

Encouraging good writing practice in first-year Psychology students: An intervention using Turnitin

Lucy R. Betts, Stephen J. Bostock, Tracey J. Elder & Mark Trueman

There is growing concern among many regarding plagiarism within student writing. This has promoted investigation into both the factors that predict plagiarism and potential methods of reducing plagiarism. Consequently, we developed and evaluated an intervention to enhance good practice within academic writing through the use of the plagiarism detection software Turnitin. One-hundred-and-sixteen first-year psychology students submitted work to Turnitin and 71 of these students evaluated their learning experiences. For the next assignment the students completed, there was a reduction in academic misconduct cases compared to the previous year and students evaluated the session positively. The findings have implications for teaching good practice in academic writing.

Keywords: *Student writing; plagiarism; Turnitin; psychology.*

PLAGIARISM involves 'students taking the words of others and passing them off as their own in their coursework assignments' (Hayes & Introna, 2006, p.55) without appropriate acknowledgement (Flint, Clegg, & Macdonald, 2006), and is generally regarded as 'bad' practice or academic misconduct. Although the extent of plagiarism can vary ranging from nothing, to a few words, to an entire document (Bennett, 2005), from a legal perspective plagiarism is regarded as a violation of intellectual property rights that are protected by copyright laws (Anon, undated a). There is growing concern among some tutors and researchers regarding the impact of plagiarism (Larkham & Manns, 2002); consequently, a number of investigations have been undertaken to determine the extent of the problem. In 1999, 69 per cent of tutors questioned reported that they detected at least one instance of plagiarism during the last year in their marking (Young, 2001). More recent figures suggest that the rate of plagiarism seems unchanged with students becoming more accepting of the practice. For example, Szabo and Underwood (2004)

report that 50 per cent of 291 undergraduate science students, from year 1 to year 3, indicated that it was acceptable to use the internet when engaging in plagiarism. Male students were more accepting of academic 'bad' practice than females, and those in the first and second year were more accepting than those in the third year. Further, in a self-report examination of 'cheating' behaviour, researchers have also identified that paraphrasing without appropriate references was the most prevalent form of such behaviour (Newstead, Franklyn-Stokes & Armstead, 1995; Norton et al., 2001).

Although some students regard plagiarism as acceptable, not all students do. For example, 46 per cent of students regarded plagiarism as 'fundamentally immoral and shameful' (Bennett, 2005, p.149). However, 46 per cent of the students reported that they had plagiarised an entire paragraph without appropriate references, 31 per cent reported that they had plagiarised several paragraphs, and 25 per cent reported that they had submitted a complete piece of work that were plagiarised (Bennett, 2005). These figures are in stark contrast to the same

students' perceptions of the extent of plagiarism. Specifically, 33 per cent of the students believed that less than 11 per cent of the students plagiarised, and 25 per cent thought that over 35 per cent of students plagiarised. Although a high proportion of students reported engaging in plagiarism, three-quarters of the students believed that it was not easy to get away with plagiarism and that their tutors took the issue of plagiarism seriously (Bennett, 2005). Therefore, it seems that although many students do engage in plagiarism, most acknowledged that it is unacceptable and that tutors take the issue very seriously.

There has been much debate about the motives of students who plagiarise. For example, some argue that plagiarism is the result of a student's lack of understanding concerning what constitutes plagiarism (Hayes & Introna, 2006), whilst others argue that plagiarism occurs when there are lower levels of academic support (Szabo & Underwood, 2004), or when students are not aware of how to apply the appropriate referencing conventions (Landau, Druren & Arcuri, 2002). In a comprehensive study, Bennett (2005) identified a number of predictors of both minor and major plagiarism. With regard to minor plagiarism, students were more likely to plagiarise if they: (a) Were less integrated into the academic community; (b) had part-time employment that disrupted their studies; (c) experienced high levels of parental pressure to succeed but were performing less well academically; and (d) engaged in ineffective study skills. Major plagiarism on the other hand was predicted by: (a) Fear of failure; (b) low fear of being caught; (c) lack of academic integration; (d) lax attitudes; and (e) good relationships with their tutors – due to a perception that the tutor would not penalise the student. Whilst a number of factors have been identified as important predictors of a student's propensity to engage in plagiarism, there appears to be a consensus that plagiarism may occur because students are unsure of what constitutes good academic practice when they start

university (Bennett, 2005; Flint et al., 2006; Hayes & Introna, 2006; Parameswaran & Devi, 2006). Further, as students progress through their studies, they report that their confidence in academic writing and their knowledge of how to avoid plagiarism increases (Pittama et al., 2009). Consequently, some argue that part of the tutors' role is to ensure that students are aware of: (a) What constitutes good practice; and (b) the importance of following discipline-specific reference conventions (Parameswaran & Devi, 2006).

