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Fixing holes where the rain gets in

Problem areas in the development of generic skills in business

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Abstract

Purpose – Little attention is paid to understanding generic skills in business. Even less attention is paid to collecting evidence of students' development of these skills. This paper aims to fill this gap.

Design/methodology/approach – Four generic skills in business undergraduate and graduate programs are examined – written communication; critical thinking; use of mathematical and statistical tools; and information literacy. A total of 341 individual student assessments were reviewed.

Findings – Results suggest that there are skills deficits in effectively using language and coherence in writing; taking different perspectives and integrating ideas; understanding, presenting and solving a problem; and evaluating information to produce new and original thought.

Originality/value – This paper presents some important findings from the evaluation of student development of four different generic skills promoted in business disciplines.

Keywords Generic skills, Written communication, Critical thinking, Mathematical skills, Statistical skills, Information literacy, Rubrics, Australia

Paper type Research paper

Introduction

Hearing Paul McCartney sing "I'm fixing a hole where the rain gets in [...]" is reminiscent of generic skills development in business. This is an area of higher education not without holes to fix. There are specific problem areas that hinder students' development of essential skills considered important by universities and employers. Unless universities are confident that these problem areas are addressed, graduates exit the system with skills deficits. This article explores these "holes".

Internationally, "generic skills" have been considered important for students to develop when participating in higher education. In the UK, earlier studies have pointed to employers putting more value on them than discipline-based understanding and skills (Harvey *et al.*, 1997), and have noted they constitute a critical part of a repertoire of employability skills (Harvey, 2003; Yorke, 2006).

Known in other developed countries as "core/key", "employability", "transferable" or "essential" skills, the concept of generic skills was conceptually developed in the UK, USA and Canada as initially encompassing a set of work and life skills (Conference Board of Canada, 2000; NCVER, 2003; Turner, 2002). Many other industry and higher education experts from developed countries including the Organisation for Economic Co-operation and Development (Rychen and Salganik, 2001 for the DeSeCo project), have embarked on exploring and embedding generic skills in the curriculum

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including in business education. In Australia, more specifically, discussions around "key competencies" started as early as the 1980s. *The Mayer Committee Report* in 1992 (Australian Education Council, Mayer Committee, 1992), which established a set of key competencies, was most instrumental.

It did not take long for Australian universities to embrace the idea of articulating and promoting generic skills in the classroom, with the aim of meeting the demands of future work (Kemp and Seagraves, 1995; Leckey and McGuigan, 1997). It has been widely recognised that employers and universities seek future graduates who bring these skills into the workplace. As ACNielsen reports (Commonwealth of Australia, 2000a, b), generic skills will be considered even more important in the future:

> In the future, Australian business is expected to be more international in operations and focus; and the world of work is expected to change rapidly in response to changing social and environmental conditions and technological change. The need for graduates to demonstrate adaptability and flexibility in order to cope with these future changes is important to some employers. New graduates also need to be aware of the need for continuous learning and re-training throughout their careers (p. 8).

However, quality assurance of generic skills is something new. It was universities' job to assess student performance against set learning outcomes at the turn of the outcomes-based assessment regime. However, this quality assurance has been very limited for generic skills. Moreover, Australian university faculties that have embarked on gaining accreditation from different accrediting bodies have also been encouraged to develop mechanisms by which outcomes, including skills and attributes, are assessed, measured and reported as part of assuring quality. To some this has been problematic. Questions arise as to how generic skills development can be effectively measured. Complex issues associated with teaching generic skills (Badcock *et al.*, 2010) and the continuing debate as to whether they should be incorporated in the curricula still linger (Bennett *et al.*, 2000; Gilbert *et al.*, 2004; Mehralizadeh *et al.*, 2008).

