

Science and engineering students' beliefs about plagiarism: 'It's only an assignment'

Shelley Yeo, Learning Support Network, Curtin University of Technology, Australia
s.yeo@curtin.edu.au

***Abstract:** Despite being able to provide clear descriptions or definitions of plagiarism, first year science and engineering students have a range of ways of deciding what is right and what is wrong when faced with interpreting plagiarism incidents. Their own reasoning and values, and not necessarily their knowledge of formal policy and procedure, often guide these decisions. Factors that influence their reasoning often involve assumptions about the function of assessment, perceptions of group work, peer loyalty and collaboration, as well as the type of academic work that these students hand in for assessment. This research has shown that educating science and engineering students about plagiarism (and how to avoid it) must involve more than simply providing appropriate information; it must challenge some deeply held assumptions and values.*

Background

Plagiarism is a significant and growing concern for all in higher education institutions. The following points indicate why studies into the reasons for student plagiarism and how we might prevent or minimise it must be undertaken.

- Academic dishonesty is widespread and is increasing (McCabe and Trevino 1997; Park 2003)
- The prevalence of plagiarism is probably greater than what is reported;
- Cheating and plagiarism are more prevalent in some disciplines (Newstead, Franklyn-Stokes and Armstead 1996; Sheard, Dick, Markham, MacDonald and Walsh 2002); and
- Academic staff underestimate the prevalence of cheating and plagiarism (Brimble and Stevenson-Clarke 2005).

This paper grew out of a previous study of science and engineering students' responses to a series of scenarios featuring differing degrees of plagiarism in the context of the work of science students (Yeo 2006). Two observations in this study were that students' apparent knowledge of plagiarism (according to the definition they provided) had little bearing on whether or not they classified each of the scenarios as plagiarism, and that where a scenario used a key word from a definition of plagiarism such as 'copying' or 'without acknowledging' students were more likely to classify and comment on the situation as plagiarism. However, when these words were absent or if the situation was not one commonly recognized as plagiarism, students tended to resort to their own ethical or moral judgment to formulate a response. Further differences were noted: Non English-speaking background students appeared to favour less harsh penalties than English speaking students, and males appeared to favour less harsh penalties than females. Thus some segments of the student population were inclined to view plagiarism more leniently than others.

Ashworth, Bannister and Thorne (1997) have found that although students see plagiarism as a moral issue, it is underpinned by values such as friendship and interpersonal trust, and ethics such as peer loyalty, which lead students to regard some forms of plagiarism as justifiable. They point out that students see plagiarism simply as a need for referencing to comply with 'academic etiquette' rather than actions that compromise the assessment process. Furthermore, they suggest that studies that ask students to self-report involvement in plagiarism assume that students have the same notions of plagiarism as academics, whereas this may not be the case.

With these points in mind, a more detailed re-analysis of about 1000 written comments obtained in the original study was undertaken to explore in more detail science students' beliefs and attitudes in relation to plagiarism—what it is and what it is not; and if it is plagiarism, what makes it more serious and what makes it less serious. Three premises that underpinned this analysis were:

1. Plagiarism is widespread, therefore all students will have first-hand knowledge of it and of the actions of students around them and that this experience will shape their own beliefs.
2. Students are more likely to reveal their beliefs about plagiarism when commenting on scenarios in which plagiarism is presented as the actions of other students, and not themselves.
3. The better we understand how science students think about plagiarism, the greater the chance of addressing the understandings that might lead them to plagiarise in the future.

