TITLE:
Improving academic integrity – an innovative online learning approach.

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ABSTRACT

Educational institutions and workplaces are faced with a rising incidence of plagiarism (Sutherland-Smith 2008; James et al. 2002). This may be due to easy access to information on the internet, time pressures and the use of group work. Universities have an important role to play in ensuring that students are effectively informed of good academic standards. In the School of Geography, Planning and Environmental (SGPEM) an online interactive tutorial, 'Academic Integrity: referencing and avoiding plagiarism' was developed to positively address the rising incidence of plagiarism within the School and this tool was upgraded for application across the entire university. Students must pass the tutorial to gain credit for their courses. The tutorial has won international recognition for its innovative design, ease of navigation and effective outcomes.

The tutorial aims to improve students’ understanding of academic integrity and good academic practice and has four main sections, which address: why it is necessary to cite sources; how to work in groups, including issues related to collusion and collaboration; the consequences of misconduct; and good writing skills. Its technical design incorporates a refreshing and uncluttered interface, with split screens providing stimulus material on the left and instructions and interactive activities on the right (Alessi & Trollip 2001). Visually stimulating and relevant graphs, maps and designs are incorporated to contextualise the content. The navigation is easy, with students progressing sequentially through the four sections. The web advantages allow easy access for students.

Pedagogically, the tutorial incorporates Bower’s (2008) affordances of e-learning such as: instructive learning opportunities; “learning by doing”; relevant contexts (e.g. case studies which are relevant to planners and which help them to construct new knowledge from existing knowledge); application and testing of knowledge; and self-paced learning. Student learning is promoted by extensive feedback and multiple attempts, and users’ progress and outcomes are recorded in a database.

The evaluation results have indicated improved student learning outcomes including a better understanding of the nature of plagiarism, when to cite sources of information, and the seriousness and consequences of plagiarism. The School has experienced a decline in the incidence of plagiarism following the introduction of the tutorial and students have favourably responded to the online tutorial. This tutorial is an important new initiative for educators in a range of institutions, many of which are struggling to effectively address the rising incidence of plagiarism.

KEY WORDS: academic integrity, plagiarism, collusion, online learning
Introduction

Educational institutions globally are grappling with the rising incidence of academic misconduct. Recent audits of universities in Australia (AUQA 2009) indicated that students believed that their institutions did not have the necessary strategies in place to dispel students’ perceptions that plagiarism may be tolerated. While academic integrity and good practice are central to student learning, institutional responses have focussed mainly on punitive measures that address the consequences of plagiarism (e.g. loss of marks or exclusion). It is our contention that more proactive approaches are necessary to raise students’ understanding of academic integrity. The purpose of this paper is to describe and evaluate the effectiveness of an innovative online interactive tutorial, ‘Academic integrity: referencing and avoiding plagiarism’ that was developed and implemented in the School of Geography, Planning and Environmental Management (GPEM) at The University of Queensland (UQ), Australia. Our research indicated a significant improvement in the level of understanding of students about academic integrity and a reduced incidence of reported cases of plagiarism following completion of the online tutorial.

The educational problem

Plagiarism is the act of misrepresenting as one’s own original work, the ideas, interpretation, words, images, designs, or creative works of another (UQ, 2008). Examples of plagiarism include: direct copying of paragraphs, sentences, a single sentence or significant parts of a sentence without appropriate acknowledgement; a ‘cut and paste’ of statements from multiple sources; and simply rearranging another person’s words or ideas without changing the basic structure and/or meaning of the text and without appropriate acknowledgement.

Plagiarism is a major issue in many institutions (Sutherland-Smith, 2008; James, McInnis & Devlin, 2002) and is related to: the easy availability of online information; the ability to easily download papers for free or at a small cost; time pressures in meeting deadlines; the use of group work which may have led to an increase in student’s plagiarising each other’s work; and increasing class sizes, with reduced access to staff and increased reliance on past student work (James, McInnis & Devlin, 2008). Several researchers (Roberts, 2008; Larkham, 2002) refer to a rising incidence of plagiarism in both the workplace and educational institutions, and that it appears to be widespread and across a range of disciplines.