While many studies have investigated generic skills (Gallifa and Garriga, 2010), less attention is paid to how students develop them. There are those who have assessed written communication in marketing (Vicki, 2006) and those that assessed critical thinking, decision making and managerial thinking skills (Gerald, 2003, 2005; James, 2004). However, assessing generic skills in business for quality assurance purposes remains under-researched. There is also recognition of the narrow range of quality assurance tools used to assess those skills (Hughes and Barrie, 2010). What we do know is that both universities and employers see these skills as important and they remain an important subset of employability skills (Jackson, 2009) and lifelong learning skills (Pitman and Broomhall, 2009). What we do not know is how well students are achieving these generic skills and how important they believe these to be. We have not done much work in collecting information about how specific generic skills are developed, particularly in business. In this article, four generic skills promoted in business education are assessed. It is argued that it is important to understand and measure explicitly how business students are developing generic skills and to identify the problem areas that need attention. This article concludes with some implications for the higher education sector.

Method

The generic skills of interest are: written communication (WC); use of mathematical and statistical tools (MS); critical thinking (CT); and information literacy (IL). These generic

skills are promoted in both the undergraduate and graduate business programs. Data was collected from Bachelor, Masters and PhD subjects. These generic skills are of particular interest as they have been reported both by employers and universities as being important.

A total of 341 individual student papers were assessed involving 11 subjects and seven unique programs. In relation to WC, CT and IL, the papers comprised mainly essays between 1,000 and 4,000 words (Table I). With regard to MS, most papers were assignments requiring students to employ econometric tools. Papers were collected within the past two years (2011-2012). The sample was drawn from students in a business faculty in a large research-intensive university in Australia with more than 30,000 students. The faculty has about 6,000 enrolments where more than 80 percent are undergraduate students and nearly half are international students.

Rubrics have been developed or adapted specifically for each of the generic skills considered. They have been peer reviewed and validated by relevant lecturers, markers and an academic staff from a teaching and learning unit, and subsequently edited, prior to use. One validation technique used was to mark a few student papers and examine the extent to which each rubric could be used across the relevant samples. Rubrics were subsequently revised. The nature and complexity of the assignments, fit for purpose, and practical considerations were accounted for in developing the rubrics. The minimum configuration used for the rubrics was a "3 × 3" matrix. That is, performance was assessed in at least three competency levels and along three dimensions/criteria.

In this study, three appropriately qualified external markers were employed for marking, including an English as Second Language (ESL) expert and a mathematics and statistics consultant. They held qualifications suitable for the role and were chosen by staff from a teaching and learning unit. The choice of external markers was for the purpose of removing any perceived bias that the lecturers may have had in the marking process. All essays (WC, CT and IL) took 33 h to mark while the calculations-based papers (MS) took 15 h. The marking process was separate from the marking previously done by the lecturers and no comparisons were made between the two types of marking as this was beyond the scope of the study. The lecturers were only involved in the development of rubrics and not in marking using the rubrics.

The results were summarised following the process of marking against the rubrics. Two separate summaries were made: one for cell tabulations and the other for the overall ratings. The analysis used frequencies and percentages in each cell to account for the overall proportion of students who fall under each performance level and each matching cell description. This provided more detailed information as to how students specifically performed. This was consistent with the aim of this study to investigate

Generic skills	Semester/year	*n*	Level
Communicate ideas effectively in written formats (WC)	2/2011	100	Undergraduate (30)/graduate (70)
Use basic mathematical and statistical tools of analysis (MS)	2/2011	91	Undergraduate
Apply critical and analytical skills and methods to the identification, evaluation and resolution of complex problems (CT)	1/2011	149	Undergraduate
Use effectively information from diverse sources (IL)	1/2012	31	Graduate

Table I.
Number of papers sampled and semester/year of collection

students' areas of strengths and difficulties. Specific comments were provided by the markers and discussed with the researcher. In addition, markers also provided general comments on student performance in relation to the generic skills. All quantitative and descriptive comments were summarised and subsequently analysed.

