Attitude towards plagiarism in Information Systems in Australian Universities

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Abstract

Plagiarism, a component of academic misconduct has captured the headlines of many Australian media reports in recent months. While many articles have been written in the education domain about plagiarism, limited empirical evidence was found on the items leading to the attitudes of plagiarism and students opinion on these attitudes. This is because many prior studies have focused their findings arising from the institutional data available on plagiarism and compiling these into a form of findings, without actually consulting either students or lecturers involved in teaching. This study, to alleviate such criticism, followed a qualitative method to develop a theme to identify items that can contribute to plagiarism in the opinion of lecturers and tutors. This theme was then followed up by a quantitative method to extract perceptions towards these attitudes from students based on an adapted instrument. The outcomes of the theme development and perception measurement are reported in this study with a hope that academics in educational setting can produce fair and more reliable assessment methods.

Keywords: IS education, plagiarism

1. INTRODUCTION

Australian universities rely upon many international students in the current climate of tertiary education to improve their financial bottom line and this has realized a pattern of steady and continual shift in the way assessments are being conducted (Green et al. 2003). Students complete their assessments, sometimes including examinations, using the Internet Technology to gain Australian tertiary qualifications. While this mode of conducting and completing assessments provides greater flexibility to students, dishonest practices used with assessments include copying from assignments set in previous years, collusion amongst students in preparing assignments, getting assistance from past students and using sources from the Internet.

Recently, there have been a number of cases of plagiarism attracting attention from the media. The cases range from alleged plagiarism where material was directly copied from the Internet (Smith, 2003) to “soft marking” of student work (Elliot, 2003). Some of these cases have gained a significant amount of publicity and as such have been instrumental in tarnishing the reputation of the Australian higher education sector. It appears that these are growing to an unprecedented level in universities.

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1 Soft marking in the Australian context refers to leniency shown to overseas students in their assessments.
In the past decade academic misconduct has gained significant press coverage both overseas and within Australia (Cohen 2003). It is strongly believed that the University systems conduct assessments in a reliable manner with appropriate quality controls and hence a valid indication of student ability. However, press reports that emerged in the recent months are a cause of concern as they report a trend towards a rise in academic misconduct in Australian tertiary institutions. However, from the students’ point of view, it appears that the issues of plagiarism are blown out of proportion as the attitudes towards plagiarism from students are different to that of academics (Devlin 2003).

This study investigates the attitudes of ‘academic dishonesty’ by students in a specific Australian University setting where the courses are also offered using a ‘distance education mode’. The scope of the study is restricted only to assignments as examinations are usually closed book and well monitored. The specific aims of the study are (1) to identify various factors involved in plagiarism using a qualitative method and then (2) to test those factors using a quantitative method. The first aim is in order to establish the extent to which students engage in academic cheating. The second aim is to examine the perceptions of tertiary students on four aspects of cheating; what constitutes plagiarism (including collusion) in assignments, why cheating occurs in assignments, how cheating can be prevented in assignments and the attitude of students to cheating. The results are important for lecturers and administrators of Universities as well as the wider educational community because the problems of ‘academic dishonesty’ are growing and solutions currently provided appear to be inadequate. The findings of this research would assist in making educational assessment fairer and more reliable irrespective of whether the assessment is conducted in the external or internal mode.

2. PLAGIARISM IN AUSTRALIAN UNIVERSITIES
Currently, it is difficult to find statistics for the actual number of detected cases of plagiarism in Australian universities. A quick online search was conducted and the results show that only a few universities in Australia publish the statistics related to plagiarism online (QUT, 2003; USyd, 2003). It seems that the actual number of detected cases compared to student population is relatively low to that of actually executed. In other words, due to the administrative complexities, it may not be possible to detect all the plagiarism cases. To further complicate the issue in some instances it is university policy not to allow publishing of the results to protect the individuals involved. (Sunday Program, 2003)

It is justified to assume that only the clear cases of plagiarism are reported as they are the ones lecturers can easily detect and provide evidence. This typically involves a direct cut and paste exercise from materials available online or other sources.

Furthermore, increasing work loads have made it more difficult for academics to afford the time required to properly investigate plagiarism in student work. This increasing workload is clearly evident from the rising student staff ratios over the last decade. It is far easier and less time consuming to ignore plagiarism issues in Australian universities. It appears that many academics proceed marking the student work without considering from where the material is coming from.

Some even consider plagiarism a proper academic learning method (Spender, 2003) or even worse they don’t themselves understand the issues involved in plagiarism. The casualisation of the academic workforce has in practice increased the number of non-academic and industry
practitioners being involved in university teaching. They are often without proper induction to academic teaching and especially lacking the understanding or experience of the potential impact of plagiarism to students work.

