

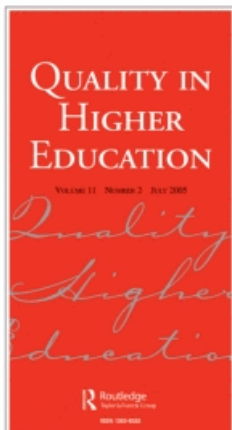
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# Evaluation of a Process and Proforma for making Consistent Decisions about the Seriousness of Plagiarism Incidents

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**ABSTRACT** *Procedures for responding consistently to plagiarism incidents are neither clear-cut nor easily implemented and yet inequitable treatment is intrinsically unfair. Classifying the seriousness of a plagiarism incident is problematic and penalties recommended for a given incident can vary greatly. This paper describes the development and testing of a classification framework for determining the degree of seriousness of a plagiarism incident using four criteria each on a continuum from least to most serious, and then classification into three overall levels. The classification scheme was trialled with academics using hypothetical plagiarism cases. Results suggest that the four criteria are useful and useable, and can assist in decision-making, but that professional development for staff will be required to further improve consistency. The trial also revealed the knowledge and thinking processes of academics that might lead to inconsistent decisions.*

**Keywords:** Plagiarism; academic integrity; educational integrity

## Introduction

Student plagiarism is a problem for educational institutions worldwide; it undermines assessment processes, has the potential to devalue educational awards and damage the reputation of institutions unable to effectively curb it. Large and diverse institutions are at greater risk because quality processes and strategies become more difficult to implement consistently, particularly across multiple campuses. Higher education is also marked by increasingly diverse student populations and growing economic constraints, meaning that academics are teaching larger or more classes but with less time available for close scrutiny of student work. These factors together can result in considerable variation in the way that academics respond to plagiarism incidents. This paper describes the development and trialling of a plagiarism classification scheme to support academics in making consistent initial decisions when acting on plagiarism incidents.

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An accurate picture of the extent of plagiarism in higher education is elusive as it is difficult to separate research on student plagiarism from research on student cheating in general. However, various authors who have summarised findings from multiple studies (McCabe & Trevino, 1997; Walker, 1998; Carroll, 2002; Park, 2003) make it clear that academic dishonesty is widespread and apparently increasing. Even though most studies have used survey-based self-reported data, which may be inherently unreliable, findings where more than 50% of students surveyed admit having cheated in their undergraduate years are common. The advent of widely-available electronic sources of information appears to have exacerbated the problem (Hansen, 2003).

An Australian study (Brimble & Stevenson-Clarke, 2005) reports findings similar to previous studies of academic misconduct. The researchers found that, compared with staff views, students thought that various acts of misconduct were less serious and should attract lesser penalties. They also suggest that staff naively underestimated the prevalence of academic misconduct whereas students had a more accurate perception of what was really occurring. Another smaller Australian study (Sheard *et al.*, 2002) also supports the view that students are tolerant of plagiarism and cheating.

A recent development is for institutions to re-conceptualise plagiarism first and foremost as an educational issue rather than an issue of misconduct, and to be much more proactive in implementing educative and preventive measures (Carroll, 2002; James *et al.*, 2002). Arguments to support this come from greater consideration of the perspective of the student as a sometimes unwilling inductee into an unfamiliar culture (Ashworth *et al.*, 2003; Bufton, 2003) or as a learner struggling to develop writing skills and their own 'scholarly voice' (Hendricks & Quinn, 2000; Dawson, 2004). Cryptomnesia, or inadvertent plagiarism (Marsh *et al.*, 1997; Defeldre, 2005) can also explain why students may fail to recognise the lack of originality of their words, ideas or themes in complex writing tasks. Many universities worldwide are thus developing educational programmes for addressing student plagiarism. Notwithstanding, there appears to be a pressing need for more effective procedures to deal appropriately with students who, despite educational programmes, contravene academic policies.

This study was undertaken in a large Australian university with 35,000 enrolled students on 16 campuses located in a number of countries; a situation that offers great potential for variation in the way students are treated for plagiarism. A recent revision of institutional academic misconduct management procedures resulted in requirements for plagiarism to be addressed and managed through proactive educational means e.g. explicit education programmes including information and support for students and staff (Yeo & Chien, 2006a, b) as well as more robust procedures for acting on plagiarism incidents.

### Academics' responses to plagiarism

The most basic definition of plagiarism is 'presenting the words or work of another person as one's own'. However, literature suggests that there is a lack of consistency in the way academics understand and act on plagiarism. Pincus and Schmelkin (2003) found little consensus among academics about some of the more moderate examples of plagiarism and that some academics even encouraged behaviours that others viewed as plagiarism. Staff who are skeptical about institutional procedures are more likely to opt for informal management approaches (Simon *et al.*, 2003), which must lead to further variation. While responsibility for detecting and reporting plagiarism usually rests with those marking students' work, staff may ignore student plagiarism if they think it is unintentional or due to personal stress (Paterson *et al.*, 2003); if they hold idiosyncratic views about what plagiarism is and is

not (Pincus & Schmelkin, 2003; Flint *et al.*, 2006) or if the institutional process to be followed is arduous or time-consuming (Standler, 2000; Sutherland-Smith, 2003). Carroll and Appleton (2005) found that, for the same plagiarism incident, academics recommended a wide variety of penalties, ranging from discussion with an educational integrity officer through to expulsion from the university. It seems imperative that if academics responsible for student assessment are to agree and be consistent in classifying the degree of seriousness of an act of plagiarism, there is need for a framework to promote common understandings and support consistent decisions. Given that academics have wide-ranging opinions of what is, and what is not, plagiarism, the authors took the view that consensus will not be gained by defining the concept further but, rather, focusing on the degree of seriousness of any plagiarism incident and the extent to which it constitutes academic misconduct.

