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Turnitin®

The student perspective on using plagiarism detection software

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ABSTRACT Recently there has been an increasing interest in plagiarism detection systems, such as the web-based Turnitin system. However, no study has so far tried to look at how students react towards those systems being used. This exploratory study examines the attitudes of students on a postgraduate module after using Turnitin as their standard way of submitting work and getting feedback. Overall, students reacted positively towards the system. However, the study also found evidence of a group of students who were less positive, which seemed to be a result of their insecurity about how to quote correctly.

KEYWORDS: *electronic submission, Internet, plagiarism, student's view, Turnitin*

Introduction

Over the last few years there has been an increased concern at the extent of academic plagiarism in academic life (Szabo and Underwood, 2004). The academic community has responded with a number of different strategies to counter the perceived rise in plagiarism. Some of these strategies were student-centred by, for example, raising student awareness about plagiarism (Carroll, 2002), clarifying what constitutes plagiarism (Davis, 1993) or by introducing honour codes (McCabe, 2001). Another response was the introduction of increasingly more sophisticated detection systems (Frey, 2001). One of the major innovations is the introduction of electronic plagiarism detection systems, such as Turnitin®, a tool which allows the tutors to check for suspected plagiarism, as well as evolving into a more all-round electronic submission and grading tool.

Plagiarism is a somewhat ambiguous concept, and the exact definition of what plagiarism is remains vague in many areas (Liddell, 2003). The finer

details about what constitutes plagiarism and what not are contested, and in fact are often different from one subject area to another even within the same school or university. This ambiguity in defining plagiarism has been seen as a major cause of students (as well as faculty members) being confused over what exactly plagiarism is, and how to combat it. In fact at least one study finds that a carefully worded definition of plagiarism may well reduce the incidence of plagiarism substantially (Brown and Howell, 2001). For the purpose of this article, anything where a student incorporates a substantial, unacknowledged amount of material derived from the work (published or unpublished) of another student or source is seen as plagiarism (Plagiarism Advisory Service, 2006). However, irrespective of the finer details of any such definition, many educators perceive that plagiarism is steadily increasing, and that more students than ever plagiarize material from different sources, especially the Internet (Underwood and Szabo, 2003). At the same time, many educators are unsure as to how to confront this 'tidal wave' of academic dishonesty: some educators seem to give up completely, while others have strong emotional reactions, ranging from feelings of anger to dismay (Wood, 2004).

There are various estimates as to how much plagiarism is taking place. Hansen (2003) suggests that 38 per cent of students copy from conventional sources and 40 per cent copy from Internet sources. Szabo and Underwood (2004) in their study of self-reported plagiarism among science students report a rate of 32.2 per cent of students admitting unacknowledged copy and paste content from the Internet into their work. Other sources have indicated academic dishonesty rates as high as 75 per cent (Eagle and Hunt, 2005), with business students apparently more prone to academic dishonesty (and plagiarism) than students from other disciplines (Smyth and Davis, 2004).

Countering plagiarism by electronic means: what is being done?

For the most part, plagiarism prevention has so far relied on punitive measures (Devlin, 2006), though the focus is increasingly shifting towards plagiarism prevention, for example by having clearer definitions of plagiarism (Brown and Howell, 2001), coupled with effective plagiarism detection (Joint Information Systems Committee [JISC], 2005). Detection relies on either traditional search methods, especially Google and other search engines on the Internet, or on using software-based solutions such as PlagiServe or Turnitin. While there is little doubt that the threat of using electronic systems to detect plagiarism may prevent students from

plagiarizing, the systems used to be fairly one-dimensional, in that they focused mainly on plagiarism detection. The same is true of most research published in the area (for example Guader, 2004). While this research direction is certainly worthwhile, it tends to neglect how students feel about their work being systematically screened for plagiarism. However, as the detection systems become more integrated with the submission of assessments, and thus less of a standalone system, the relative importance of plagiarism detection may diminish overall.

In the early days of electronic plagiarism detection, there were stand-alone systems, doing little more than searching for similar phrases being used in websites and academic journals. This made detection fairly cumbersome, as it required individually uploading all assignments, and then reviewing the result once an originality report had been generated. Today, systems such as Turnitin make detecting plagiarism a lot more comfortable, with the system integrating into other university systems (such as WebCT) and providing easy to read, colour coded 'originality reports' and scores on each students work (see example screenshot, Figure 1).

However, such detection techniques are not without their critics. The systems have been criticized because of the lack of 'human' judgement, which in turn may make reliance purely on technical solutions unreliable

The screenshot displays the TurnitinUK Originality Report interface. At the top, it shows the report title 'Assignment_1 by S', the processing date '20-09-05 10:11 PM BST', the document ID '121690', and the word count '11121'. A navigation menu includes 'print', 'save', 'refresh', and 'prefs'. The 'Overall Similarity Index' is shown as 15%, with options to 'include quoted' and 'include bibliography'. The 'mode' is set to 'show highest matches together'. Below this, a section titled 'different explanatory perspectives to compare advertising across cultures. Some proposed' contains two numbered items. Item 3, which is highlighted, shows a '2% match (archived internet from 05/08/03) http://stephweb.com'. The text of the match is: 'research questions and resulting hypothesis loosely based cross-cultural theories, such as Hofstede (Albers-Miller and Gelb, 1996). Other studies have used country specific information, such as predominantly economic data (e.g. Tansey, Hyman and Zinkhan, 1990; Culter and Javalgi, 1992; Mueller and Caillat, 1996; Tse, Belk and Zhou, 1989; Wiles, Wiles and Tjernlund, 1996). A large number of the studies looked at advertising in general, without a specific research question, however, some studies were particularly interested in a limited number of societal phenomena, such as gender roles and work ethics (e.g. Gilly, 1988; Tansey, Hyman, Zinkhan and Chowdhury, 1997). Resulting from this, current research can be broadly classified in three categories:'. Item 2 shows a snippet: 'Sociological research: Research of this type usually focuses on a certain aspect of society as portrayed in advertising. Research'. The interface also includes a 'Done' button at the bottom left.