There are many different reasons why students plagiarise (Zobel & Hamilton, 2002). In ideal settings students should be provided with a supportive structure to reduce the need to plagiarise. In addition, they should be provided with appropriate training to understand what is meant by plagiarism and how to incorporate references to other peoples work in a proper manner. In other words, ensuring that students have the basic skills required to incorporate other people’s work and ideas to their own work would eliminate most of the cases of plagiarism currently being considered.

3. PRIOR STUDIES
The influences of plagiarism and the subsequent publicity relating to ‘soft marking’ of international students work, the lack of understanding between creativity and copying text was discussed by (Cohen 2003). Cohen cited the lack of understanding of referencing issues as a major contributor to plagiarism in addition to mentioning aspects such as ‘culture’ contributing to the overall effects of plagiarism. Various aspects of academic misconduct including plagiarism were discussed in prior studies (McCabe 2003); (Devlin 2003) including statistical evidence derived from the questionnaire administered by them on secondary students. Studies have also explored ‘dishonesty’ covering a broad spectrum including students using crib notes in an exam (Hallet et al. 2003), copying answers from another student's paper (Melles 2003), letting others copy a homework paper (Green et al. 2003), and ghostwriting ² (Cochrane 2003). Studies have also reported that that gender and institutional affiliation influenced students cheating behavior (Chanok 2003) and one of the determinants of cheating was a diminishing sense of academic integrity (Carrol 2003).

In addition to the above academic studies, articles in the Campus Review, and the Higher Education Supplement and other newspapers have raised the consciousness of Australian academics to the issue of academic integrity in the tertiary sector, mainly referring to the problems arising out of plagiarism. As a result of this adverse publicity, it was argued that the solutions proposed to fight against the academic dishonesty are difficult to maintain and even harder to implement and suggestions were provided to use greater efforts to overcome academic malpractice (Quinn et al. 2003).

Studies that have researched the problems of plagiarism in Australia can be categorized into two categories. They are quantitative studies using an instrument and qualitative studies where no proper methodology has been followed. For instance, McCabe (2003) used quantitative techniques in her study to report the levels of plagiarism. While McCabe reported interesting statistics, very little information was found on the validity of the instrument used to collect the data. Carrol (2003) used a qualitative method in her study to extract six key items influencing plagiarism. The study lacks instrument validation and the ‘inference’ made by the author based on this invalidated instrument. The study appears to be a mere observation than a rigorous framework developed to identify issues of plagiarism. Chanock (2003) studied issues of plagiarism as a Language and Academic Skills (LAS) perspective using an experiential learning type method without any rigorous research framework to derive her findings. Cohen (2003) used

² Ghost writing refers to a proxy writing for the author. The details of the proxy are usually not disclosed.
an action research method to address issues of inadvertent plagiarism among students. The findings reported by Cohen were derived from a set of workshops conducted with students and not from following a rigorous method traditionally found in IS research. Devlin (2003) on the other hand looked into the data available from her institution in determining a plagiarism continuum model. She used the data to identify common themes of plagiarism to develop the continuum. The research method in Devlin’s study involved interviewing both staff and students. The study did not involve quantitative methods to support her continuum. Green (2003) employed a quantitative method in her study in identifying plagiarism issues among postgraduate students. The sample size was 27 and statistical validity of this sample size in generalizing results can be questioned. Further, the data analysis stopped at descriptive level and no reliability checks were conducted to guarantee the quality of data. Hallet et al. (2003) studied the issues of ‘authenticity’ using a case study approach, using a hypothetical case of apparent plagiarism. While the case study demonstrated the complex nature of issues involved in plagiarism, the applicability of this study to generalise the themes of plagiarism is yet to be tested. Hamilton et al (2003) studied plagiarism issues in terms of international student cultures using some cases available within their institution. While they were able to identify a number of points, they failed to develop a theme using the cases available and hence their findings were more of an observation. Melles (2003) used a literature survey in identifying multiple themes of plagiarism. Cochrane (2003) used action research method to study issues associated with plagiarism and used an ‘example’ to highlight important aspects.

Therefore, it appears that in the Australian context, the studies that investigated plagiarism did not follow a rigorous approach in identifying the themes of plagiarism. In many cases, the studies were conducted by academics in the education domain, rather than from IS and the methods used to collect data, validating collected data and arriving at some of findings based on the data cast doubt as to whether the findings can be generalized. This has provided the impetus for this study to follow a rigorous approach in identifying the themes of plagiarism and then validate the themes using quantitative data.