Results and discussion

Overall, the results from the total sample of students' assessments were promising. However, some students showed difficulties in all generic skills assessed. Areas of written communication were problematic in students who came from different academic and linguistic backgrounds. Students showed difficulty in making connections between ideas and theories and the issues in a case. Understanding, presenting and solving a given mathematical problem was particularly challenging. Finally, students found it tricky to deal with references, in-text citations, and producing new and original insights when using sources.

Critical thinking

The assignment required students in one subject to critically analyse a case study involving product management. The lecturer presented the case early in the semester. The assignment was divided into several pieces of assessment leading to the final case study analysis in the final week of the semester. Students received feedback on each piece of assessment. The sequential feedback aimed to assist the students in developing their final case analysis report. The rubric was used only by the external marker on the final case study analysis.

A rubric was developed specifically for the case study. It used three criteria and levels of expected performance. The results are in (Table II).

In addition to the above results, every student was given an overall rating based upon their results in each of the criteria. Results show that of the 149 students, 10 (6.7 percent) were rated "below expectations"; 129 (86.6 percent) "meet expectations"; and 10 (6.7 percent) "exceed expectations". This shows outstanding results, with students mostly having reasonable ability to identify particular issues in the case, critically evaluate them and apply relevant theories to resolve those issues.

Most students were able to identify the main issues in the case study. There were only a few difficulties observed in identifying the relevant theories that apply to the issues. However, the students who were rated "below expectations" struggled to view situations from different perspectives and to discuss ideas in an organised way, which are two important aspects of critical thinking according to Challee (1994, in Davies, 2007).

Some students who were rated "below expectations" were able to identify the theories relevant to the issues in the case. However, they were not able to articulate what those theories meant in the context of the case and how they could be applied. Evidence of ability to integrate ideas and to explain how concepts fit together was also missing. The essays were "patchy", often discussing the issues or relevant theories one by one with no or few connections established between them. Helping students to improve their skills in integrating ideas can assist in closing employability gaps and performing discipline/professional specific tasks (McCuddy *et al.*, 2007).

Mathematical and statistical tools

Four subjects were involved in the analysis, which involved 91 individual student assessments. The assessments were taken from three subjects and were of two types:

Level	Criteria Identification of relevant issues in product management	Identification and evaluation of relevant theory/theories to address the issues	Addressing the issues through application of relevant theory
Below expectations	Not able to apply critical and analytical skills and methods to the identification of relevant issues in the case,br $n = 1$ (0.7%)	Not able to apply critical and analytical skills and methods to the identification and evaluation of relevant theory/theories to address the issues in the case $n = 14$ (9.4%)	Not able to apply critical and analytical skills and methods to the resolution of issues through application of relevant theory $n = 84$ (56.4%)
Meets expectations	Reasonable level of ability to apply critical and analytical skills and methods to the identification of relevant issues in the case $n = 139$ (93.3%)	Reasonable level of ability to apply critical and analytical skills and methods to the identification and evaluation of relevant theory/theories to address the issues in the case $n = 125$ (83.9%)	Reasonable level of ability to apply critical and analytical skills and methods to the resolution of issues through application of relevant theory $n = 56$ (37.6%)
Exceeds expectations	Outstanding level of ability to apply critical and analytical skills and methods to the identification of relevant issues in the case $n = 9$ (6%)	Outstanding level of ability to apply critical and analytical skills and methods to the identification and evaluation of relevant theory/theories to address the issues in the case $n = 10$ (6.7%)	Outstanding level of ability to apply critical and analytical skills and methods to the resolution of issues through application of relevant theory $n = 9$ (6%)

Note: $n = 149$

Table II.
Results – critical thinking

business and financial analysis; and econometrics as used in game theory and competition and strategy. The assessments varied but were mostly short-answer questions that required students to use equations, calculate and solve problems, and in most cases, provide explanations to answers.

A rubric was adapted by the lecturer and the marker for the purposes of assessing the variety of tasks that required students' use of mathematical and statistical tools of analysis (Table III).