Defining plagiarism

Universities define plagiarism in similar ways:

- Plagiarism means presenting the work or property of another person as one's own, without appropriate acknowledgement or referencing [<http://www.policies.curtin.edu.au/documents/plagiarism.doc>];
- Plagiarism involves using the work of another person and presenting it as one's own...unless the source of each quotation or piece of borrowed material is clearly acknowledged [<http://www.student.mq.edu.au/plagiarism/>];
- Plagiarism is the act of misrepresenting as one's own original work the ideas, interpretations, words or creative works of another [<http://www.uq.edu.au/hupp/?page=25128>];
- [Plagiarism is]...the reproducing of someone else's intellectual work and representing it as one's own without proper acknowledgment [<http://www.latrobe.edu.au/adu/plagiarism.htm#1>];
- Plagiarism is the presentation of the thoughts or work of another as one's own [<http://www.science.unsw.edu.au/guide/slatig/acadmisc.html>]; and
- Plagiarism is the intentional or unintentional use of the work of other persons... without due acknowledgment...giving the impression that a student has thought, written or produced something that has, in fact, been taken from another [<http://www.une.edu.au/law/policies/plagiarism.php>]

All definitions, when broken down, implicitly involve:

- three different identities (the plagiariser, the original author/creator of the work and the person/entity to whom work is presented); and
- two processes (the 'taking' process and the 'presentation' process).

A synthesis of the above definitions is the basis of the process of plagiarism (Figure 1). Not all elements are explicitly included in each definition, in particular, the person/institution to whom the work is being presented. The four key elements of plagiarism are (in italics): copying (or using), others' work, to (accidentally or otherwise) deceive another person about the authorship (or ownership) of the work. The student/plagiariser is at the centre of this.

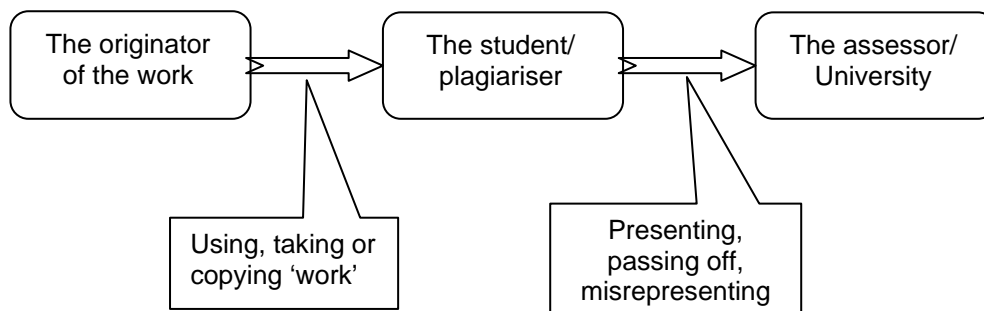


Figure 1. The process of plagiarism

Method

Participants

The survey was administered to students in first year science and engineering degree programs (N=190) during normal class hours. The participants in this study mostly enter university from local or overseas high schools or secondary colleges. Their prior knowledge of plagiarism was unknown.

The survey

A series of scenarios featuring different examples and various degrees of plagiarism embedded in activities likely to be familiar to science and engineering students were developed. The scenarios were not clear-cut plagiarism and included various complexities. The aim was to elicit participants' beliefs when faced with making judgements. An example was: Zoë, a third-year student, submits a laboratory report in which she is required to include information about the results of similar published and relevant experiments. She lists a range of other results and, at the end of the report, lists all sources from which she got the information. She is not specific about the authors/researchers who obtained each set of results.

The survey asked participants to define plagiarism and to classify the seven scenarios as either plagiarism (yes) or not plagiarism (no). They also had the option of saying 'unsure' and of providing a written comment to justify their decision. It is these comments that provide the data for this analysis. Only surveys with four or more comments (N=145) were included in this analysis.

Data analysis

Qualitative analysis of the data was undertaken, using the approach of finding patterns and category systems (Guba 1978, as described in Patton 1990, p.402). The purpose was to condense the large number of comments (over 1000) into meaningful categories with the aim of answering the questions: what do these students believe identifies an act as plagiarism, and what do they believe identifies an act as 'not plagiarism'? Responses were grouped into categories that emerged from the data. Categories were then condensed until a minimum number of discrete and homogeneous categories resulted. The different categories represent viewpoints or arguments put forward or implied by respondents in their comments about any of the seven instances of plagiarism. The views in each category are not unanimous but each represents ideas put forward by a number of respondents. The final list of views is not comprehensive of all possible views as it is necessarily limited by the particular scenarios on which respondents were asked to comment.