4. RESEARCH QUESTION
The above argument give rise to one important question that is not yet answered satisfactorily: what is the opinion of students on plagiarism? What items contributing to this opinion? While plethora of materials is available on plagiarism, we are not able to find concrete evidence on students’ attitudes about plagiarism based on a rigorous data analysis. Therefore, the main research question posited in this study is:

**What impacts on students’ attitudes on plagiarism?**
This has resulted in the following hypothesis:

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<td>H₀:</td>
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<tr>
<td>H₁:</td>
<td>The justification to plagiarize is different across the student body depending on where they are from.</td>
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5. RESEARCH MODEL
When the prior studies were reviewed, a number of issues such as ignorance, lack of proper
definition and culture emerged as major contributors to plagiarism. Prior studies looked into the
issues of plagiarism based on internal and external students, school children to tertiary students
and in some cases academic publications leading to adverse publicity. When the sampling
methods in these studies were examined, it appears that none of the studies made an effort to
categorise the sample based on certain criteria and then plan their data collection activity. While
there are practical complications in administering data collections exercises based on sample
categories, this aspect is identified as a major weakness in prior studies. Further, the studies
reviewed did not indicate the type of research framework one would expect in academic
publications, data validity techniques and a justification for their data analysis. While almost all
the studies reviewed provide generic information of plagiarism, based on a systematic
procedure, a thematic procedure was not followed in these studies. These weaknesses were
addressed in this study while developing the research model.

The research model involved in this study includes both qualitative and quantitative approaches.
Due to the myriad of issues involved in plagiarism, the scope of the study is restricted to tertiary
students in an IS program in an Australian University. The student population comprises both
Australian and overseas students. This research follows a conceptual paper published in the
Teaching and Learning Forum, dealing with many ‘plagiarism’ cases in IS and a paper published
in the Australasian Conference in Information Systems at Tasmania in December 2004. Based
on this collective experience, this research is designed to capture a cross-sectional snapshot and a
dynamic longitudinal picture of ‘plagiarism’ in an IS department.

Items identified for this research may be limited and needed to be expanded further to
accommodate other unknown items. According to Ortiz (2003), while prior studies indicate that
a quantitative approach would suffice, a combined approach of qualitative and quantitative
methods would provide strength to the research outcome. Experienced researchers indicate that
there is a need to include qualitative approach to study the human, social and psychological
factors (Remenyi et al. 1998) and hence this study will include an interview method in order to
strengthen the research outcome. The interviews will be of semi-structured format to gain
sufficient understanding on the topic from academics in tertiary setting. These interviews may
help to identify any unknown factors that influence plagiarism in tertiary settings. The interviews
will be conducted among enough respondents to get a complete picture of the factors impacting
plagiarism and collusion. Subsequent to the qualitative study, this research would employ
quantitative methods such as survey/questionnaire to collect data. The nature of the quantitative
study would be determined by an initial exploratory study, which may demand specific approach
to research issues.

In summary, the research would adopt the qualitative-quantitative interactive continuum model as
suggested by (Zikmund 1994) and (Remenyi et al. 1998), resulting in a positivist philosophical
approach and would combine both qualitative and quantitative methods to determine the outcome
of this research. Given the exploratory nature, these two techniques are essential to this study.

3 Sampling methods are outlined in a later section.
6. RESEARCH FRAMEWORK
The qualitative component in this study consisted of open interviews with four academic staff from a non English speaking background involved in teaching IS courses. The interview was conducted on the 13th of April 2004 for 90 minutes with a moderator who was conversant with the language of these academic staff. The questions were informal and non-structured as the objective of this exercise was to extract ‘themes’ of plagiarism in the opinion of these non English speaking academics. Responses to the question “Is plagiarism an issue?” were analysed manually and the interpretation indicated certain themes emerging. For instance, it appears that these academics felt that in specific cases plagiarism can be justified and should not be punished. These academics felt that if only a minor component is reproduced, if there is a lack of referencing, if the idea is well presented, then students should not be punished as their culture encourages rote learning. These academics also indicated that in cases where significant component of materials reproduced verbatim, students should be punished. An interesting theme that emerged during the interview was that the overseas students were not well educated in aspects of plagiarism and the standards differ between various Australian universities. They also indicated that there must be a uniform procedure among all Australian universities in handling plagiarism issues.

Once the interview was complete, three student sets were surveyed using an existing instrument. The first set of students were international students enrolled in an IS program in an Australian University studying within Australia. The second set involved domestic students enrolled in the same university at a different campus. The third set was international students studying an Australian Information Systems Program in an overseas country. The three student populations were studying in three different campuses, in different locations and have no contact with each other.

