Improving undergraduates’ performance via an embedded generic skills program

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Government and students expect universities to provide skills, knowledge and attributes that contribute to the country’s and individual’s gain. In 2008, the Bradley Report highlighted deficiencies in this regard, and called for universities to provide quality academic provision, increased student enrolments and higher completion rates. Central to achieving this is the development of generic skills, which provide the foundation through which discipline specific knowledge and skills are demonstrated. Whilst their importance is universally recognised, research into their successful development is limited and shows mixed performance results. This paper aims to contribute to these goals by reporting on the preliminary findings of an embedded intervention program targeting first year management students at Swinburne University of Technology. The program invites students to identify perceived areas of concern in their generic skill sets, which are then used to customise a workshop delivered early in the term as part of their unit. Preliminary analysis shows most students entered the management unit with both high, unrealistic result expectations and significant confidence in their generic skill sets. During the term, both changed, with over 50% finding the embedded program useful. The overall impact of the program on academic results compared to previous years was marginal but insights into specific areas of concern were identified. These may assist those considering implementing generic skill support programs. More research is now needed to identify the parameters of the response needed to bring significant change in performance.

Keywords: generic skills pilot study, improving academic performance

Background

Universities play a central role in a country’s development. Governments expect them to provide an educated workforce. Students expect to increase their skills and knowledge whilst developing attributes that contribute to their mobility and lifelong learning (AQF Council, 2009). In 2008, the Australian government commissioned a review of the higher education sector to assess its ability to meet these needs. The resulting report (known as the Bradley Report) indicated that by 2010, there would be insufficient undergraduates to meet industry demands (Access Economics, in Bradley et al., 2008, p. xi) and that overall, Australia was falling behind other countries in education performance and investment (Bradley et al., 2008, p. xi). The report raised three important questions:

1. how to increase the number of individuals entering university;
2. how to raise students’ academic performance once there; and
3. how to improve students’ retention and completion rates.

To meet the undergraduate shortfall, Bradley et al. (2008, p. xi) recommended that academic institutions broaden their student intake to include those disadvantaged by circumstances of birth. Underpinning these recommendations is the assumption that universities will be able to
accommodate and develop a wider range of entry level knowledge and skills whilst increasing completion rates and enhancing academic performance. This is a challenge. Although universities are set up to develop undergraduates discipline specific knowledge and skill levels, only a fraction of study time is given over to developing the generic skills needed to demonstrate this learning. Generic skills are common skills used to demonstrate discipline specific knowledge and skills and include communication skills, critical thinking skills, group and individual work skills, amongst others.

This lack of focus on generic skill development is not because their importance is questioned. The Australian Quality Framework Council, which set the guidelines for universities, argues that generic skills should be embedded in the learning outcomes of every university subject outline (AQF, 2009, p. 4). Academics also acknowledge that without generic skills, a student’s capability and cognitive ability to demonstrate learning is undermined (Durkin & Main 2002). This is significant since poor student ability has also been linked to increased failure, feelings of inadequacy, isolation and a general lack of belonging, all key causes of dropout for first year students (Durkin & Main 2002; Wingate in Baik & Greig, 2009). Therefore, improving a student’s generic skills may contribute to both improved academic performance and degree completion, factors indicated as important by Bradley et al. (2008). Given this evidence, the question of why more attention is not paid to developing generic skills is highlighted. One limitation is a lack of evidence showing that non discipline specific generic skill training positively affects students’ learning and academic outcomes, “or that the generic ‘transferable’ skills taught in the programs are applied by students in other courses” (Baik & Greig, 2009, p. 403).

Difficulty in improving generic skills may be linked to their elusive nature – they appear simple but in reality are often multi-faceted and complex to grasp. For example, ‘communicating effectively’ requires not only understanding the audience but also being able to present information in a way that meets that audience’s needs (Hyland 2002, North 2005, Hutchings, 2006). At university, this presents some interesting challenges. Universities demand that first-year students acquire a broad range of foundation, discipline-specific concepts in a 12-week term. Little time is left over. It is assumed or expected that students will either arrive at university with a strong set of generic skills appropriately contextualised for application, or that students fill any gaps in this area during study. This is difficult for most students since generic skills are embedded within a discipline’s knowledge and skills (AQF, 2009) so being judged as proficient in them requires an existing discipline understanding.