### Classifying acts of plagiarism

There have been proposals for classifying acts of plagiarism. For example, Walker (1998) has suggested the following hierarchy: sham paraphrasing, illicit paraphrasing, other paraphrasing, verbatim copying, recycling, ghost-writing and purloining. Other factors (for example the amount of material involved), would then be considered in determining a penalty. The notion that there is a plagiarism 'seriousness' dimension is clearly part of the thinking of academics (Pincus & Schmelkin, 2003). On reviewing various institutions' management policies, a variety of contextual factors were found that may be considered in judging the seriousness of a given act, such as the intention (or otherwise) of the student to cheat or the impact of different educational or cultural backgrounds on the way students understand plagiarism. Some of these factors might be considered to form a seriousness continuum and others not. For example, the following factors can be conceived of on a continuum from least to most serious:

1. The experience of the student: acts by students in higher years of study might be considered more serious as these students would be expected to demonstrate higher-level academic skills.
2. The extent or amount of the work that is plagiarised: the more of the work that is not the students' own, the more serious the incident.
3. Intention of the student to plagiarise or to cheat by way of plagiarism: ranging from unintentional plagiarism through to a blatant intention to cheat by way of plagiarism.
4. Previous incidents of plagiarism involving the student: a students' second or third attempt at plagiarism may be regarded more seriously than their first.

Principles of natural justice suggest that number four should not be considered in judging the seriousness of a given act but would be relevant in determining a penalty once the judgment has been made.

Other factors that might reduce (mitigate) or increase (aggravate) the degree of seriousness of a given act are provided below, but it is difficult to conceive a scale associated with them.

1. Cultural considerations: students new to Western academic culture might be treated more leniently.
2. Specific instructions for completion of the assessment task: it is more serious when a student disobeys explicit assessment requirements.

- 3. Premeditation: pre-planned attempts at plagiarism might be considered more serious than those that are last minute, ill-considered breaches.
- 4. Student remorse: students genuinely repentant and willing to correct their work might be treated more leniently.
- 5. Offence committed under duress: a student coerced by peers might be treated more leniently.
- 6. A lesser role played by a given offender where others are involved might be treated more leniently.

Finally, there is a need to distinguish the specific finding against a student for a breach of academic rules from the application of a penalty for that breach. Carroll (2002) strongly suggests that the process of determining guilt should precede and be separate from the process of imposing a penalty. This implies that some of the factors above might be used to make a judgment about the offence and others considered only when determining an appropriate penalty.

*A plagiarism classification scheme*

To promote systematic and consistent decision-making across the university and to enable subsequent scrutiny of the decision-making process, a classification scheme was devised. Constraints on the scheme were that it could not be too complex (and risk staff not using it properly) or take too long to complete (and risk staff not using the formal process to avoid lengthy paperwork). On the other hand, if the classification scheme was too simple or uni-dimensional, it would not enable relevant details of an incident to be considered. The process requires that the degree of seriousness of a plagiarism incident be estimated on four dimensions or criteria: *experience*, *nature*, *extent* and *intent* (Table 1). Each dimension (criterion) has an implicit scale from least to most serious (Appendix 1). Note that under this scheme, intentionality is not a factor in determining whether or not plagiarism has occurred, only in determining how serious the act is, and previous plagiarism transgressions of a

TABLE 1. Brief details of each criterion used in the scheme and proforma for classifying the seriousness of an incident of plagiarism

Criteria	Description	Scale
Experience of the student ( <b>experience</b> )	Relates to staff expectations that the student should be aware of the seriousness of their actions.	Ranges from new, inexperienced students in a course through to those nearing graduation (or completion of a research thesis).
Nature the act of plagiarism ( <b>nature</b> )	Nature of the breach of academic scholarship.	Ranges from poor paraphrasing, citation and referencing skills through to wholesale copying or appropriation of others' works.
Extent of the plagiarism ( <b>extent</b> )	Amount or proportion of the work that is not the student's own. Extent to which the assessment process is compromised.	Ranges from a few elements (having little impact on overall assessment) through to a significant proportion (greater than 10% or significantly compromising assessment)
Intention of the student to plagiarise ( <b>intent</b> )	Intentionality of the act of plagiarism. Intent to cheat by way of plagiarism.	Ranges from unintentional or careless acts through to deliberate intent to commit fraud.

student (if any) are not considered in determining if plagiarism has occurred or how serious it is, only in consideration of a penalty if guilt is established.

Once academics have rated an incident on the four criteria, they propose an overall level (1, 2 or 3) that determines the subsequent formal management procedure. All other relevant factors are then considered in apportioning blame and/or imposing penalties after the initial classification is confirmed. The individual academic is thus relieved of the responsibility for dealing with the incident, although they may be required to contribute later to remediation.