When the word student/s is used in the following analysis, it means students featured in the scenarios or students in general. The word respondent/s refers to students who took part in this study. Other names used, e.g. Tim, refer to students named in the scenarios.

Respondents' comments are grouped under two headings: 1. When is an act NOT plagiarism? and 2. When IS an act plagiarism? Some of the sentiments expressed under heading 1 were used by respondents to argue why an act, although identified as plagiarism, should be considered minor plagiarism, and some of the sentiments expressed under heading 2 were used to argue why the identified plagiarism should be considered to be more serious.

Results

When is an act NOT plagiarism?

If it results from collaboration

Collaboration or shared work can't be plagiarism, especially if peers contribute their own work, something of their own. One is not copying from the other but they are sharing or engaged in teamwork. '...they are working as a team.' 'Because the work is done together and [they] are



voluntarily sharing and giving ideas to the other person'. If two or more students compile work together, the product is jointly owned: 'They are collaborating to produce a common body of work which each has an equal right to.' 'They discussed it together so each has a right to call it their own work.' Because of this, one student cannot plagiarise the other's work. '...it can't be plagiarism when it's their own ideas.' 'It isn't plagiarism, it's group work however, it is still an offence if the weekly assignment problems are supposed to be done individually. The offence isn't plagiarism but it's an offence.'

Peer loyalty, represented as collaboration, working together, teamwork or joint development of 'work' was also seen as a right that can override how the work can be subsequently used: 'They've worked together for the answers and although they hand in their own work they both contributed to it so it is fair'. '...they have both contributed equally to the draft so both have a right to use it.'

If it involves group work

A group has a status that is considered somewhat untouchable; it is an entity in which the members are responsible (but not necessarily accountable) for the group's behaviour and decisions, but the group itself cannot plagiarise. 'Group work so no it's not plagiarism by the group.' A group has the right to govern its own behaviour and make its own decisions. 'It is the groups [sic] decision.' 'If the group agrees ... it's OK.'

One of the scenarios was a situation in which a group of students were complicit in lying about the relative contribution of group members to an assessment task. The respondents did not think that group members should have to justify the relative contribution of group members to common work, or to differentiate among the roles of each member of the group. The group takes responsibility, not individual members, even if the behaviour is questionable. '...if this is what the group says ... then how can it be questioned.' '...it is their work, they can say whoever they want did it.' Many of the respondents considered this situation to be untruthfulness or unfairness but not plagiarism: 'They lied but they didn't plagiarise.' 'It's untruthful but it's not plagiarism.' Other respondents thought that the fault lay with the student (Tim) who was to gain most benefit, but not with those who lied to gain an unjustified benefit for Tim: 'Tim is the one committing plagiarism, the others are just not telling the truth.' 'Tim does not deserve equal credit, though all members agree on the contributions.'

If permission is granted

It is not plagiarism if the author gives permission or allows their work to be copied or used. '...they agree to use each other's idea to write the assignment.' 'If Jill let him copy, it shouldn't be plagiarism.'

If it is less than the whole work

There was a view expressed that unless the work that students hand in is identical to an original work, it isn't plagiarism—implying that it is acceptable for some components to be identical but not all. 'Only plagiarism if they write out exact same answers.' '...as long as their final copy isn't the same.' Another student was unsure about whether or not an incident was plagiarism because: '...he's not completely copying the whole assignment'.

If it is a particular type of work

Plagiarism is seen to depend on the nature or perceived importance of the work being undertaken: 'It depends on how much the assignment is worth, and what subject it is i.e., maths = no, humanities = yes.' Thus the same actions of students may be plagiarism if an assignment is for a humanities subject but not if it is a mathematics assignment. Smaller assignments or components of assignments are of lesser importance: '...as it is only an assignment problem it is not very serious plagiarism.' '...it is a small assignment and thus minor [plagiarism].' 'due to the nature of the assignment it's no problem.' 'It's not serious [be]cause they are only graphs.'