In response to the suggestion that tutors should educate students about good practice in academic writing, there have been a number of interventions developed to help to facilitate psychology students' understanding of referencing conventions. For example, through providing students with feedback on their paraphrasing skills, Landau et al. (2004) reduced the instances of plagiarism in a follow-up task. Similarly, giving students referencing tasks has also been found to increase adherence to referencing conventions (Schuetz, 2004). Although these approaches have been successful, with the increase in the use of plagiarism detection software by universities, we wanted to develop an intervention designed to enhance students' good practice by using plagiarism detection software. The intervention might have an impact both through its educational guidance and through the deterrent effect of knowing that the university was using this software. The intervention we developed involved creating a teaching session that was focused around the plagiarism detection software Turnitin.

The Turnitin online software is becoming increasingly popular with educators, with an estimated nine million users in 2006 (Pilon, 2006) rising to over 60 million pieces of work submitted in 2011 (Anon, undated b). Once a document has been submitted to Turnitin, it compares the text within the document with text: On the web, with databases of previously submitted material, and with material submitted by all students for an

assignment (for collusion). Turnitin then generates an 'originality report' that identifies matching sections of text in the submitted document and the documents that it has been compared with. Turnitin does not find plagiarism *per se* but rather attempts to match sequences of text that may be unacknowledged and so may be plagiarism or collusion (Royce, 2003). Because Turnitin considers such a range of internet sources and previously submitted work, it increases the likelihood that genuine instances of plagiarism or collusion will be detected (Royce, 2003). One advantage of Turnitin, as a method of detecting plagiarism, is that it reduces the amount of time that tutors spend trying to locate plagiarism (Larkham & Manns, 2002). However, originality reports need interpretation. Turnitin gives both false negative matches (failing to detect text sources that would match) and false positives (correctly quoted and cited text, short phrases that randomly match other documents, and short phrases that are in common use in the subject). Further, for some students informing them that their work will be submitted to Turnitin is not always effective in deterring them from plagiarising (Youmans, 2011).

There are few reports of previous interventions where tutors have used Turnitin as a method of teaching good practice in academic writing. However, in a study with year 3 and year 4 pharmacy students at the University of Auckland, Sheridan, Alany, and Brake (2005) evaluated students' perceptions of the use of Turnitin. Of the 172 students asked, no student suggested that Turnitin could serve as a method of teaching good practice in academic writing. However, 42 per cent of students reported that Turnitin did help them to understand some of the issues surrounding plagiarism and 55 per cent of the students said that Turnitin helped them to recognise the importance of writing in their own words suggesting that Turnitin could be used in a teaching context. Recent research has also suggested that Turnitin can be used to reduce instances of

internet plagiarism when information technology students were deducted marks according to the percentage of similarity generated from the Turnitin reports in a peer-review context (Ledwith & Risquez, 2008). However, Rolfe (2011) reported that whilst students' confidence in their academic writing increased following submitting a draft essay to Turnitin, the incidence of plagiarism following the submission was not reduced. Together, these findings suggest that Turnitin may serve as a useful tool for teaching students good practice in their academic writing. Therefore, we wanted to embed the use of Turnitin within a first-year psychology teaching session with the aim of enhancing students' understanding of the importance of good practice within academic writing. We also asked the students to evaluate the intervention and examined departmental records of academic misconduct following the intervention to assess the success of the intervention.

Method

Participants

One-hundred-and-sixteen first-year students completing an introductory research methods and statistics module as part of the psychology component of their dual honours degree, participated in the session. Students submitted a formatively assessed laboratory report to Turnitin during one of six laboratory teaching sessions. Seventy-one of these students completed an on-line evaluation of the intervention following the session.