The results indicated a greater proportion of students displaying "practitioner" and "expert" levels: novice: $n = 1$ (1 percent); apprentice: $n = 9$ (10 percent); practitioner: $n = 33$ (36 percent); and expert: $n = 48$ (53 percent). Students at these levels generally were able to show correctly their calculations and provide their answers in a logical and sophisticated manner.

Table IV presents the results of students in the four subjects under consideration. It shows that students did not differ widely in their performance.

Table III.
Results – "use basic mathematical and statistical tool of analysis"

Level	Understanding	Strategies, reasoning, procedures	Communication
Novice	A1. There is no solution, or the solution has no relationship to the task ($n = 0$) A2. Inappropriate concepts are applied and/or procedures are used ($n = 0$) A3. The solution addresses none of the mathematical components presented in the task ($n = 1$) $n = 1$ (0.5%)	A4. No evidence of a strategy or procedure, or uses a strategy that does not help solve the problem ($n = 2$) A5. No evidence of mathematical reasoning ($n = 2$) A6. There were so many errors in mathematical procedures that the problem could not be solved ($n = 0$) $n = 4$ (1.4%)	A7. There is no explanation of the solution, the explanation cannot be understood or it is unrelated to the problem ($n = 1$) A8. There is no use or inappropriate use of mathematical representations (e.g. Figures diagrams, graphs, tables, etc.) ($n = 0$) A9. There is no use, or mostly inappropriate use, of mathematical terminology and notation ($n = 0$) $n = 1$ (0.5%)
Apprentice	B1. The solution is not complete indicating that parts of the problem are not understood ($n = 8$) B2. The solution addresses some, but not all of the mathematical components presented in the task ($n = 21$) $n = 29$ (14.1%)	B3. Uses a strategy that is partially useful, leading some way toward a solution, but not to a full solution of the problem ($n = 12$) B4. Some evidence of mathematical reasoning ($n = 11$) B5. Could not completely carry out mathematical procedures ($n = 4$) B6. Some parts may be correct, but a correct answer is not achieved ($n = 16$) $n = 43$ (15%)	B7. There is an incomplete explanation; it may not be clearly presented ($n = 10$) B8. There is some use of appropriate mathematical representation ($n = 8$) B9. There is some use of mathematical terminology and notation appropriate of the problem ($n = 6$) $n = 24$ (11.8%)
Practitioner	C1. The solution shows that the student has a broad understanding of the problem and the major concepts necessary for its solution ($n = 40$) C2. The solution addresses all of the mathematical components presented in the task ($n = 26$) $n = 66$ (32.2%)	C3. Uses a strategy that leads to a solution of the problem ($n = 19$) C4. Uses effective mathematical reasoning ($n = 27$) C5. Mathematical procedures used ($n = 34$) C6. All parts are correct and a correct answer is achieved ($n = 8$) $n = 88$ (30.8%)	C7. There is a clear explanation ($n = 8$) C8. There is appropriate use of accurate mathematical representation ($n = 21$) C9. There is effective use of mathematical terminology and notation ($n = 21$) $n = 50$ (24.6%)

(continued)

Table III.

Level	Understanding	Strategies, reasoning, procedures	Communication
Expert	D1. The solution shows a deep understanding of the problem including the ability to identify the appropriate mathematical concepts and the information necessary for its solution ($n = 35$) D2. The solution completely addresses all mathematical components presented in the task ($n = 38$) D3. The solution puts to use the underlying mathematical concepts upon which the task is designed ($n = 36$) $n = 109$ (53.2%)	D4. Uses a very efficient and sophisticated strategy leading directly to a solution ($n = 28$) D5. Employs refined and complex reasoning ($n = 39$) D6. Applies procedures accurately to correctly solve the problem and verify the results ($n = 43$) D7. Verifies solution and/or evaluates the reasonableness of the solution ($n = 19$) D8. Makes mathematically relevant observations and/or connections ($n = 22$) Total cell marks = 151 (52.8%)	D9. There is a clear, effective explanation detailing how the problem is solved. All of the steps are included so that the reader does not need to infer how and why decisions were made ($n = 30$) D10. Mathematical representation is actively used as a means of communicating ideas related to the solution of the problem ($n = 47$) D11. There is precise and appropriate use of mathematical terminology and notation ($n = 51$) $n = 128$ (63.1%)