If it is collusion

Most dictionary definitions of collusion are similar to the following: an agreement between two (or more) people to deceive or defraud a third person. For the respondents in this study, the term collusion has a somewhat 'softer' meaning—more like just working together on something that is meant to be done individually. Working together may be classified as collusion. 'This is collusion, not plagiarism.' This suggests that students ignore or do not understand the deception aspect of either collusion or plagiarism—that both are acts of fraudulent misrepresentation. In a similar vein, Barrett and Cox (2005) found that students thought collusion was not as serious as plagiarism because it somehow involved students learning whereas plagiarism did not.

If it is not copied, borrowed or 'stolen'

If work is not actually copied or stolen from elsewhere, it is not plagiarism. '...[it] was not a borrowed resource from a third party.' '...[it was] not actually copied it from other resources e.g. books that being [sic] published.' [71] '...they are working together on their ideas not copying each other's ideas.' 'They aren't really stealing someone's ideas'

When IS an act plagiarism?***If the assessor is being deceived***

Is IS plagiarism if students hand in work that they know is not their own or if there is a deliberate attempt to mislead the assessor. 'they are compiling 2 people's work [and] ... passing off as all own work.' '...he directly copied all of another author's text and claimed it as his own.' 'Jack copied the answers from Jill and it does not matter that they have been changed slightly.' '[he] copied then tried to cover this up.'

Very few respondents actually identified or commented on who was being deceived, for example: '... she is taking major pieces of text and claiming as hers.' 'this is work of another person which she will present as her own. Therefore, plagiarising!' 'She is passing off other people's work as hers' When one considers the definitions of plagiarism provided by various universities (stated previously) this anonymity of the 'third party' is also evident. Where respondents did identify the assessor, it was as teacher or marker: 'They will have the same answer-teachers won't know if one copied the other.' 'They are using work that is not entirely their own and telling the assignment marker that it is.'

Interestingly, some respondents appeared not to recognise the clear deception presented in one scenario: 'he is using someone else's work so even though he changes a few things, it is essentially Jill's work.' 'He is taking Jill's work and only changing a few things' Others thought that the actions of the student in changing enough of the assignment so that the two did not appear identical was a reason for reducing the seriousness of the act: 'Changing a few things makes it only a little less serious.' 'Jack has copied off Jill, although he has tried to change a little into his own work'

When permission is not granted

As pointed out previously, there appears to be a notion that plagiarism is related to using work without the knowledge and/or permission of the original author: '...she directly copied without ...asking [the] author.' 'Because Jack is using Jill's work without her knowing' 'It was not her own work and she did not have permission to use it.' Does this imply that if permission is granted, no further acknowledgment is needed?

When the work is not 'owned' by the student

The concept of ownership of work is strong, and that using or appropriating work that someone else 'owns' is seen as plagiarism: 'he is presenting work that is not his own' 'This is just plain plagiarism, as the work is not his.' 'The work still belongs to someone else.' Occasionally, metaphors for appropriated ownership emerged: '... [she] is stealing someone else's words.' 'This is still someone else's ideas that she is stealing.'



When the work is 'copied'

Copying is also strongly associated with plagiarism, to the extent that merely the act of copying is used as an indicator of plagiarism: 'Jack...is 'copying' then changing which is classed as plagiarism' '... Jack copied the work and therefore it is plagiarism' '...copying is plagiarism.' 'He copies Jill's answers = plagiarism.'

When it involves an unfair advantage

Respondents were particularly sensitive to students attempting to gain an unfair advantage: 'He is deliberately changing his work because he knows it is cheating.' 'Mary is not using the source as a reference and rather more of a short cut.' '...she plagiarised because she can get away with it.' They also held a low view of a student getting something that he/she did not deserve: 'He is ... implying that he did 1/6th of the work when he knowingly didn't.' 'He'll get marks he doesn't deserve.'