Take, for example, the generic skill ‘communication’. Pure science subjects judge effective communication on demonstrated problem solving skills, the accurate use of facts and figures and concisely written text to outline experimental results (Neuman, 2001 in North, 2005, p. 519). In contrast, soft science subjects, like the humanities and social sciences, judge effective communication on critical thinking ability, clarity of oral and written expression and the analysis and synthesis of multiple concepts (Neuman, 2001 in North, 2005, p. 519). The differences are significant. They arise from the fact that pure sciences see knowledge as derived from reality whilst the humanities and social sciences encourage “a view of knowledge as an interpretation” (North, 2005, p. 519). It could be argued that in Management courses, students need both. The soft science approach is evident in foundation Management units whilst a more analytical hard science focus is demanded in more advanced Management units. Novices need to learn to contextualise the language and practices of the discipline (including how generic skill sets are applied) through participation (Baik & Greig, 2009).
Over the last year, concerns have been raised by Swinburne University of Technology academic staff teaching second and third year Management subjects about students’ varying generic skills ability and the high level of support being sought by them. Whilst the university has a faculty-wide generic Learning and Support (LAS) support centre, few students attend, preferring to take a ‘just in time’ learning approach, that is, to go to tutors first for help. One reason for this may be that students see the LAS generic support as not directly relevant to the multi-disciplinary approach adopted by the Faculty. Another reason may be the possible perception that LAS offers ‘remedial’ help for weaker students. Thirdly, it may be easier and less threatening to ask their tutors for help. This is supported by research showing higher attendance by students at discipline-specific forms of support which are felt to be more relevant and motivating (Ransom & Greig, 2007 in Baik & Greig, 2009; Durkin & Main, 2002). Whilst this generic skills support is not recognised by universities as part of a tutor’s main duties, personal experience shows that this is a student expectation, contributing significantly to student confidence in, and commitment to the unit. This support can place significant demand on academics, particularly at times close to assessment submission dates. In order to reduce this pressure, the Management discipline team decided to explore other models for developing and supporting generic skill development.

Despite the above described challenges, research in this area is limited (Baik & Greig 2009). This paper will add its contribution by reporting on the preliminary findings and evaluation of a pilot, embedded intervention program, targeting first year management students at Swinburne University of Technology. The paper outlines the research methods used and presents a summary of the key findings to date. It concludes by considering the implications of these findings for the provision of embedded generic skill support programs in tertiary institutions and argues that whilst embedding generic skills in specific programs helps in contextualising their application, greater understanding of this area is needed if student generic skill needs are to be adequately met.

The generic skills embedded intervention program

The ‘Introduction to Management’ unit at Swinburne University of Technology forms the basis of eight Bachelor of Business programs, ranging across Arts (for example, design degrees) Social Science (for example, economics) and Business subjects (for example, marketing, accounting). As such it offers an opportunity for students at the foundation level to identify and begin to build the academic skills necessary for success in their program. The ‘Introduction to Management’ unit is a 12-week course consisting of a one-hour lecture followed by a two-hour content-based tutorial each week.

The design for this program was not drawn from prior studies because of the limited research done in this area. However the design was informed by research in the areas of language support (Baik & Greig, 2009), blended online and offline programs (Le Rossignol, 2009), blended problem-based learning for teacher education (Donnelly, 2006) and change (Jones, 2003; Craine, 2007).

The generic skills development program is based on embedding generic skill development into the first year ‘Introduction to Management’ unit using a task-based approach. Being the first iteration of the program and therefore a pilot initiative, a small evaluation project was undertaken in an attempt to determine the success of the program.
The embedded approach is particularly relevant to this research because, as Baik & Greig (2009) note, novices learn to contextualise language and practise through participation. Part of this process includes recognising that skills acquired in one discipline (or area of life) may not be directly transferable to another (North, 2005) and must be adapted to attain success (Babbit & Mlynarczyk, 2000; Bruce, 2002; Kasper, 1997). Brotheridge and Long (2006) extend this idea further by arguing that, whilst education programs provide useful language to express views, these views may be too generic for specific work contexts. Students therefore need to be creators of knowledge rather than knowledge repositories (Ganache, 2002) and to use generic skills in ways that validate them within their discipline or work context.