Note: $n = 91$
Sourcre: Adapted: Exemplars (2006)

More importantly, by looking at the performance of those at the "novice" and "apprentice" levels, their main challenges were as follows:

- use of strategy that is partially useful and its negative impact on the completion of the task;
- lack of understanding of some parts of the solution thereby not being able to move further in the calculations;
- unclear representation of the problem; and
- lack of evidence of a strategy or procedure or the presence of a strategy that is not useful in solving the problem.

Written communication

One of the most important generic skills in business and other fields is the ability of students to communicate effectively in writing. For years, employers have found this generic skill a critical skill that graduates should have (Crebert *et al.*, 2004; Curtis *et al.*, 1989; Kavanagh and Drennan, 2008; Tanyel and Mitchell, 1999).

Table V shows the results of the external examiner's assessment of a sample of student works from one undergraduate- and five graduate-level subjects, involving 30 and 70 scripts, respectively.

The results show that just over half were good or excellent at writing: poor: $n = 13$ (13 percent); fair: $n = 33$ (33 percent); good: $n = 43$ (43 percent); and excellent: $n = 11$ (11 percent). Spelling was particularly good, which is probably explained by the use of a spelling checker in a word processing application. However, the main problems were grammar issues and the lack of coherence in writing. When both the undergraduate ($M = 2.47$; $SD = 0.78$) and graduate ($M = 2.56$; $SD = 0.91$) students are compared, there was no significant difference between their scores in the rubric, $t(98) = -0.475$, $p = 0.636$ (1 = "Poor"; 4 = "Excellent").

Among those rated "poor" or "fair" the analysis revealed the following issues:

- *Tense confusion*. Many students seemed unaware that tense should be in a correct and consistent form. Often shifts in tense appeared in their writing, sometimes in the same sentence but more so in the same paragraph (e.g. "(Company) has positioned its journal as a quality collection of articles and becomes a competitive advantage for them").
- *Unnecessarily complex language*. The main points of the text were obscured by students' use of complex language. Their choice of words and phrases sometimes made it hard for readers to understand what they meant. In trying to sound "academic", students often used complex language that interfered with comprehension and slowed the marker down.

Table IV.
Results by subject – "use basic mathematical and statistical tool of analysis"

Subject	*n*	Novice	Apprentice	Practitioner	Expert
Subject2	13	0	5	6	2
Subject3	30	0	1	15	14
Subject4	30	1	3	11	15
Subject5	18	0	0	1	17
n	91	1 (1%)	9 (10%)	33 (36%)	48 (53%)

Criteria	Level of achievement 4 (Excellent) Yes [. . .]	3 (Good) Yes, but [. . .]	2 (Fair) No, but [. . .]	1 (Poor) No [. . .]
Organisation and coherence of ideas	The main points in the written work are carefully presented and organised, clear, and present ideas in a coherent way $n = 19$ (41.3%)	The main points in the written work for the most part are organised, mostly clear and coherent $n = 56$ (31.6%)	There is some structure but some points are unclear and out of order $n = 23$ (18.9%)	The main points are badly organised, lacks clarity and/or does not present ideas in a coherent way $n = 2$ (6.1%)
Clarity of sentences and paragraphs	All or a large number of sentences and paragraphs are clear $n = 9$ (19.6%)	Sentences and paragraphs are mostly clear and require only little editing $n = 37$ (20.9%)	Sentences and paragraphs are quite clear and require moderate editing $n = 38$ (31.1%)	Sentences and paragraphs are badly written and require considerable editing $n = 16$ (48.5%)
Spelling, grammar and use of English	Correct spelling and grammar used almost all the time, and highly effective use of English $n = 7$ (15.2%)	Correct spelling and grammar used with considerable accuracy and effectiveness, and generally effective use of English $n = 40$ (22.6%)	Spelling and grammar require moderate editing and use of English is quite satisfactory $n = 38$ (31.1%)	Spelling, grammar and use of English is generally poor and require considerable editing $n = 15$ (45.4%)
Use of references (if applicable) NA = 22	Demonstrates great attention to detail of proper acknowledgement of sources $n = 11$ (23.9%)	Demonstrates good attention to detail of proper acknowledgement of sources $n = 44$ (24.9%)	Demonstrates some attention to detail of proper acknowledgement of sources $n = 23$ (18.9%)	Demonstrates limited attention to detail of proper acknowledgement of sources $n = 0$ (0%)

