hoc comparison using Sidak’s test revealed attendees achieved statistically significantly higher mean assignment marks (70.8, SD: 6.1) compared to both the control group (58.4, SD: 3.4, $P = 0.002$) and non-attendees (48.5, SD: 5.5, $P = 0.001$). Comparison of assignment marks between control and non-attendees also revealed statistically significant results ($P = 0.008$).

Figure 2 Flow of participants through the study.
Secondary outcome

Table 2 also presents the results of the one-way ANOVA of final examination marks, which showed a non-statistically significant difference ($P = 0.051$) between the three groups. However, a similar trend, in which attendees performed better than the control group, who in turn also performed better than non-attendees, was also observed.

Discussion

Study limitations

The main limitation of this study was the high proportion of participants, following randomization to the intervention group, who declined the invitation to attend the embedded workshop, even though they had previously expressed an interest and commitment to do so. Thus, the study was under-powered. It is likely that the statistically significantly higher assignment marks achieved by embedded workshop attendees compared to non-attendees is partially due to volunteer bias, whereby study participants tend to be more motivated (Troidl et al. 1991). Despite this, attendees also achieved statistically significantly higher assignment marks in comparison to the control group, indicating the effectiveness of the embedded workshop intervention in improving academic writing, over and above the potential effects of higher motivation levels of embedded workshop attendees. Although students in the control group were offered information about the generic academic literacy programme offered by the University, the uptake of this programme was low. Hence, a comparison between the embedded workshop vs. a generic academic literacy programme could not be undertaken.

Another study limitation was the potential variability in inter-rater assignment grading, which may have had an impact on the study findings. Nevertheless, cross-marking and moderation of assessment marks were undertaken, and none of the researchers involved in this study marked these assignments.

Discussion of results

The purpose of this study was to evaluate the effectiveness of a brief, intensive, embedded academic support workshop in improving the academic writing ability of nursing students with low-to-medium English language proficiency. By having a comparison group in our experimental design, the results demonstrated that this intervention had a specific beneficial effect on improving academic writing in low-to-medium English language proficiency nursing students, while controlling for other confounding factors. To our knowledge, this specific finding of the effectiveness of embedded academic support for low-to-medium English language proficiency nursing students has not previously been reported in the literature.

Due to the low take-up rate by the control group of the generic academic programme offered by the University, we were unable to evaluate its effectiveness in comparison to the embedded workshop intervention. In spite of this, our study gives credence to the argument of Wingate (2006) and Chanock (2007) for using strategies to support student learning not as a ‘bolt-on’ approach where study skills are divorced from subject content, but ‘built-in’ or embedded, where learning skills are developed as an integral part of the study programme.

Our study provides preliminary evidence that an embedded discipline-specific approach that draws on the skills of both the content and writing experts is effective in supporting low-to-medium English proficiency nursing students. This result supports the proponents of embedded integrated learning support and adds to the increasing evidence supporting this approach over the last two decades (Snow & Brinton 1988, Cargill 1996, Whitehead 2002, Gimenez 2008, Huijser et al. 2008).
What is already known about this topic

- The problem of poor academic writing skills is well-recognized in higher education, including among nursing students who speak English as a second language.
- The attainment of adequate levels of academic writing skills by students with English as a second language is particularly difficult in disciplines such as the biosciences that require an understanding of complex concepts.
- There is a prevailing belief among educators that academic writing problems are related to language usage, syntax, structure and organization and are separable from content; thus, support in academic writing is often delegated to language and learning advisors.

What this paper adds

- Students who attended the embedded workshop achieved statistically significantly higher assignment marks compared to non-attendees and students randomized to the control group.
- Although not statistically significant, a similar trend was evident in the final examination results, with attendees outperforming students in the control group and the non-attendee group.
- Reaching all low-to-medium English language proficiency students who were likely to benefit from the embedded workshop was a challenge, as more than half of invitees to the intervention declined this invitation.

Implications for practice and/or policy

- An embedded academic writing workshop supported by both content and writing skill experts is effective in improving the academic writing skills of students with low-to-medium English language proficiency.
- Alternative outreach academic support strategies need to be explored, to assist students with English as a second language who are unable to commit to a brief, intensive 4-day embedded academic writing workshop.

Although there is increasing recognition of the benefits of embedding academic writing skills, the ‘bolt-on’ approach continues to be the predominant approach in many universities, primarily due to the reluctance of academic staff to concern themselves with student academic skills development, as this requires the commitment of all academics teaching on the course (Biggs 1996, Drummond et al. 1999). While the commitment to excellence in teaching has its own reward, a shift in balance of academics’ investment of effort into teaching will require the realignment of policy priorities given to teaching and research, so that universities can place more emphasis on improving undergraduate teaching (Chanock 2007). In addition, any suggestion of academics spending teaching time on the development of academic skills is likely to raise concerns among some stakeholders, for fear that it will divert time and attention away from the teaching of discipline-specific academic content (Wingate 2006).

Despite the improvement of academic writing skills among workshop attendees demonstrated in this study, ESL students do not usually become good academic writers overnight. Rather, they require intensive and sustained feedback on their writing in multiple assignments, and need to continue to apply this feedback to improve their academic writing. Nevertheless, it may still be worthwhile to follow up this group of students to determine if this brief, intensive embedded intervention has a long-term impact on their academic writing skills. It may also be worthwhile to explore if the skills gained from this strategy are transferred by these students to their other units of study, or if an embedded support approach in units other than bioscience may yield similar benefits.

Conclusion

This study provides preliminary evidence that a brief, intensive, embedded academic support workshop was effective in improving the academic writing ability of nursing students with low-to-medium English language proficiency, reflected by their higher bioscience assignment scores. Results of this study offer a promising approach for improving the academic writing ability of low-to-medium English-proficiency students in order to promote academic success of this at-risk student group, although reaching all students who are likely to benefit from this intervention remains a challenge.

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Conflict of interest

No conflict of interest has been declared by the authors.
Author contributions
YS and JK were responsible for the study conception and design. YS, JK and RW performed the data collection. YS, RW and BE performed the data analysis. YS, JK, RW, BE and DJ were responsible for the drafting of the manuscript. YS, RW, BE and DJ made critical revisions to the paper for important intellectual content. YS and BE provided statistical expertise. YS and JK obtained funding. YS and DJ provided administrative, technical or material support. YS supervised the study.

References

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