Embedding the program into the unit increases the likelihood that most students will be captured in the program. This is particularly important as the intake of students broadens to include those from multiple backgrounds, for example, those from overseas and/or those with higher external and family commitments (Holley & Dobson, 2008). A demographic profile of the Semester 2, 2009 student cohort (n = 120 of which 60.8% completed the questionnaire) showed that school leavers formed the biggest component, followed by mature students, and international students. Of these, 15% were working more than 20 hours per week, 34.9% were working less than 20 hours per week and 10.9% were not working at all. This profile may well change as the Bradley et al. (2008) recommendations are implemented.

The embedded program was piloted in Semester 2, 2009, with all students enrolled in the ‘Introduction to Management’ unit invited to take part in the evaluation, that is, to complete the questionnaire in the first tutorial and last tutorial (voluntary) and to attend the workshop in a later-week tutorial (compulsory). In the light of the findings from this pilot, the program has been modified and is being run again in 2010 with a new intake of students from the ‘Introduction to Management’ unit.

**Aim**

This research has three pedagogical aims which are to:

1. gain a greater understanding of the level of confidence students have in their ability to carry out discipline-required generic skills;
2. examine whether or not the embedded program changed those perceptions; and
3. determine whether academic performance in this unit was positively impacted as a result.

**Method**

Prior to the start of the unit, a modular based generic skills workshop and supporting manual was developed by a Learning and Teaching Support (LTS) specialist together with the unit convenor. These generic skills were drawn from those assigned to the unit and from a review of generic skill development literature (for example, Bretag et al., 2009; Becker, 2009; Campling et al., 2008). The skills were categorised into four areas – organising time; listening, analysing and recording information correctly; organising and presenting information in a persuasive way; and performing well under pressure. Each of these generic skill areas contained six sub-topic statements which required students to respond on a 5-point Likert scale ranging from ‘This isn’t relevant’ to ‘I am good at doing this’.

In the first tutorial, students were asked to anonymously identify areas of strength and weakness in the chosen generic skill areas. Whilst this makes it impossible to track changes in
individual student’s perceptions of their generic skills, this approach does provide sufficient data to establish a broad trend across the cohort. Students were also asked to identify their final target grade. Findings from the first questionnaire were used to customise the workshop to address those areas identified as of significant concern by the students. However, foundation modules dealing with core unit skills, for example, critical thinking and effective communication, were included as a default.

The workshop was conducted in week 3, two weeks before submission of the first assignment.

In the final tutorial, students were asked to complete the same questionnaire, with the addition of two questions about the usefulness of the workshop and support manual. Students were also invited to respond to an open-ended question about what additional support they require to help them to improve their skills in the major generic skill areas.

The effectiveness of the intervention program was assessed from several perspectives using multiple methods. These included:

- questionnaires in the first and last lesson to identify students level of confidence in their ability to carry out specific generic skill sets;
- an analysis of students’ expected versus actual results for this first-year ‘Introduction to Management’ unit;
- an analysis of student’s academic results for this unit compared to results from the previous two years; and
- an analysis of student feedback on the value of the workshop and support manual.

To evaluate the effect of the program on changing students’ perceptions of their ability to carry out the identified generic skill areas, the findings from the first and final questionnaire were compared. In addition, the grade average score for the previous two years were compared with those of 2009 to identify any academic improvement between cohorts. At Swinburne University of Technology, the grade average score is calculated using the following formula: GPA = (4*hd+3*d+2*c+p)/(hd+d+c+p+n) where hd refers to the number of students receiving a high distinction mark, d the number getting a distinction mark, c the number getting credit marks, and p the number getting pass marks.

Out of the 120 students completing the unit students enrolled in the course, 80 volunteered to complete the start-of-term questionnaire (66.6% response rate) and 65 the end-of-term questionnaire (54.6% response rate). Data was analysed using SPSS with the open ended questions being coded and analysed separately.