In our School, the rising incidence of plagiarism resulted in the implementation of a range of punitive measures to punish students, but this did little to reverse the existing trends. In 2008, students were surveyed to better understand their knowledge and perceptions of academic integrity and good academic practice. Students (472) in three of the School’s large first year classes were invited to participate in the survey. One hundred and fifty-seven students responded, providing a sound basis on which to understand the main issues. Some of the key findings were that 21% of students believed that it was acceptable to use someone else’s ideas, to express them differently, and not acknowledge the source (4% didn’t know). Almost 50% of students believed that it was acceptable to submit, without acknowledgement, an assignment for assessment that was previously submitted in another course. Almost 30% were neutral on the issue of copying information because of time demands and almost 10% disagreed or did not know that this was plagiarism. Over 30% believed that it was acceptable to be a member of a group undertaking a group project, to work less than other members in the group and to claim equal contribution to the project. In terms of seriousness plagiarism was viewed as moderately serious by 19% of students (81% very serious or serious), collusion as moderately serious by 27%, (44% very serious or serious), and 20% believed that cheating on an exam was less serious (80% very serious).

Almost 20% of students believed that they could ‘get away’ with plagiarism in their courses and that their peers thought it was ‘OK’ to plagiarise. Approximately 40% believed it was easier to plagiarise than spend time undertaking the work properly; and over 10% believed it was appropriate to ‘make up’ information in a bibliography. In relation to referencing skills, most students were unable to correctly reference information using a recognised referencing style, and about 10% of students could
not correctly identify examples of collusion. Students also showed little understanding of the consequences of plagiarism. However, nearly 80% believed that plagiarism detection software encouraged them to correctly cite information.

These results indicated that our students needed better information on how and when to reference information and on other key aspects of academic integrity. The Project Team investigated a range of learning tools addressing academic integrity, but found none suitable to our specific needs and none incorporated an assessment process to measure and record student learning. This indicated a clear need to develop an innovative tool for our students and one which eventually would have widespread application to a range of disciplines and institutions.

**Project aim and objectives**
The aim of the project was to raise understanding of academic integrity and good academic practice and to do so in a supportive teaching and learning environment. In particular, we identified several objectives, including: to develop learners’ skills in referencing and avoiding plagiarising in their academic work; to develop an e-learning tool that would provide accurate information in an interesting, relevant and interactive way; to incorporate the ability to assess students’ understanding of good academic practice; to develop an educational tool that could be applied systematically across the School and university, and did not detract from the existing teaching and learning activities in the School; and to ensure that the tool would be accessible as a learning resource for students throughout their program of study.

**Target audience**
The initial target audience was students in our multidisciplinary School, which focussed on planning, architecture and environmental management. However, the success of the tutorial has resulted in its redevelopment for application to all commencing students at The University of Queensland, an institution with over 40,000 students in a diversity of disciplines such as, science, medicine, business, economics, arts, engineering and information technology. Hence the target audience is very wide, including both local and international students and undergraduate and post-graduate students. The tutorial is mainly taken by students in their commencing or first year at the university.

**Creativity and innovation**
The structure, design and development of the tutorial were collaboratively undertaken by the Project Team over a period of two years and it has now been redeveloped and piloted to a wider university audience in 2010. It will have full implementation from July 2010. As a resource for first year students, the graphic design considered both the visual appeal of the tutorial to mainly young, first year students as well as more mature-aged students; incorporated the need to convey the seriousness of the issues being addressed in the university learning environment; and aimed to impress on students the nature, meaning and importance of academic integrity in the university context and prepare students for good academic practice during the rest of their studies.

While there are many tutorials which address plagiarism, there are few which address it from the positive aspect of academic integrity. Most products or tools address plagiarism as a referencing issue, and fail to incorporate consideration of the ways students work together in groups. The Project Team felt that it was important to clarify for students when collaboration is allowed and when it is not (AUTC, 2008; Walker, 1998).

The tutorial encompasses four sections: Section 1 addresses when to reference sources; Section 2 discusses aspects of working together and raises awareness of when group tasks can be collaborative, or collusive; Section 3 presents case studies about misconduct and the resultant consequences; and Section 4 outlines aspects of good writing habits, which if implemented will reduce the reliance on plagiarism. Students must correctly answer all questions in the tutorial. The program collects marks from successful completion of certain activities, and stores this on a university database.
Technical design
Technically, the aim is to ensure that the tutorial is easy for students to access, use, and navigate. A web-based tutorial was the optimum solution. The entire tutorial is hosted on a UQ server. It is secure and allows for maintenance and updating. Aspects of importance in relation to the tutorial’s technical design include its interface design, navigation and usability, and web advantages. These aspects are described and illustrated in this section.

Interface design
The tutorial’s physical design is refreshing in terms of colour, the aim being to present a fresh image to users and this enhances its learning effectiveness. The subjects represent the diversity of students within the institution. The layout is simple and uncluttered, with interesting text to engage the reader, and yet it maintains a serious tone to reflect the serious nature of the issues being presented. The instructions are simple and short and the presentation of information is also consistent with either a two-part screen containing stimulus material (e.g. resources and demonstrations) on the left, and instructions and interactive activities on the right, or a single-part screen with an activity or case study in the middle. Thus different sections of the screen are assigned to specific purposes (Alessi & Trollip, 2001) and this remains consistent throughout the tutorial to facilitate student interaction and ease of use. The tutorial also incorporates several visually stimulating graphs, maps and other images, which are relevant to most students.