Note: $n = 100$
Source: Adapted: Andrade (2012)

Table V.
Results – written communication

- *Technical jargon*. Jargon was frequently used without explanation. If the papers were written for non-specialists or even those in business, jargon appeared to have been used to impress or intimidate, rather than inform the audience.
- *Apostrophes*. Contractions were often used improperly by most students. When referring to time periods, for example, students wrote "the 1980's". Other issues were observed in the confusion of "its" and "it's".
- *Review of work*. Incomplete sentences and missing words were errors which could have been avoided. (e.g. "In this way, it is considered competes in the similar market compare to Law school journals").
- *Clarity of sentences*. The incorrect placement of subordinate clauses, frequent use of passive voice, and lack of transitional words decreased the clarity in writing. (e.g. "The current target market, because it is free of charge, is aimed at everyday persons").

- *Coherence of ideas*. Students lacked effective transition signals from one idea to another. Paragraphs were often too long. Most of the papers could have benefited from adding words or phrases to indicate examples, addition, comparison and contrast and result.

Information literacy

A sample of 31 papers was assessed against use of information from diverse sources from four subjects in management and marketing. The various assessments required each student to evaluate information, to produce new knowledge and to acknowledge sources.

Results show that most students were at an advanced level (Table VI), showing only relevant information to support arguments, acknowledging sources, making good use of relevant information and quotations, and using correct and consistent citations: novice: $n = 6$ (19 percent); advanced: $n = 16$ (52 percent); and expert: $n = 9$ (29 percent).

Eight in ten students were able to use relevant sources in the text. The challenges primarily faced by students in this sample were the following:

- Lack of analysis and production of new information.
- Failure to cite online references properly.
- The formatting of reference list was often poor and inconsistently applied (students were asked to use either APA or Harvard).
- Finally, there was a surprising association between the length of the reference lists and the quality of analysis of retrieved information. Shorter reference lists were found better at meeting the above criteria compared to longer reference lists.

In addition, the examiners found it challenging to assess whether information accessed was evaluated critically in poorly written essays. The application of existing and new information to develop new insights was also rare. This is an important skill for students and researchers (Streatfield *et al.*, 2010). One way to respond to these issues is what Gunn *et al.* (2011) propose, which is to embed information literacy skills in courses developed through effective learning designs.

Conclusions and implications

This article has presented some important findings from the evaluation of student development of four different generic skills promoted in business disciplines. A number of issues were observed in students' writing. Some students struggled with viewing situations from different perspectives and discussing or integrating ideas. Scrutinising their mathematical and statistical skills revealed skills deficits in understanding, presenting and solving problems. Lastly, in information literacy, many struggled with in-text citations and formatting requirements.