**Results and discussion**

**Were there any changes in students’ confidence in their ability to implement specific generic skills during term time?**

Mean values for all skill sets surveyed at the start and end of term lay within the 3 to 4 range (where 1 = I consider this skill irrelevant to me, and 5 = I am good at doing this skill). This appeared to indicate that, generally, students felt confident in their ability to use all the generic skill sets investigated.

Of the 80 students surveyed, over 50% found it difficult to stay motivated throughout the term (Figure 1) and to manage their time effectively under pressure (Figure 2), although there was significant improvement in the latter during the term.
At the start of term, over 40% of the students surveyed were concerned about managing their course material and time, mapping out course requirements, setting realistic goals and tracking progress. As term went on, concern fell as students appeared to become more confident in these areas.

In contrast, there was a rise in concern during the term for over 40% of the students surveyed in the areas of resource management (estimating time accurately, fitting everything in, preparing for class); motivation (strategies for getting started) and information organisation (identifying and filling knowledge gaps, linking information logically together and mapping out essay structures under pressure). These results may be linked to students’ increased concern about their own time-management skills. This may also be why there was a rise in concern over the ability to prepare for lessons, review notes and link information, identify gaps and fill them, identify the usefulness of information, map out essay structure and link information logically together. All of these latter activities require time and thought, which tends to become more constrained as assignment due dates arrive in the latter part of the term.

Figure 1: How confident are you in your ability to organise your time?
Could changes in students' confidence in their ability to implement specific generic skills during term time be attributed to the workshop and support manual?

The main way to accurately assess whether changes in confidence levels arose as a result of the embedded generic skills program would be to have a control group excluded from the program. This would have been inequitable and was therefore not possible. Alternative ways of achieving a control group for a similar cohort of students is under consideration and will be included in later iterations of the program. In fact, 16.9% of the student cohort did not attend the workshop but since the questionnaires do not carry any individual identifiers, it is not possible to assess whether their perception changes were similar to those of students who did attend. The decision not to include an identifier on questionnaires is currently under review as it reduces the level of detail accessible for analysis.

Of students who did attend the workshop, 66% found it either ‘useful’, ‘very useful’ or ‘extremely useful’. Forty-seven percent used between half and all of the tips/strategies suggested in the supporting generic skills manual. Whilst this does not provide conclusive evidence that the workshop and manual brought about changes in generic skills ability, it does indicate that many students were motivated to engage with the support frameworks provided (see Tables 1 and 2).

One reason why the scores on workshop usefulness were not higher may have been that it was promoted as an academic and management skill development session, which may have deterred the students who did not attend (16.9% of the cohort). This indicates that some students may have had difficulty seeing the relevance of this session to their personal academic journey. In future, the title will be changed to directly link the generic skills development exercise to assessment success. In this way it is hoped that more students will be motivated to attend (Ransom & Greig, 2007; Durkin & Main, 2002, Baik & Greig, 2009).
Eighteen and one half percent of respondents answered the open ended question “Are there any other ways that would help us to help you to improve your skills in these areas?” Half indicated that there were not. The other half of responses were divided into two areas – tools to help improve comprehension of the material (for example, a general overview summary, revision questions per topic, lots of examples and practical activities) and help with developing assignment editing skills.

**Table 1: Summary of student evaluations on the usefulness of the generic skills manual in ‘Introduction to Management’ (n = 65)**

<table>
<thead>
<tr>
<th></th>
<th>No use</th>
<th>Used ¼ of tips</th>
<th>Used ½ of tips</th>
<th>Used ¾ of tips</th>
<th>Used most of tips</th>
<th>Average rating (out of 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I found the skills development useful</td>
<td>22</td>
<td>10</td>
<td>12</td>
<td>12</td>
<td>7</td>
<td>2.47</td>
</tr>
</tbody>
</table>

Two students did not answer this question.