Summary

Despite the complexities in the scenarios, many respondents clearly identified acts of plagiarism and commented coherently on the salient pieces of evidence. However, there were many comments that revealed various conceptions of plagiarism that may be at variance with accepted definitions and scholarly ways of behaving.

In the majority of comments, the focus of whether or not an act was plagiarism centred mostly on whether or not students were entitled to make use of a particular piece of work (the process), not that they were presenting this as part of their work for assessment or credit (the outcome). The terms 'passing off' or 'presenting' for example were not given the significance that they might have, particularly as they represent an act of deception for the purpose of gaining marks or credit fraudulently. It might be argued that the absence of this third party (assessor, marker, teacher) in definitions of plagiarism is one reason why respondents tend to focus on the process rather than the effect of plagiarism i.e. the deception of this third party about the ownership of work.

Words or ideas that are often associated with plagiarism are: copying, without permission, other's work and stealing. Ownership of work is seen as sacrosanct, except where work is jointly produced. In this case, no one person owns the work and thus any of those involved in producing it has the right to use that work as they see fit. The decision is the right of the individual rather than dependant on a code of practice within an academic community. Most forms of sharing, collaboration, teamwork or cooperation among peers are not only acceptable but expected and often justifiable. While these might represent valid or desired learning behaviours, students often do not know where to draw the line between what is acceptable and what is not. Justifications for questionable behaviour were often emotive or defensive.

Presenting plagiarism in the form of scenarios resulted in the respondents revealing many different ideas and beliefs. Such a technique may well be adopted and incorporated in coursework for science students as a way of exposing and challenging their beliefs, and prove to be an effective and productive activity for helping students to develop more viable knowledge about appropriate scholarly practice.

References

- Ashworth, P., Bannister, P., and Thorne, P. (1997) Guilty in whose eyes? University students' perceptions of cheating and plagiarism in academic work and assessment. *Studies in Higher Education*, **22**(2), 187–203.
- Barrett, R., and Cox, A.L. (2005) 'At least they're learning': The hazy line between collaboration and collusion. *Assessment and Evaluation in Higher Education*, **30**(2), 107–122.
- Brimble, M. and Stevenson-Clarke, P. (2005) Perceptions of the prevalence of academic dishonesty in Australian universities. *The Australian Educational Researcher*, **32**(3), 19–44.

- McCabe, D.L. and Trevino, L.K. (1997) Individual and contextual influences on academic dishonesty: A multicampus investigation. *Research in Higher Education*, **38**(3), 379–396.
- Newstead, S., Franklyn-Stokes, A. and Armstead, P. (1996) Individual differences in student cheating. *Journal of Educational Psychology*, **88**(2), 229–241.
- Park, C. (2003) In other (people's) words: Plagiarism by university students--literature and lessons. *Assessment and Evaluation in Higher Education*, **28**(5), 471–488.
- Patton, M.Q. (1990) *Qualitative evaluation and research methods*. London: Sage Publications.
- Sheard, J., Dick, M., Markham, S., MacDonald, I., and Walsh, M. (2002) *Cheating and plagiarism: Perceptions and practices of first year IT students*. Paper presented at the Annual Joint Conference Integrating Technology into Computer Science Education, Aarhus, Denmark.
- Yeo, S. (2006) First year university science and engineering students' understanding of plagiarism. Paper submitted to *Higher Education Research and Development*.

© 2006 Shelley Yeo

The author assigns to UniServe Science and educational non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The author also grants a non-exclusive licence to UniServe Science to publish this document on the Web (prime sites and mirrors) and in printed form within the UniServe Science 2006 Conference proceedings. Any other usage is prohibited without the express permission of the author. UniServe Science reserved the right to undertake editorial changes in regard to formatting, length of paper and consistency.