Evaluation measures

Plagiarism rates in subsequent work. As an objective measure of the effectiveness of the intervention, information concerning instances of potential plagiarism was collected from the departmental records for the students' next piece of laboratory coursework.

Student questionnaire. Following the intervention, students completed a short online evaluation comprising seven statements assessing students' satisfaction and the devel-

opment of transferable skills pertaining to referencing (e.g. 'Having used Turnitin it will help my work in the future'). Questions were also included that assessed how user-friendly Turnitin is perceived to be because if technology is perceived as user-friendly it will be more successful than if it is not (Maier & Warren, 2000). Students responded to the statements by indicating their agreement using a five-point scale (1=*Strongly disagree* to 5=*Strongly agree*). Finally, students were given the opportunity to provide free text comments concerning their experiences of using Turnitin.

Procedure

A teaching session was designed to introduce students to what constitutes good practice in academic writing in psychology. As part of the session, students were given a series of activities to facilitate their understanding of the issues surrounding good practice and plagiarism. Additionally, a tutor-led presentation was also given on the importance of following the referencing conventions within psychology. Finally, students were asked to submit a formatively assessed laboratory report to Turnitin as part of the session. Once students had submitted their work to Turnitin they were given assistance in interpreting the originality report. After the session, the students were then asked to evaluate the effectiveness of Turnitin as a method of increasing awareness of good practice in academic writing. Once the students had submitted the next piece of coursework, the departmental records for cases of suspected academic misconduct were accessed.

Results

Suspected cases of academic misconduct in subsequent work

An objective measure of the success of effectiveness of the session using Turnitin was to examine the number of suspected academic misconduct cases that arose following submission of the students' next piece of laboratory coursework. Following the inter-

vention, there was a significant reduction in the instances of suspected academic misconduct compared to the previous year where no such session was delivered. During the previous year where the same report was submitted but without the session using Turnitin as a tool for promoting good practice in writing there were seven cases of suspected academic misconduct whereas in the year when the students received the session using Turnitin there was only one case of suspected academic misconduct.

Originality reports

For the work submitted during the teaching session, the amount of text Turnitin identified as being similar ranged from 0 to 52 per cent ($M=13.88$, $SD=12.80$). Although there were some instances of matching text identified in the similarity reports, but as reflected in the descriptive statistics, there tended to be low instances of matching text within the documents submitted by the students. Further, some of the similarity scores should be treated with caution as instances where matching text was identified was due to the nature of the assignment. Specifically, there were a number of false positives identified where students used a common phrase or included appropriately referenced quotes.

Students' evaluations

Students evaluated the learning experience associated with using Turnitin positively. For example, 68 per cent of students agreed or strongly agreed that using Turnitin helped to reassure them that their work was their own, whilst 58 per cent of students agreed or strongly agreed that using Turnitin helped them to understand the issues surrounding plagiarism. The frequencies and descriptive statistics are presented in Table 1. A one-sample *t*-test was used to analyse the results of the evaluation where a rating of 1 indicated that Turnitin had been evaluated negatively as a method of enhancing students' knowledge of good practice in academic writing (see Harris & Queen, 2007). The results of the *t*-tests indicated that the

students had evaluated Turnitin as a positive method of teaching good practice in academic writing and as a method of raising awareness of the issues surrounding plagiarism.

Twenty students took the opportunity to provide free text evaluation comments which focused on different themes. Students reported that the use of Turnitin was helpful as a method of increasing good practice in academic writing ($N=8$). However, some students were concerned that Turnitin matched common phrases or appropriately referenced text ($N=8$). A few students reported that they had difficulty using the software ($N=2$) or following the instructions ($N=3$).

Discussion

Due to the increasing concern over the importance of following good practice in academic writing and the importance of making students aware of the conventions of academic writing, the present intervention aimed to enhance students' understanding of good practice through the application of Turnitin. In particular, we asked students to submit a laboratory report to Turnitin as part of a larger session on academic writing. The results were encouraging. There was a reduction in the number of cases of suspected academic misconduct in the piece of coursework that followed the intervention in comparison to previous years. Students also reported a broadly positive experience of using Turnitin and reported that the experience helped to raise awareness of the issues surrounding good practice in academic writing.