**Table 2: Summary of student evaluations on the usefulness of the generic skills workshop in ‘Introduction to Management’ (n = 65)**

<table>
<thead>
<tr>
<th></th>
<th>Didn’t go</th>
<th>Used ¼ of tips</th>
<th>Used ½ of tips</th>
<th>Used ¾ of tips</th>
<th>Used most of tips</th>
<th>Average rating (out of 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I found the skills development useful</td>
<td>11</td>
<td>10</td>
<td>22</td>
<td>15</td>
<td>6</td>
<td>2.87</td>
</tr>
</tbody>
</table>

One student did not answer this question.

**What impact did the program have on students’ results?**

A comparison of grade point average scores for 2008 and 2009 cohorts shows a marginal improvement (from 1.25 in 2008 to 1.34 in 2009). The change in results cannot be wholly attributed to the introduction of the program, particularly as significant changes in the unit have been undertaken in the past year. It will be necessary to run the program again in 2010, with little modification to the unit content in order to validate the findings.

Another contributing factor may be that the students had unrealistic expectations about the results they expected from the course (see Table 3). As results came in during the term, this may have lead to a change in confidence in the ability to apply particular generic skill sets confidently. If so, this would match previous research findings that reveal students’ unrealistic expectations about their level of improvement (Erlenawati 2002; Fegan, 2006; Baik & Greig 2009). This may be particularly true of first-year students, who are transitioning into an academic environment and therefore have minimum, if any, experience of what is required. One way to help students to set more realistic expectations is, in the first lecture and tutorial, to draw their attention to these results and to talk about the factors that may work against them achieving their target goals. This would lead naturally into a discussion about the value of an embedded generic skill program to provide personal support and development.
Table 3: Expected versus actual student results as percentage of whole for ‘Introduction to Management’

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage of students expecting this mark (n = 59)</th>
<th>Percentage of students who finally received this mark (n = 123)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pass</td>
<td></td>
<td>24%</td>
</tr>
<tr>
<td>Pass</td>
<td>5%</td>
<td>36%</td>
</tr>
<tr>
<td>Pass/credit</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Credit</td>
<td>17%</td>
<td>25%</td>
</tr>
<tr>
<td>Credit/distinction</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Distinction</td>
<td>39%</td>
<td>11%</td>
</tr>
<tr>
<td>Distinction/high distinction</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>High distinction</td>
<td>15%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Seventy-five per cent of those failing the unit did so because they did not submit all assessment pieces.

Conclusion

**What implications do these results have for current educational practice and policy?**

The underlying pedagogical framework of the embedded model assumes that students’ motivation to improve their generic skills will increase when these skills are shown to add value through the long term improvement of academic results (Snow & Brinton, 1988, p. 571; Baik & Greig 2009). First-year students, by their very nature, do not have the benefit of long term academic results to demonstrate the value of generic skill development, so another motivating force must be found.

This project revealed that, overall, first-year ‘Introduction to Management’ students entered the course with high results expectations and confident in their generic skill sets. This may act to undermine the value of paying attention to the generic skills development workshop if it is delivered too early in the term. Since confidence in some skill set areas drops as the unit unfolds and pressures build, an argument could be made for running the workshop later in the term when students may appreciate its value more. The challenge is in balancing early feedback, which is designed to head off major problems before they occur, against a possible lack of interest on the student’s part. Further research is needed in all these areas, in particular to identify what contributes to these initial high expectations, what scaffolding is needed to transition through this adjustment period, when it should be provided and who should provide it.

The results illuminate areas of potential study and specific targets for focused, embedded support. This is particularly important in the light of the Bradley et al. (2008) findings that identified poor student retention was linked to dissatisfaction with teaching and student support services (p. 74). It is argued that students need to be viewed not as knowledge repositories, but as creators of knowledge (Ganache, 2002) and empowered to set their own direction and adopt the responsibility for achieving it (Jones, 2003).
Whilst the results from this research contribute to the generic skills debate by highlighting particular generic skills that a significant proportion of students found difficult, further exploration is needed into why, for example, students reported gaining confidence in their ability to manage their time better but continued to struggle to fit everything in and remain motivated. Additional research is also needed into how to motivate students to identify and contextualise their generic skill sets and to the impact of these findings on current educational and theoretical practice. Identifying the factors that contribute to successful generic skill development is likely to lead to multiple benefits both for the country and for the individual - academically, at home and at work.

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References


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