Navigation and usability
The tutorial has four sections, which on the first attempt must be completed sequentially. The underlying database records users’ progress. Users complete exercises, receive feedback with a learning focus, and can have multiple attempts at the exercises. Users can log out and then re-enter the tutorial at a later time. On re-entry the student is shown (by means of a tick) which components have been successfully completed, and which need to be re-attempted. This second-version navigation remains until the entire tutorial is completed, with multiple attempts at the tutorial allowed. After completion of all four sections, an email is forwarded to the student notifying them of their successful completion of the tutorial and the database stores this record. The tutorial can be accessed from this point as a learning resource. The pedagogical purpose of the tutorial’s linear navigation is to build on the concept taught, apply concepts, and test concepts.

Web advantages
Using an internet-based resource allows users to access the tutorial any time and any place, with minimal file or download size requirements, and allows secure login. It also allows for a backend database to record statistics showing student achievement and tutorial attempts on a local server. It also allows for ease and cost-effectiveness of upgrading the information or developing the tutorial or the database. Flash is software that works on university machines as a standard plug-in, and is available free for students to acquire on personal machines.

Pedagogical design
An online interactive format was selected as the most appropriate way to address the identified problem. The focus was on bring together Bower’s (2008) two key categories of affordances of e-learning, namely static/instructive learning opportunities, such as definitions and explanations (e.g. through the explanation of referencing components), and productive learning through an emphasis on ‘learning by doing’ throughout. Several key principles of effective instructional design, which facilitate learning, are reflected in the design of the tutorial and include the following (Anderson & Elloumi, 2004; Carrol, 2004, 2002, 2001; Merrill, 2002; Herrington & Oliver, 2000; Laurillard, 1993).

Relevant contexts which help learners to construct new knowledge from existing knowledge
Learning is enhanced through the incorporation of authentic/real world contexts (e.g. exemplars from student work), which link the focus of the tutorial with current student experience and future real-world work experiences. This approach is a conscious attempt to activate learners’ schema – the “structures that permit us to recognise objects and other entities” (Sweller, 1999:10), and through this, extend their learning, thus reducing cognitive, working load stress (Sweller, 1999).
New knowledge is demonstrated to the learner

The tutorial employs a range of strategies to demonstrate new knowledge. In general all key concepts are both defined and illustrated through examples and/or animations to minimise confusion (Carroll 2000; Kalusman, 1999). Students are provided with information and they can respond to stimulus questions to enhance their learning.

Learning is enhanced by doing

The principle of ‘learning by doing’ is based on the notion that active learners learn best and thus reinforce their learning (Dewald, et al., 2000). There was a deliberate design decision to move away from multiple choice or yes/no closed questions, and to include exercises where students are compelled to think and create accurate answers. In practical terms, the learners must demonstrate knowledge or understanding by choosing the correct response to a question and click the computer mouse or type answers into the text box. They then receive feedback for both correct and incorrect responses.

Students are required to apply the new knowledge

New procedures are being developed across the university to ensure more consistent approaches. For example, in our School, learners are required to demonstrate their new understandings in the assessment tasks that are set in all courses in the School. All staff (including tutors and markers) are trained in the tutorial and reinforce the standards and expectations established in the tutorial.

Self-paced learning

The students are able to work through the online tutorial at their own pace and in their own time, thus more appropriately matching the learning style of the student. The tutorial can be used as an on-going resource for students to refer to as the need arises. Hence, its flexible delivery enhances student engagement, as does its good design, layout and ease of use.

Evaluation of online tutorial

This section briefly outlines the methodology and key results and provides a short discussion of the evaluation that was undertaken to determine the effectiveness of the online tutorial.

Methodology

An evaluation project was designed to assess the effectiveness of the online tutorial in raising awareness of academic integrity of students within the School of GPEM. Students completed a survey prior to undertaking the tutorial and were re-surveyed from three to six months after completing the online tutorial. Students in three large first-year classes in the School were surveyed in 2008. The survey canvassed student responses to several issues including:

1. why it is important to engage in good academic practices;
2. what constitutes plagiarism (e.g. paraphrasing, summarising, citing references, issues related to words, images and design, and auto-plagiarism);
3. consideration of the seriousness of several practices (e.g. copying information from the internet/books/journals/designs, failure to correctly reference, unintentional copying, cheating on exams, collusion, and auto-plagiarism);
4. factors influencing plagiarism (e.g. can I get away with it?, time commitments, lecturer inaction, real-world pressures, peer pressure, benefits outweighing consequences, easier/better than the work I could produce, difficulty in detection etc);
5. sourcing information, which addressed author-date in-text referencing and constructing a bibliography, and when to reference (e.g. use of common knowledge, quotes etc);
6. differences between collusion and cooperation; and
7. penalties in relation to the seriousness of plagiarism.