Further investigation should be done in other important generic skills applicable to business disciplines. Together with the generic skills considered in this study, future business professionals in Australia and elsewhere have been strongly encouraged to develop teamwork, oral communication, and time management skills (Yorke, 2006; Commonwealth of Australia, 2000a, b). Further investigation is needed on these and other important skills. Also, other forms of assessing generic skills should be considered. It is challenging to "measure" generic skills (Green *et al.*, 2009), and while

Table VI. Results – information literacy

Criteria	Novice	Advanced	Expert
Evaluating accessed information and sources critically	Some evidence to show that the student has included relevant information to support the arguments in the essay; however, some information is either unnecessary, unable to provide support or inappropriate; the ideas, concepts or quotes used in the text are often misplaced $n = 4$ (13%)	Sufficient evidence that the student has included only the relevant information to support arguments in the essay; the ideas, concepts or quotes used in the text are more or less effectively placed in the paper $n = 11$ (35%)	Strong evidence that the student has included the most relevant information to support arguments in the essay; the information was carefully assessed and show strong support to the arguments; the ideas, concepts or quotes used in the text are carefully placed in the paper $n = 9$ (29%)
Producing new information	Some evidence to show that the student was effective in combining existing information with original thought, experimentation and analysis to produce new information $n = 6$ (19%)	Sufficient evidence to show that the student was effective in combining existing information with original thought, experimentation and analysis to produce new information $n = 12$ (37%)	Strong evidence to show that the student was effective in combining existing information with original thought, experimentation and analysis to produce new information $n = 6$ (19%)
Awareness of ethical and legal issues in accessing information	The manner of writing may diminish the integrity of the paper, possibly misrepresenting other people's work; quotes, if any, missing one or all required information (author, year, page number) $n = 2$ (6%)	The manner of writing appears considerate in acknowledging other people's work; quotes, if any, include all required information $n = 17$ (55%)	The manner of writing appears very careful and considerate; it introduces materials with appropriate leading phrases and shows good representation of other people's work; all quotes, if any, include all required information. $n = 6$ (19%)
Citation of sources	Too few citations (three or less); a large number of in-text citations are inconsistent and do not follow a particular reference style (e.g. APA or Harvard); references are not correctly listed in the reference list according to style $n = 9$ (29%)	Four or more citations; most in-text citations are correct and follow a particular reference style (e.g. APA or Harvard); most references are correctly listed in the reference list according to style $n = 10$ (32%)	Four or more citations; all in-text citations are correct and follow a particular reference style (e.g. APA or Harvard); all references are correctly listed in the reference list according to style $n = 6$ (19%)

Note: $n = 31$
Source: Adapted: Association of College and Research Libraries (2012)

rubrics are helpful, they can only provide some information about students' levels of development of generic skills. Perhaps the Graduate Skills Assessment (GSA) and the Course Experience Questionnaire (CEQ) may be better measurement tools in Australia. However, the findings of this study provide important evidence from a quality assurance approach to assessing generic skills.

There are a number of propositions that can be made following the results of the study that have practical implications for the sector internationally:

- Generic skills should be embedded in discipline-specific teaching, learning and assessment. This implies that program developers and lecturers must closely examine the generic skills that are important for graduates throughout their studies and identify ways that best foster their development.
- Courses must carefully map generic skills against teaching and learning activities and assessments. That is, what students and teachers do should be cross-referenced with generic skills essential to the field. The significance of this exercise lies in developing strong curriculum alignment.
- Universities must continue to support students in developing generic skills through teaching and learning centres, such as providing workshops and peer mentoring.
- Generic skills assessment should be part of regular quality assurance activities not just to meet accreditation needs and to ensure regulatory compliance. This promotes more sustainable information about how students develop these skills over time.
- Generic skills assessment as a quality assurance exercise should not be one without quality enhancement. What matters most are changes in the curriculum that enhance the student experience. "Closing the loop" – a continuous improvement process to enhance student learning – can begin by revisiting the kinds of experiences students have in and out of lectures and tutorials and identifying gaps where generic skills development might need improvement.

If universities are determined to develop generic skills, specific assessments must be designed to evaluate them. The development of a specific piece of assessment must occur via holistic approach and in consideration of where students learn, and are taught and assessed. This requires a mapping exercise. Consideration must also be given to employer feedback, including employers' views about the nature of future workplace participation by students. This employer feedback will provide important information for program developers to rethink their course offerings and to align the student experience with outcomes that matter most to students' future careers.

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