The student evaluations were also positive and suggest that Turnitin can be a useful vehicle for teaching good practice in student writing. The students also commented that the use of Turnitin helped them to understand the conventions of referencing and was a valuable transferable skill. Together, these comments suggest that asking students to submit work to Turnitin as part of a session on good practice in academic writing

does facilitate students' understanding and fulfils the requirement of tutors to transmit this information to students (see Parameswaran & Devi, 2006).

Although Turnitin has been regarded by some students as a deterrent to avoid plagiarism (Stapleton, 2012), warnings that work will be submitted to Turnitin are not always effective (Youmans, 2011). There are a number of issues that must be considered when tutors develop and implement similar interventions. For example, Hayes and Introna (2006) criticise Turnitin because it detects direct copies of strings of text and this in itself may be problematic. In particular, Turnitin does not take into account that someone could paraphrase ideas by changing some words but not appropriately acknowledging the source. Consequently, Turnitin may be more prone to detect plagiarism in non-native English speakers because of differences in language abilities (Hayes & Introna, 2006). Tutors also need to be aware that there are copyright issues surrounding the submission of students work to Turnitin. For example, students may be concerned that Turnitin violates their copyright and their privacy (Foster, 2002) and asking students to submit their work could foster an environment of mistrust and suspicion between students and tutors (MacMillian, 2007).

Perhaps the most important issue that tutors must address when using Turnitin, as a tool to encourage good practice in academic writing, pertains to the identification of the source of the text which may be plagiarised. As Royce (2003) notes, and as commented on by the students, Turnitin originality reports may identify text as suspicious that has been properly referenced and acknowledged. Such false positives are a particular issue for the present research. It is important that students understand that, in some instances, a string of text may be identified because: (a) It is a common phrase; or (b) it is a properly referenced quotation. Finally, as Robertson (2007) argues, that by allowing students access to their originality reports this in itself does not facilitate students'

Table 1: The number of students selecting each response.

	Frequency for each rating					M	SD	t
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree			
It was easy to submit the report to Turnitin	7	53	11	9	1	3.59	.94	21.57***
I was able to interpret the originality report	7	30	13	5	2	3.63	.95	21.35***
Using Turnitin helped to reassure me that my work was original	14	24	13	5	2	3.75	1.03	20.53***
Having used Turnitin it will help my work in the future	5	25	21	5	2	3.47	.92	20.74***
Using Turnitin helped me to understand the importance of writing in my own words and with appropriate referencing	16	22	16	4	1	3.81	.97	22.20***
Using Turnitin helped me to understand the issues surrounding plagiarism	10	21	17	7	3	3.49	1.07	17.84***
I was satisfied with the learning experience associated with Turnitin	2	32	20	2	2	3.54	.80	25.68***

Note: *** p<.001

understanding of what they did wrong or how they could improve in the future. Therefore, if this intervention was developed for use with other students, tutors need to be aware that simply asking students to submit their work to Turnitin and view their originality report may not be that beneficial for students. They must be helped to interpret the reports generated by the software.

One of the limitations of this study is that whilst there was a substantive decrease in the rate of academic misconduct in the piece that immediately followed the intervention session, from the current data it is not clear whether this reduction is maintained in subsequent assessments. Further, replicating the findings with another cohort would also increase the evidence of the appropriateness of this intervention. It is also not clear from the current study why the reduction in academic misconduct occurred in the subsequent piece of work. Therefore, future research should examine the mechanism through which this intervention is effective. For example, is it because the students' awareness of Turnitin has increased or is it because of genuine change in their academic writing practices?

In summary, we developed an intervention that embedded the use of Turnitin as part of session with first-year psychology students that allowed students to view the originality reports generated by Turnitin. The students evaluated the session favourably and there was a reduction in academic misconduct cases following the session suggesting that Turnitin could be used, with appropriate support, as a method of increasing students' awareness of good practice in academic writing.

The Authors

Lucy Betts

Nottingham Trent University.

Stephen J. Bostock

Keele University.

Tracey J. Elder

Palmers' College.

Mark Trueman

Keele University.