Qualitative responses were analysed using Leximancer to identify key themes, and relational responses were analysed using Nvivo software.
Results
The main results from the survey undertaken before students completed the tutorial were outlined in ‘the educational problem’ (refer above). In this part we briefly highlight the students’ responses in relation to the importance of good academic practices, and present the key changes in student responses and perceptions in relation to the meaning of plagiarism, referencing skills, the seriousness of plagiarism and its main causes following implementation of the tutorial (issues 1-5 above).

(a) Importance of citing sources
Students were asked to indicate why it is important to correctly cite information. Results (Fig. 1) indicated that 25% of students felt it was necessary to acknowledge the author or demonstrate respect for the author (6%). Enhancing the credibility of the student/writer’s work was also important (16%), as were a range of value-based responses, particularly that of fairness (11%). Other criteria cited by students included abiding by rules, either to ensure compliance, or through fear of censure, as well as this being a sign of good practice, enabling the tracing of cited information.

(b) Meaning of plagiarism
Respondents were asked to rate their level of agreement with several statements about what constituted plagiarism. These were ranked on a five point Likert scale from strongly agree to strongly disagree. Following completion of the tutorial, students displayed improved understanding of plagiarism (i.e. a change to either strongly agree or strongly disagree), and considered that it included: failing to correctly cite information, with those strongly agreeing that this constituted plagiarism moving from 38% to 79% of respondents; ‘copying and pasting’ information from the internet without acknowledgement (change from 26% to 71% strongly agreeing). There was also a strong improvement in the understanding of autoplagiarism, with a change from 26% to 48% of respondents strongly agreeing that this was a form of plagiarism, and an overall change in agreement from 47% to 83% of respondents.

(c) Referencing skills
The ability of students to correctly in-text reference and create a bibliography significantly improved following completion of the tutorial (Fig. 2). The greatest change was in relation to a basic in-text Harvard referencing style where students were asked to consider the author/date order, and in this instance, success improved from 46% to 81% of students correctly responding. Students were generally much better able to cite quotes and to detect inaccuracies in-text referencing of information obtained from the internet and in understanding several aspects of bibliographic referencing. Less than 50% correct responses were observed in relation to the inclusion of the title of a book in the in-
text referencing, with only 39% of students correctly responding to this question following the tutorial.

![Figure 2](image.png)

**Figure 2.** Percentage of correct student responses to in-text and bibliographic referencing questions, before and after completion of the online tutorial

(d) *Seriousness of plagiarism*

Almost all students (approx. 97%) viewed cheating on exams and plagiarism as either serious or very serious, both before and after the tutorial (Fig. 3). For the remaining aspects of academic integrity, there was a substantial change in student awareness of its seriousness. The greatest percentage change in awareness (15%) was in relation to copying images from the internet (from 71% - 85% of students perceiving this to be serious or very serious). There was a 14% improvement in relation to autoplagiarism (78%-92%), 11% for copying text from the internet (85%-96%), 10% for collusion (69%-79%), and 8% for copying a design (86%-94%). There was a 3% change in relation to copying from a journal (78%-81%).

![Figure 3](image.png)

**Figure 3.** Percentage change in student perceptions of the seriousness (both very serious or serious) of various aspects of plagiarism before and after completion of the online tutorial

Following completion of the tutorial, more than 60% of students indicated that cheating, plagiarism, autoplagiarism and copying text from the internet were very serious. Issues perceived as being less than very serious were copying designs and images, copying text from a journal and collusion. However, there were significant shifts in awareness, overall, following completion of the tutorial.

(e) *Causes of plagiarism*

Students were asked a series of questions concerning their perceptions of the causes of plagiarism. The greatest positive changes in perception following completion of the tutorial were in relation to: the opinions of peers, with students believing that their peers did not think it was acceptable to
plagiarise; that plagiarised information is not better than the work the student can produce; plagiarism detection software is a disincentive to plagiarise; plagiarised information does not provide a competitive advantage; information is not freely available on the internet without acknowledgement; the pressures of course demands, and time limitations should not be used as an excuse to plagiarise; and that it is not easy to ‘get away’ with plagiarism (Fig. 3).