### *Levels of plagiarism*

This university identifies three levels of plagiarism:

- Level 1 plagiarism is inadequate or misleading citing, referencing or paraphrasing, arising mainly from a student's limited knowledge about plagiarism, or how to conform to academic conventions, or from carelessness or neglect rather than intention to deceive. Level 1 plagiarism is not considered academic misconduct, and although it is a breach of academic integrity, will not be treated as punishable. A student will be offered remedial advice and required to correct and re-submit their work.
- Level 2 plagiarism includes misleading or fraudulent acts or work arising from a student's ignorance of academic integrity or academic conventions (where adequate knowledge would have been expected), and where intention to deceive an assessor or cheat by way of plagiarism is apparent, but where the overall effect or consequence of the plagiarism does not significantly compromise the assessment process. Level 2 plagiarism is considered academic misconduct.
- Level 3 plagiarism includes misleading or fraudulent acts arising from clear intention to deceive an assessor or premeditated cheating by way of plagiarism. The effect of the plagiarism is to seriously compromise the assessment process. Level 3 plagiarism is considered academic misconduct.

### **Research design**

This study was designed to investigate how academics use the classification scheme and proforma (see Appendix) in particular for making decisions that are comparable, both among academics and across different cases. The questions that are addressed in this paper are:

1. Is the classification proforma useful and useable?
2. Are the four criteria sufficiently independent to warrant inclusion?
3. Can the classification scheme promote consistent decision-making?
4. Does decision-making depend on gender, teaching experience or discipline?

The methodology has been primarily quantitative, but with content analysis of participants' written comments in relation to their decision-making.

### *Case and Survey Design*

Nine hypothetical plagiarism cases involving 12 students were devised. While all of these cases were consistent with the basic definition of plagiarism, we recognised that some

Also included in the survey were multiple response items soliciting participants' perceptions about the realism of the hypothetical cases, the adequacy of detail provided in the cases and the participants' degree of confidence in making decisions using the four criteria on the proforma and in making an overall judgment about the level of seriousness. Participants were also invited to comment on or explain their decisions on overall level. Demographic data collected included university division, sex and years of higher education teaching experience.

Staff from across the university were invited to participate. Representatives from teaching and learning committees were personally invited to participate and to seek other participants from their respective schools. Approximately 100 survey packages were distributed and 52 returned, and thus 25–30 surveys were returned for each hypothetical case. In the

FIGURE 1. Instruction page given to staff to assist them to complete the same proforma for the four or five hypothetical cases they were given

follow-up study, five pairs of academics from the main study cohort collaboratively re-assessed Cases 1, 2, 5 and 7.

### Details of Hypothetical Cases

Not all cases were designed to be equally complex and a range of situations was devised (Table 2). Cases 2, 3 and in particular 6 were more complex, either involving two or more students who played different roles or having equivocal evidence. Thus there were effectively 12 different ‘student-cases’ and for the purpose of this paper, each one will be referred to with a number (for the case) and letter (for the student, if necessary); for example, student-case 6K denotes Case 6, Student K.

## Results and discussion

### *What is Consistency in Decision-making?*

For the purpose of this study, consistent decisions occur when academics independently make the same decision. Participants in the study were asked to judge each plagiarism incident on the four criteria and mark a point along the continuum for each one. There was no scale on each continuum, but for the purpose of subsequent analysis, a scale from 1–9 was superimposed. Participants were also asked to propose an overall level of seriousness (‘1’, ‘2’ or ‘3’) based on their decisions on the four criteria. No further instructions were provided for this step. Whether any decision arrived at by academics is the correct decision or not is a moot point; one might argue that the correct decision is the one agreed to by the majority and the less the variation, the better. Consistency is thus akin to measurement precision as distinct from measurement accuracy.

TABLE 2. Brief outline of the hypothetical cases included in the surveys

Case	Student/s involved	Brief outline of the hypothetical case
1	A	Research project. Student A copied literature review segments and produced questionable conclusions
2	B and C (different roles)	Student B allowed student C access to a completed assignment. Student C copied student B’s assignment and submitted as own.
3	D	Student D submitted a possibly purchased assignment for which the standard was inexplicably high.
4	F and G (equal roles)	Student F collaborated with student G, and both handed in identical copied or shared work.
5	H	Student H exhibited very poor writing and referencing skills despite explicit instruction.
6	K, L & M (different roles)	Student K was reluctantly complicit in providing false information—voluntarily admitted fault. Student L coerced others into providing false information (to help M). Student M acceded to pressure to provide false information.
7	N	Non-English speaking higher degree by research student N copied many segments of a literature review to compensate for poor writing, paraphrasing and referencing skills.
8	O and P (equal roles)	Students O and P colluded to reduce workload by dividing and sharing elements of the task and copying each other’s work for their journals.
9	Q	Student Q copied graphics and included them without attribution.

Three useful measures of consistency are the range (lowest to highest ratings), inter-quartile range (50% of points lie within this range) or the standard deviation (68% of points lie within the mean  $\pm$  the standard deviation). The smaller each is, the more consistent the decision. A box and whisker plot provides a useful visual indication of consistency because it shows the range, interquartile range and evidence of the distribution of points within the range.

*Question 1: Is the Classification Proforma Useful and Useable?*

Comments from participants were positive: ‘I thought it was very useful, and will help us to reach a much higher degree of objectivity and consistency’ and ‘... will ... reduce the variations of “punishment” across campus. I think it is a great improvement on the current policy’.