Correspondence

Dr Lucy Betts

Senior Lecturer in Psychology,
Division of Psychology,
Nottingham Trent University,
Burton Street,
Nottingham, NG1 4BU.
Email: lucy.betts@ntu.ac.uk

References

- Anon (undated a). *What is plagiarism?* Accessed 3 July 2012, from: http://www.plagiarism.org/plag_article_what_is_plagiarism.html
- Anon (undated b). *About us*. Accessed 21 May 2012, from: http://turnitin.com/en_us/about-us/our-company
- Bennett, R. (2005). Factors associated with student plagiarism in a post-1992 university. *Assessment & Evaluation in Higher Education*, 30, 137–162.
- Flint, A., Clegg, S. & Macdonald, R. (2006). Exploring staff perceptions of student plagiarism. *Journal of Higher Education*, 30, 141–156.
- Foster, A.L. (2002). Plagiarism-detection tool creates legal quandary. *Chronicle of Higher Education*, 48, 37–39.
- Harris, P.B. & Queen, J.S. (2007). Link to the future: Web page design in a psychology careers course. *Teaching of Psychology*, 34, 129–134.
- Hayes, N. & Introna, L. (2005). Systems for the production of plagiarists? The implications arising from the use of plagiarism detection systems in UK universities for Asian learners. *Journal of Academic Ethics*, 3, 55–73.
- Landau, J.D., Druen, P.B. & Arcuri, J.A. (2002). Methods and techniques: Methods for helping students avoid plagiarism. *Teaching of Psychology*, 29, 112–115.
- Larkham, P.J. & Manns, S. (2002). Plagiarism and its treatment in higher education. *Journal of Further Education and Higher Education*, 26, 339–349.
- Ledwith, A. & Riskey, A. (2008). Using anti-plagiarism software to promote academic honesty in the context of peer-reviewed assignments. *Studies in Higher Education*, 33, 371–384.
- MacMillan, D. (2007). Looking over Turnitin's shoulder. *Business Week Online*, 13 March, 6.
- Maier, P. & Warren, A. (2000). *Integrating technology in learning & teaching: A practical guide for educators*. London: Kogan Page.
- Newstead, S.E., Franklyn-Stokes, A. & Armstead, P. (1996). Individual differences in student cheating. *Journal of Educational Psychology*, 88, 229–241.
- Norton, L.S., Tilley, A.J., Newstead, S.E. & Franklyn-Stokes, A. (2001). The pressures of assessment in undergraduate courses and their effect on student behaviours. *Assessment & Evaluation in Higher Education*, 26, 269–284.
- Parameswaran, A. & Devi, P. (2006). Student plagiarism and faculty responsibility in undergraduate engineering labs. *Higher Education Research & Development*, 25, 263–276.
- Pilon, M. (2006). Anti-plagiarism programs look over students' work. *US Today*, 23 May.
- Pittam, G., Elander, J., Lusher, J., Fox, P. & Payne, N. (2009). Student beliefs and attitudes about authorial identity and academic writing. *Studies in Higher Education*, 34, 153–170.
- Robertson, M. (2007). Post to JISC plagiarism mail list. Accessed 5 July 2007, from: <http://www.jiscmail.ac.uk/cgi-bin/webadmin?A2=ind0706&L=plagiarism&T=0&F=&S=&P=781>
- Rolfe, V. (2011). Can Turnitin be used to provide instant formative feedback? *British Journal of Educational Technology*, 42, 701–710.
- Royce, J. (2003). Has Turnitin.com got it all wrapped up? *Teacher Librarian*, 30, 26–31.
- Schuetz, P. (2004). Methods and techniques: Evaluation of a brief homework assignment designed to reduce citation problems. *Teaching of Psychology*, 31, 257–259.
- Sheridan, J., Alany, R. & Brake, D. (2005). Pharmacy students' views and experiences of Turnitin – an online tool for detecting academic dishonesty. *Pharmacy Education*, 5, 241–250.
- Stapleton, P. (2012). Gauging the effectiveness of anti-plagiarism software: An empirical study of second language graduate writers. *Journal of English for Academic Purposes*, 11, 125–133.
- Szabo, A. & Underwood, J. (2004). Cybercheats: Is information and communication technology fuelling academic dishonesty? *Active Learning in Higher Education*, 5, 180–199.
- Youmans, R.J. (2011). Does the adoption of plagiarism-detection software in higher education reduce plagiarism? *Studies in Higher Education*, 36, 749–761.
- Young, J.R. (2001). The cat-and-mouse of game of plagiarism detection. *Chronicle of Higher Education*, 47, 26–28.