Both before and after the tutorial, students generally did not believe that: plagiarism was acceptable, merely because you could get away with it (89%-92% overall disagreement); cheating was acceptable and that plagiarism was not looked on unkindly in the ‘real world’ (92%-94% overall disagreement); others’ expectations placed pressure on students to plagiarise (91%-89% overall disagreement); it was acceptable to contract and pay someone else to research and write their assessment (94%-100% overall disagreement); they would purchase an assignment from the internet and change it slightly (94%-94% overall disagreement); and the benefits of cheating outweighed the consequences of not cheating (92%-92% overall disagreement).

**Figure 3.** Changes in students’ perceptions of what constitutes plagiarism following completion of the online tutorial (based on a 1-5 Likert scale response)

**Discussion and conclusion**

The key achievements of the tutorial have been in raising awareness and providing significant teaching and learning outcomes.

(a) **Improved awareness**

Several researchers (AUTC, 2008; Noah & Eckstein, 2001) have identified a range of factors that contribute to poor academic practices, including: pressures on the individual to succeed and the penalties for failure; the expected reward to be gained; the opportunities to be dishonest; the probability of getting away with it; and the social norms governing such behaviour. This research evaluated students’ perceptions of the causes of plagiarism, and as a result of undertaking the tutorial, their awareness has been raised and students’ attitudes positively changed, particularly in relation to the social norms affecting behaviour.

Unlike other studies, this research had a positive focus and asked students to identify three reasons for correctly citing sources. Students placed importance on the acknowledgement of authors and the need to show respect to authors, to enhance the student/writer’s credibility and to ensure fairness. Most plagiarism ‘products’ place a priority on improving referencing. Our online tutorial also emphasised this, and encompassed a detailed section incorporating both the author-date and footnote referencing.
systems. The evaluation indicated that students, overall, improved their understanding on all aspects tested, including in-text and bibliographic referencing.

The tutorial was also successful in improving student understanding of the meaning and seriousness of plagiarism, with large percentage changes in students agreeing that this included failing to cite information, ‘copying and pasting’ information from the internet, autoplagiarism and copying designs.

(b) Impact on teaching and learning outcomes

The tutorial provides widespread benefits to our students, who now have a heightened awareness of issues related to collusion, inadequate citation of written material, images, and maps, how to correctly reference in-text material and to develop bibliographies, and of the seriousness of poor academic practices. These skills provide life-long advantages for our students, many of whom will move into professional practices. It also provides a consistent standard for all students in the School and hence greater equity in relation to assessment procedures.

The tutorial has resulted in widespread benefits to our staff. Completion of the online tutorial provides staff with the knowledge that all students have a basic grounding in correct referencing and issues related to plagiarism and that this should be reflected in each student’s work and the resultant assessment mark. This integrated approach, whereby all lecturers, tutors and markers within the School have a consistent approach to academic practice, helps to provide on-going, long term support and learning for our students and thus embeds good practice and improves graduate attributes.

In conclusion, the online interactive tutorial ‘Academic Integrity – referencing and avoiding plagiarism’ was developed to improve the academic practices of students within the School of GPEM and is now being piloted across the wider university community. It is part of a comprehensive strategy to minimise plagiarism and is underpinned by equity principles. The tutorial supports student learning in several contexts: new information is presented in meaningful ways through the use of real scenarios and real academic texts, which help to construct and build learners’ understanding; interactive exercises are provided, which require active user engagement with the learning material; an assessment process is applied whereby learners are able to re-try exercises, after responding to extensive feedback until they submit a correct response; assessment marks are recorded once students submit first-attempt correct answers (thus the tutorial is available for multiple attempts); and once the tutorial has been successfully completed, users have access to it as an information resource. It has benefits to staff in reducing the incidence of plagiarism and the associated workloads in addressing such cases and provides staff with a consistent basis for marking and monitoring academic integrity. For students, its benefits are substantial in terms of raising awareness of the issues, allaying fears concerning plagiarism, and creating students and graduates who have enhanced levels of academic integrity and good academic practices.

References


Acknowledgements

The authors would like to thank all staff within the Tertiary Education Development Institute (TEDI) at The University of Queensland for their professional input into the development of the e-learning tool on addressing good academic practice. We would also like to thank Suseno Hadi, who collated data and undertook the Leximancer and Nvivo data analysis. Thanks also to the School of Geography, Planning and Environmental Management and the Faculty of Engineering, Physical Sciences and Architecture at The University of Queensland, for funding this project. Some information contained in this paper was presented at the Hawaii International Conference on Education, Hawaii, January 2009.