The quantitative data indicate that participants thought that the scenarios were realistic (mean 3.6 out of 4). However, some participants expressed reservations about the wisdom of some assessment tasks, ‘I regard some of the assessment tasks lend themselves to plagiarism’, or conditions of assessment, ‘the lecturer needs to provide clearer guidelines’.

Participants’ self-reported level of confidence in being able to use the proforma to make judgments about the various cases showed that they were least confident in making judgments about the *intention* of students to commit plagiarism (Criterion 4) and in making an overall judgment (Table 3, Column 2). The average standard deviation for the use of each criterion scale (Table 3, Column 3) supports these data in that there was a smaller spread of scores on criteria on which participants expressed a greater degree of confidence in using to make judgments.

*Question 2: Are the Four Criteria Sufficiently Independent to Warrant Inclusion?*

Does each of the criteria scales measure something different? To evaluate this, correlations among respondents’ ratings on pairs of scales were calculated, that is, between Criteria 1 and 2, and between Criteria 1 and 3, for all 12 students, and so on. The average correlation coefficient was then determined, that is, the average of 12 correlation coefficients was calculated each time (see Table 4). The number in parentheses indicates the number of correlations that were significant ( $p<0.05$ ) each time.

TABLE 3. Participants’ degree of confidence in using the criteria to make judgments

Criterion	Degree of confidence in making judgments (mean out of 4)	Mean standard deviation for the score on each criterion*
Experience of the student ( <b>experience</b> )	3.3	1.49
Nature the plagiarism ( <b>nature</b> )	3.1	1.46
Extent or amount of the work that is plagiarised ( <b>extent</b> )	3.0	1.58
Intention of the student to plagiarise or to cheat by way of plagiarism ( <b>intent</b> )	2.7	1.62
Making overall judgment about Level of seriousness.	2.7	NA

\* Scale is 1–9; the lower the mean standard deviation, the smaller the spread of scores and thus more consistent the decisions.

TABLE 4. Average correlations (Cronbach Alpha coefficients) among criteria (averaged over 12 student-cases). The number of significant correlations are bracketed

Scale (criterion)	1 (experience)	2 (nature)	3 (extent)	4 (intent)
1 (experience)				
2 (nature)	0.39 (7)			
3 (extent)	0.34 (4)	0.59 (10)		
4 (intent)	0.40 (6)	0.55 (8)	0.50 (6)	
Average correlation of scale x with other 3 scales	0.38	0.51	0.48	0.48

Thus the scales are not measuring completely independent quantities but neither are they highly correlated. An argument can be provided for why there might be some relationship between them; for example, the experience of the student (*experience*) should not be related to the act of plagiarism or what they did (*nature*) but in practice, tasks given to first-year students are usually less sophisticated than those given to final year students and thus there may be greater potential for a more serious act with final-year students. *Nature* (Criterion 2) and *extent* (Criterion 3) were most related, which is not unexpected since some of the more serious acts imply more extensive plagiarism. Least correlated were *experience* (Criterion 1) with *extent* (Criterion 3), again not surprising since the experience of the student is not necessarily related to how much of the work is plagiarised. Overall, it is suggested that these four criteria are sufficiently independent to enable four different judgments to be made about a given incident and are thus worthy of inclusion.

### Question 3: Can the Classification Scheme Promote Consistent Decision-making?

The proforma requires academics to use the evidence given to make judgments on the four continua using the stated criteria only, and then recommend an overall level of seriousness. This raises three further questions: Do participants use the four criteria consistently? Is choice of overall level of seriousness consistent with decisions on the four criteria? Do the four criteria scales work predictably?

#### Do Participants Use the Four Criteria Consistently?

All four criteria were used consistently (precisely) in a number of the cases, but not all of them, depending on the type of incident and the amount of detail provided. Similarly, one or two criteria could be used precisely for a given case, whereas the remaining ones were not necessarily used precisely. Across all cases no one criterion proved particularly problematic, although *intent* (Criterion 4) contributed most to uncertain decisions.

Figures 2–4 show how data from the cases have been analysed. Three representative cases (8, 5 and 2) are shown. The four criteria are represented in the lower section, each on a scale from 1–9 (located at the bottom). Participant responses are represented by box and whisker plots. The vertical line shows the mean score of all four criteria scores. The histogram in the upper section shows the nominated overall level of seriousness, on a scale of 1–3. The solid vertical line shows the mean level score. Level 1 plagiarism in the upper section nominally coincides with the range 1–3 on the criteria scales below, Level 2 plagiarism corresponds with the range 4–6 on the criteria scales below and Level 3 plagiarism corresponds with the range 7–9 on the criteria scales below. This alignment is only to facilitate visual comparison.