The instrument was distributed for data collection to a single class of IS students at the different locations. The classes were selected because this would be the first semester the students had studied with the university. The international students from the overseas campus returned a total of 87 completed questionnaires and the domestic students returned a total of 48 questionnaires. The external campus within Australia where the students are international students returned a total of 78 questionnaires. The data was entered in a spreadsheet and manually checked for accuracy. Once the accuracy of data entry was verified, the data was imported into an SPSS file for analysis. Because the instrument was derived from an existing instrument that was often cited it was assumed to be a valid instrument.

7. DATA ANALYSIS
The data was initially tested for standard descriptive and ensured that the basic checks were carried out. Then a reliability analysis was performed on the three sets of data. However, when the reliability scores were examined, the Cronbach Alpha value was low for all samples. As these values were not considered reliable, it was decided that the instrument used was not reliable. Consequently a factor analysis was performed on the data sets.

Table 1: Reliability & Validity output with Standardized item alpha .744
When the data sets were combined and analysed, a reliability score of 0.748 for the scale was realized. Therefore, it was concluded that six items were reliable to predict the attitudes of plagiarism. The items are reproduced below:

1. Sometimes I feel tempted to plagiarize because so many other students are doing it.

4. If my roommate gives me permission to use his or her paper for one of my classes, I don't think there is anything wrong with doing that.

5. Plagiarism is justified if the professor assigns too much work in the course.

6. The punishment for plagiarism in college should be light because we are young people just learning the ropes.

9. Because plagiarism involves taking another person's words and not his or her material goods, plagiarism is no big deal.

10. It's okay to use something you have written in the past to fulfill a new assignment because you can't plagiarize yourself.

These items deal with temptation to plagiarise, nothing wrong in plagiarising, justification and light punishment to plagiarism. These items – ‘I am tempted to plagiarise because many others are doing it’, ‘Plagiarism is justified because of heavy work load’ and ‘Punishment should be light because we are just learning the ropes’ – indicate that students felt that the punishment is too high in the university where these students are enrolled. The three groups of students felt that if another person’s words were copied, it is no big deal and past own work can be reproduced to fulfill assignment needs.

A further factor analysis was conducted using the combined data from the three subsets of students. An examination of the correlation matrix showed that a substantial number exceeded 0.3, and thus the matrix is suitable for factoring. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.727 and Bartlett's test of sphericity was significant. The diagonal elements of the anti-image correlation matrix all exceeded the acceptable level of 0.5. This is shown in the following table.

Table 2: Rotated Component Matrix (a)

The rotated component matrix using Varimax rotation did not have any items with loading greater than 0.3 loading onto more than one factor. All the loading for the two factors were 0.46 or greater. Following the factor analysis a reliability analysis was performed for the two factors identified in the factor analysis. For the first factor, Cronbach's Alpha was 0.743, and deletion of item P10 improved the reliability score slightly. Cronbach's Alpha for factor two was 0.562, and this could not be improved by deleting any item. Since a score of less than 0.7 is considered unacceptable this factor was not considered any further. The six item of factor one are shown below in figure 1. To determine a composite score for the single factor, a confirmatory factor analysis was performed. This single factor seems to be justified by the students to plagiarise. Hence we called it ‘justification to plagiarise’.
Figure 1: Single factor of six items on attitudes to plagiarise

The probability level, CMIN/DF, RMR, GFI, AGFI, TLI, CFI and RMSEA scores are all acceptable values suggesting this factor model is an acceptable model. The composite reliability was calculated as 0.762, and the factor score weights are given in the following table.

<table>
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<tr>
<th>P11</th>
<th>P9</th>
<th>P6</th>
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<td>0.067</td>
<td>0.158</td>
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Using these weights a composite score for ‘justification to plagiarise’ was calculated using the SPSS compute command. Following this a one-way ANOVA was performed on the three student groups.

\[
\text{COMPUTE Justify} = 0.067*p11 + 0.158*p9 + 0.121*p6 + 0.164*p5 + 0.094*p4 + 0.093*p1 (\text{COMPUTE})
\]

The results of Levene’s test for the homogeneity of variances suggest that the assumption has not been violated (p>0.05) and the interpretation of the ANOVA can proceed. The F-probability value less than 0.05 is significant signifying that the type of student (identified by location) does significantly influence their ‘justification to plagiarise’ score.
This study explored plagiarism and identified a ‘Justification to Plagiarise’ factor which was used to determine if there are differences between domestic students, international students located in Australia, and international students studying overseas on this factor. An analysis of variance revealed a significant difference in ‘Justification to Plagiarise’ score for students from different locations ($F(2,203)=10.181$, $p<0.001$). A higher score (1-5 scale) indicates stronger disagreement with an items on the survey and hence for the computed factor score. A Newman-Keuls post-hoc test ($\alpha =0.05$) indicated that domestic students had a significantly higher ‘justification to plagiarise’ scores ($M=2.5363$, $SD=0.44854$, $n=48$) than international students located in Australia ($M=2.2694$, $SD=0.43280$, $n=71$) and the international students located overseas ($M=2.1343$, $SD=0.56456$, $n=87$). There was no significant difference between the two sets of international students.