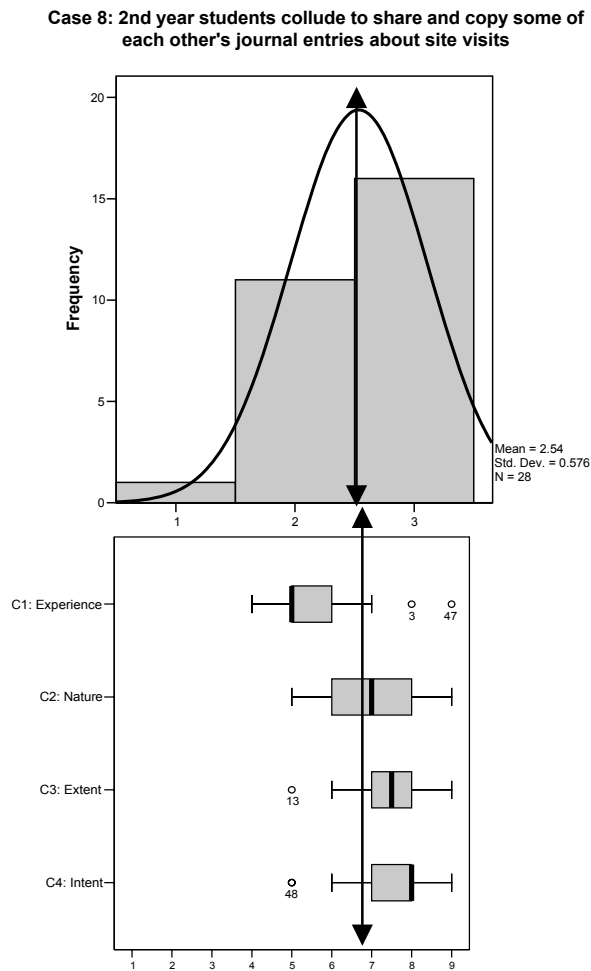


FIGURE 2. Results for Case 8. Students O and P colluded to reduce their workload by dividing and sharing elements of the task and copying each other's work for their journals

For Case 8 (Figure 2), the most consistent decisions were made on Criteria 1, 3 and 4. Criterion 2 was more problematic in that staff did not agree on the seriousness of students sharing the workload and agreeing to copy one another's work for submission. For Case 5 (Figure 3) participants were least consistent in making a decision on the *intent* of the student to plagiarise (Criterion 4). There was also insufficient information given to enable a more precise estimation of the amount of material that was plagiarised, and this is reflected in the spread of decisions on *extent* (Criterion 3). For Case 2C (Figure 4) the least consistent decisions were on *nature* (Criterion 2) and *intent* (Criterion 4). The act of one student taking another's work and submitting it as his own was regarded as serious but not always ranked near the top of the scale. Similarly, there was a range of views about whether or not the student *intended* (Criterion 4) to plagiarise (or cheat by way of plagiarism). Figure 4 also shows the distribution of responses subsequently made by the five pairs of academics. While this is a small sample and the results must be viewed circumspectly, there appears to be less spread to the responses for Criteria 1–3 but one pair came

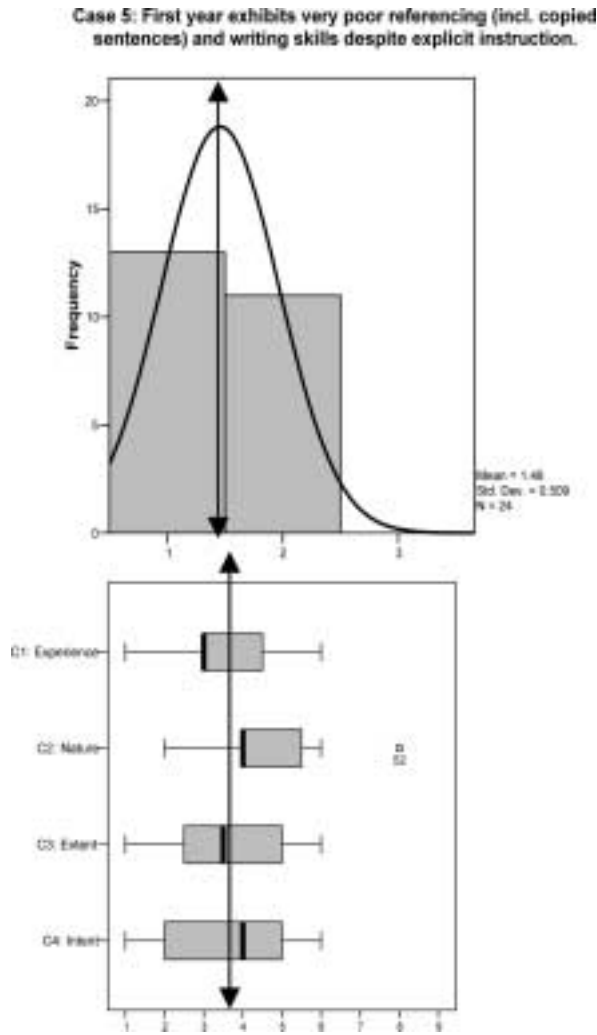


FIGURE 3. Results of Case 5. Student H exhibited very poor referencing skills despite explicit instruction

to a different conclusion from the other four on *intent* (Criterion 4). The reason why one pair was different from the others was not explored. It could simply have been a random outcome or the unwillingness of the two people concerned, to infer 'intent' from a brief outline of a plagiarism incident.

No single reason can be offered for the variation in judgments about each of the cases or use of the four criteria. In some instances it can be accounted for by unclear information and in other cases, insufficient detail was provided. In some instances, participants were of the view that a given case did not represent plagiarism and this may have affected their judgment. It is expected that, given access to more complete evidence or given the ability to ask for clarification, academics will be able to use the proforma to make more precise judgments on each criterion. However, it seems clear that limited information about a case and perhaps sole decision-making will contribute to less consistent use of the classification scheme and proforma.

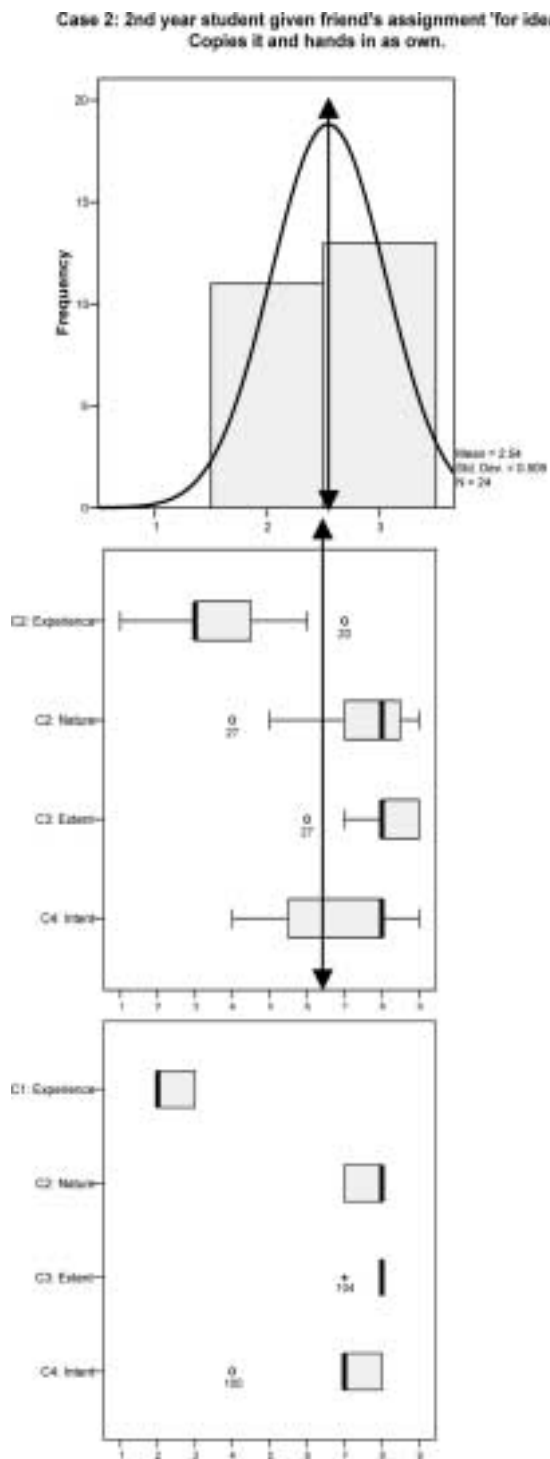


FIGURE 4. Results of Case 2. Student C, on gaining access to Student B's assignment, copied it and submitted it as his own

### *Is Choice of Overall Level of Seriousness Consistent with Decisions on the Four Criteria?*

The data indicate that participants' choice of overall level of seriousness was consistent with their average responses on the four criteria scales, even though there was some variation across participants. Any variation on choice of overall level appeared to be one way—for the more lenient lower level.

Ideally, in Figures 2–4, the two means (lower and upper sections) should line up. That is, if participants make a choice of overall level based only on the four criteria, with no implicit weighting given to one or more scales and taking no 'extra' information into account, they would be expected to choose a level consistent with their mean score on the four criteria. In all instances the two means were close (see Figures 2, 3 and 4), although there appeared to be a slightly conservative decision on overall level: in all likelihood the result of giving a student the benefit of doubt. There is evidence from participants' written comments that uncertainty or doubt played a part in their decision-making: 'I can't make a judgment, despite my "gut" feeling'.

The amount of information provided or the overall complexity of some of the cases may also have influenced decision-making. Participants who expressed reservations in writing about the more complex cases tended to recommend a lower overall level of seriousness compared with those participants who did not comment. On the other hand, participants also felt constrained by not being able to seek more information and this influenced their overall decision: 'Might consider revising to Level 2 ... if other mitigating circumstances were present'. There was also evidence that the participants had a degree of empathy for students: 'Students like this do not appear to be intentionally cheating; rather they just don't have the time, ability or desire to do it properly' or 'this is why I no longer set essays to first-year students'. Such comments suggest that participants may respond conservatively in making an overall judgment.

Thus, although participants did not always use all four criteria in a consistent manner, the decision on overall level appears to be consistent with the 'mean' decisions on the four criteria. Thus, participants did not appear to give an implicit weighting to one or more criteria, be unduly influenced by uncertainty or make decisions on unknown factors outside these criteria.

### *Do the Four Criteria Scales Operate Predictably?*

The four criteria scales were found to operate predictably, that is, the ratings on each criterion scale correlated positively with the choice of overall level of seriousness.

Simple regression analysis was used to determine if the scores on criterion scales predicted overall level. Multiple regression analysis was considered inappropriate because the sample sizes were small (20–30) and, more importantly, the correlations among the variables would mean that substantial predictive relationships, if existing, would not be identified. A further limitation of this is that overall level is only on a three-point scale. The analysis was completed independently of a content analysis of respondents' written comments on selection of overall level, conducted by one of the authors (RC). Conclusions are based on both analyses.