In other words, the domestic students have a stronger disagreement with justification for plagiarizing than the international students, or conversely, the international students justify plagiarism more than the domestic students.

### 8. DISCUSSION

The null hypothesis is rejected and the alternative hypothesis is accepted in this study. The factor analysis clearly indicates students are tempted to plagiarise because others do it; if permission given by a friend to copy his or her work then it is not plagiarism; too much work load results in plagiarism; punishment for plagiarism should be light and if a substantial portion is plagiarized; and then it should result in punishment. While these items appear to be common, the student...
groups differ on what constitutes plagiarism, the granularity of values they hold about plagiarism, helping students to complete assignments and the adverse effect of such help when caught, and punishment as a means of deterrence. The local students clearly differ from overseas students on these issues and the respective cultures appear to be contributing to these differences. Further, it also appears that students in both groups feel that the issue of plagiarism can be justified and the punishment level in many cases to be high. It is interesting to note that both groups felt that plagiarism is not against their ethical values.

The notion of plagiarism appears to be justified by students due to work load given to them during semesters. The attitudes shown by students indicate that plagiarism should be tolerated in academic environment and should not be punished severely. The findings of this study, especially cultural impact on plagiarism and its values on students, are supported by many previous studies including (Melles 2003). Previous studies have indicated that in many Eastern cultures reproducing materials from authoritative sources is an acceptable practice and in some instances lead to academic achievement (Quinn et al. 2003). Previous studies also imply that in many language backgrounds, modifying original source is a major learning strategy and sometimes an insult to the original source (Melles, 2003). This is clearly shown in the division in the attitudes between the two different sets of students namely on-campus and off-campus where on-campus set comprise of local students and off-campus consists of overseas students, predominantly drawn from various Asian countries. When the empirical data were compared with the interview data, some interesting solutions emerge. For example, one could ask whether the testing strategy we use to assess students performance is the right approach as there appears to me too much emphasis on ‘writing style’ rather than testing factual knowledge and understanding (Quinn et al. 2003). Previous studies have identified these problems and argue for different style of assessment types including interviewing students (Hamilton et al. 2003). These studies suggest that there is a necessity to reduce the need for examination-type assessment, which focuses on writing styles only.

The data analysed and the interviews conducted also reveal that the issue of plagiarism is not well explained and not well understood due to many variations and standards on this issue. In fact, when we scanned some university web sites in Australia on this issue, the granularity, interpretation, punishment and procedures associated with this issue is varying between universities and between faculties. This varying view appears to have caused confusion among students. A major implication of this is the necessity for a uniform procedure in dealing with plagiarism issues and an educational kit based on these uniform procedures. There is support from some previous studies for this approach.

9. CONCLUSION
This preliminary study is an attempt to provide empirical evidence towards the attitudes of plagiarism. Three groups of students – local, off campus and overseas – were surveyed in conjunction with an informal interview session with some overseas non-English speaking tutors. It appears that both tutors and students appear to be justifying plagiarism in certain cases with a unanimous attitude that when substantial portions are reproduced, the act of plagiarism warrants severe punishment. Surprisingly, students felt that plagiarism is not against their ethical values.
The results of this study, while providing some new information, are not ready for generalization as only a small segment was surveyed. Further, the instrument has a low reliability and hence the outcomes can be questionable. However, student opinions can’t be ignored and there are some lessons for academics including issues such as over work by students, necessity for uniform guidelines, education aspects to overseas students and a consistent policy among faculties.

10. REFERENCES
Green, M., Williams, M., and Van Kessel, G. "How to help postgraduate students identify plagiarism...don't just tell them," Educational integrity: Plagiarism and other perplexities, University of Adelaide, Adelaide, 2003.
APPENDIX – Plagiarism Questionnaire

Plagiarism Attitude Scale

**Directions:** This is an attitude scale, which measures how you feel about plagiarism. It is *not* a test with right and wrong answers. Please consider your honest opinions regarding the items and record your responses. Do *not* place your name on this scale. Your instructor may give you further instructions.

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<th>Strongly Agree</th>
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