For 11 of the 12 student cases, at least two of the criteria scales predicted overall Level and for three student cases, all four criteria scales were significant predictor variables. An example is provided in Table 5 for Case 5.

TABLE 5. Results of simple regression analysis testing the criteria scales for prediction of overall Level (Case 5)

	Criterion 4 (intent)	Criterion 2 (nature)	Criterion 3 (extent)	Criterion 1 (experience)
F	15.6	15.4	9.8	8.3
$\beta$	0.61	0.61	0.52	0.49
sig	0.001	0.001	0.004	0.008
R2(adj).	0.35	0.35	0.25	0.21

*Intent* (Criterion 4) was the best predictor of overall level determination for eight out of the 12 student cases (1A, 2C, 4F, 5H, 6K, 6L, 7N, 9Q) and a lesser predictor for two others (3D and 6M). That is, the more that participants were convinced that the student intended to plagiarise, the more likely they were to select the higher overall level. Participants' written comments suggest that they are sensitive to making unsubstantiated accusations about intent, and seem unwilling to do so even when it appears likely that the student is in breach of academic regulations: 'Sounds like a [Level] 2 but without substantiation [it] is difficult to decide. Innocent until proven guilty!' On the other hand, where the intention to cheat appeared blatant, the participants held no qualms about recommending a Level 3: 'This is a clear case of premeditated collusion and the students admitted the offence ... a high workload is no excuse'.

*Experience* (Criterion 1), while a predictor for some cases, was the weakest of all criteria. Participants accepted that the year of a student was an indicator of level of seriousness: 'Fourth-year students should be well versed in plagiarism'. Others brought mitigating factors such as emotional maturity into their decision-making process: 'First-years have other things on their mind and although they are told, rarely realise how serious an issue plagiarism is'. There was, however, some reticence to accuse a student with little experience of Western academic culture, regardless of the year: 'Culturally, plagiarism [is] not seen as wrong and, therefore, is student aware of consequences and requirements ...'

Many staff judged Case 2B not to be plagiarism, and there are reasonable grounds for this conclusion: the act was enabling plagiarism to occur, albeit apparently inadvertently. This is supported by the quantitative analysis in that this was the only student-case for which none of the criteria was a predictor of overall level, even though two-thirds of the participants assigned it a Level 1. On the other hand, participants had variable opinions about Case 5: 'I wouldn't label it as plagiarism' or 'even if [the] class had been given specific instructions in penmanship, paraphrasing and referencing [it is] not enough to accuse [the student] of plagiarism if first offence'.

The four criteria/scales operated predictably on a continuum of least to most serious. The strong predictive power of some criteria for overall level would have been, in part, a consequence of a spread of criteria scores. The regression analyses would not indicate predictive relationships if there had been highly consistent decision-making (that is, no spread in results). However, when there is a spread of scores on a criterion scale, at least all scales are used in the sense of least-to-most serious as designed.

*Question 4: Does Decision-making Depend on Gender, Teaching Experience or Discipline?*

There was little evidence of systematic bias in decision-making on the basis of teaching experience or in relation to science or non-science discipline but a possible gender bias, with female participants tending to be harsher in their decisions than male participants.

ANOVA tests for differences between mean scale scores for gender, teaching experience and discipline group were conducted. Of the 48 student/criteria judgments to be made (12 students on four criteria), there were significant gender differences on only six; and females rated the offence higher than the males each time. These were spread across all four criteria. Similarly, over the 48 judgments, there were significant teaching experience related differences on only two; and participants with three or fewer years experience rated the offence higher each time.

There were insufficient numbers of respondents from each discipline group to run an ANOVA test for differences, therefore the disciplinary categories were collapsed into two, science and non-science. Of the 48 student/criteria judgments to be made, there were significant discipline-related differences on only four, but with no consistent bias.

## Summary

This study was conducted to investigate the use of a proposed plagiarism classification scheme and proforma designed to enable staff to make decisions about the level of seriousness of an incident of plagiarism. Nine hypothetical cases involving 12 students were devised and academics were asked to make judgments about a sub-set of them. The analytical methods were designed to explore participants' use of the proforma as well as to determine the potential of the proforma to promote consistent decision-making.

The proforma was useable, with participants believing that it assisted them or gave them confidence that they were making correct decisions in dealing with incidents of alleged plagiarism. They felt reasonably confident in making decisions using the different criteria, and that cases they were presented with were realistic situations.

The four criteria/scales were moderately independent, enough to warrant inclusion on the proforma, and each operated in a predictable way. In general, the scores on a given scale correlated with the choice of overall level, and the choice of overall level adequately reflected mean decisions on the four criterion scales.

Participants were least confident in making judgments about the intention of students to plagiarise or to cheat by way of plagiarism. This criterion was the strongest predictor of overall level, either because participants gave this criterion an implicit weighting in making decisions on overall level or possibly because there was a slightly greater spread of scores on this scale. There is some evidence that collaborative decision-making resulted in more consistent decisions, although pairs of academics may tend to be more conservative in overall level judgment.

There is scope for some improvement in consistency of use of the four criteria scales on the proforma. There was some variation in the use of the four scales for a given case and likewise some variation in the use of a given scale over a number of different cases. The fact that each of the scales could be used precisely in at least some of the cases leads to a degree of confidence that the proforma will be useful in the higher education context.

Participants used criterion scales consistently if they were in receipt of sufficient evidence or information or the means to clarify equivocal evidence, and more information would be expected to be available in real cases. Academics will probably also need some guidance as to what evidence is admissible in this first-stage decision-making process, and what evidence must be reserved for later judgments. Participants occasionally brought into their deliberations criteria other than those on the proforma. This was not unexpected given that participants were not familiar with the proposed new procedures requiring them to separate decisions about classifying the seriousness of the incident from decisions involved in

determining a penalty. Finally, written comments that participants provided with the various cases indicated that some had understandings of the concept of plagiarism or of their role in dealing with it that were at odds with even the existing university policy. While this phenomenon has been reported previously (Pincus & Schmelkin, 2003; Flint *et al.*, 2006), the results of this study confirmed the need for further professional development for staff to enable them to compare views and try to reach consensus in their understandings and hence how they should respond to particular plagiarism incidents.

There was little evidence of bias in decisions related to experience of the participant, or their broad discipline area (science or non-science) but gender may have played a role in decisions in some cases. This warrants further investigation. Given that the proforma will be used as a way of monitoring the decisions of staff across the university, there will be further opportunity to conduct further analyses such as this using real cases.

The way that an institution responds to plagiarism is, in most instances, defined in policy. However, if incidents are handled inconsistently and there is public perception of inequitable treatment for students, in a climate of increasing frequency of plagiarism, the good conduct and reputation of the institution is seriously at risk. This classification scheme has been developed to improve consistency in the ways that academic staff first respond to an alleged plagiarism incident.

### Addendum

Since this study was undertaken, the classification scheme (and proforma) has been introduced and has been in use in this large, multi-campus institution for over 12 months. Provisions in the procedures for using it that arose from the study are that two academics jointly must decide on the overall level of plagiarism (alleged) before further action is taken. Anecdotally, this dialogue has been beneficial in promoting more common understandings among staff. The proforma does not give the academic reporting the incident the responsibility of dealing with it but, rather, the proposed level of plagiarism determines the subsequent institutional process of dealing with the incident, thus there is a later opportunity for review of the decision. The full process is clearly stipulated in the institution's now revised plagiarism policy. Substantial professional development has also been conducted with groups of staff to assist with the changeover to the new policy and procedures.

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## Appendix. Proforma for determining the seriousness of plagiarism

Name of student: \_\_\_\_\_ Unit: \_\_\_\_\_ Date: \_\_\_\_\_

Case 5

Nature of alleged plagiarism: Student H handed in a first-year assignment essay that was poorly constructed, consisting of multiple quotations, some text with in-text citations and some obviously copied sentences without any acknowledgement at all. The student clearly has few skills in paraphrasing and in synthesising ideas, as the whole essay was a series of mostly unconnected paragraphs. The references were also badly formatted and the list incomplete. The class had been given specific instruction in paraphrasing, citing and referencing.

Staff member (complainant): \_\_\_\_\_ Unit Coordinator: \_\_\_\_\_

	LOW LEVEL	MEDIUM LEVEL	HIGH LEVEL
<b>Criteria</b>			
<b>Experience of the student</b> Rises to your expectation that the student should be aware of the seriousness of their actions.	For example: First year student or first semester of course Cultural considerations hindering understanding e.g. no prior instruction or unclear instructions given HDR students in pre-candidacy draft	For example: Students after first semester of course but before final year After completion of known instruction in avoiding plagiarism HDR students in candidacy or early thesis drafts	For example: Final year, experienced student Where student is expected to fully understand and exhibit academic integrity HDR students in mid-course or final thesis drafts or submitted thesis
<b>Nature of plagiarism</b> Nature of the breach of academic scholarship.	For example: Referencing or attribution of work is not clear or adequate, or has numerous errors Inappropriate paraphrasing	For example: Failure to reference and/or one inadequately copying segments of other students' assignment work False indication of contribution to group work Copying fragments of material from websites, book or other publications Recycling parts of previous assignments	For example: Fabricated references or citations Whole works copied (from students or other sources) Purchased assignment Stealing others' work
<b>Extent of plagiarism</b> Amount or proportion of assessment item or work that is not the student's own. Extent to which the assessment process is compromised.	For example: Few sentences, one paragraph, one (minor) graphic Few elements of computer source code	For example: Two or three paragraphs or a segment of the work Segments of computer source code	For example: More than 10% of the work is copied Significant appropriation of ideas or artistic work Multiple pages or sections of text or graphics copied
<b>Intent of student to cheat by way of plagiarism</b> Intentionality of the act of plagiarism and intent to cheat by way of plagiarism.	For example: Plagiarism appears unintentional or due to lack of knowledge Intent to cheat is unlikely or doubtful	For example: Plagiarism appears intentional or the result of negligence Intent to cheat is probable but cannot be clearly substantiated Two or more students involved	For example: Plagiarism appears deliberate and planned Authors contravene clear instructions Intent to cheat is evident and can be substantiated
<b>Decision</b> Refer to Schedules B and C once level of seriousness has been determined.	LEVEL I offence	LEVEL II offence	LEVEL III offence
<b>Determination of level of seriousness: LEVEL I II III</b> (please circle after completing the table)			
<b>Comment:</b>			