Figure 1 TurnitinUK Originality Report

(Carbone, 2001), or because these systems store large amounts of student assessment for comparison (and profit) without the consent of, or at least a viable alternative for the students. This some argue may in itself be a copyright violation (Foster, 2002).

In recent years, Turnitin has, however, shifted the focus from primarily detecting plagiarism to offering other services to both educators and students. The services available now include the possibility to deliver electronic feedback to the students, online grade books and attendance lists, and the possibility of (anonymous) peer-reviews of assignments by students. In addition to functional enhancements, Turnitin now seemingly offers the possibility of a complete electronic submission of assignments, with submission deadlines being enforced by the system itself as well as issuing digital receipts to students submitting work. This enhanced functionality has certainly done much to deflect from the single objective of catching plagiarism and for educators has made Turnitin at least potentially a very valuable tool overall, while at the same time making submissions and feedback via Turnitin seemingly more convenient for students. However, as much as the functionality and integration may be enhanced, it is still ultimately the students and educators who have to use the system. It seems important to see how students habitually using the system perceive Turnitin, especially given the perception of the system as primarily a plagiarism detection tool.

In summary, much of the available evidence suggests that education and detection can drive down plagiarism rates substantially (Park, 2004). However, much of the research published on plagiarism and plagiarism detection so far has been focused on the need for such systems and their efficiency in detecting plagiarism (Guader, 2004). No research to date has addressed the issue of the reaction of students towards the systematic use of such detection systems. Therefore the primary aim of this study was to find out how a group of students feel about using electronic submissions, visible usage of plagiarism detection systems and how they perceived the service in comparison to more traditional methods (for example, handing in paper assignments). This article explores how a group of postgraduate students perceive the use of plagiarism detection software (Turnitin) in one module as a basis for further research.

This exploratory study examined the attitudes of postgraduate students on the Integrated Marketing Communication module, part of the MA in Marketing Communications at a large business school in London. The students on this module use Turnitin on a weekly basis to submit their assignments, obtain their grades and feedback as well as conducting regular peer-reviews of their peers' assignments. In addition to feedback and grades, students were also permitted to see their originality reports.

The students did not receive any specific training regarding Turnitin. However, they did receive a step-by-step instruction sheet on how to set up an account and submit work.

Methodology

The participants in this study were all students on the module. Before the beginning of a lecture the students were asked to fill out the study questionnaire. The students were advised that the questionnaire was voluntary, and all 24 students who were present at the time completed questionnaire. The questionnaires were anonymous and no incentive was given to complete the survey. Each questionnaire consisted of 22 statements to which the participants indicated their agreement or disagreement using a 5 point Likert scale, ranging from strongly agree (1) to strongly disagree (5).

The first seven questions related to how students perceived Turnitin in comparison to conventional methods of submissions. Questions 8–14 related to how students perceived the originality report and how they felt about plagiarism being tackled by using a system such as Turnitin. Questions 15–18 gauged the students' confidence in terms of referencing and finally, questions 19–22 asked for an overall evaluation of the students' experience and confidence in the system.

All items had the same polarity, with a lower score indicating strong agreement. Following the 22 statements, the students were also asked five open-ended questions regarding which aspect of Turnitin they liked most and why, which least and why, and how the system could be improved.

Results

Overall, students seemed to find Turnitin easy to use: the mean score for the question whether or not students found Turnitin easy to use was 1.67, with 11 students strongly agreeing, 11 students agreeing and only one student answering 'slightly disagree' to the question; one student was 'undecided' (see Table 1).

Similar to the first question, most students agreed or strongly agreed with the statement that Turnitin was a convenient way to submit work. Again, one student was undecided and another student slightly disagreed; however no student indicated a strong disagreement.

The third question asked whether students preferred using Turnitin to handing in the work at the student office. Of all the questions asked, this was the most positive question in terms of answers given by students: 17 students strongly agreed with this statement, five agreed and only two were undecided. No student disagreed or strongly disagreed with this statement.

Table 1 Questions relating to ease of use

	Statement	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Average
1	I find Turnitin easy to use	45.8% (11)	45.8% (11)	4.2% (1)	4.2% (1)	0% (0)	1.67
2	I find Turnitin a convenient way to submit my assignments/coursework	50% (12)	41.7% (10)	4.2% (1)	4.2% (1)	0% (0)	1.62
3	I find Turnitin more convenient than handing in my work at the student office	70.8% (17)	20.8% (5)	8.3% (2)	0% (0)	0% (0)	1.38
4	I prefer handing in paper assignments	0% (0)	8.3% (2)	16.7% (4)	45.8% (11)	29.2% (7)	3.96
5	I prefer getting my feedback electronically rather than on a paper based coursework front sheet	25% (6)	50% (12)	16.7% (4)	4.2% (1)	0% (0)	2.00
6	I prefer to see my grades electronically on Turnitin rather than on a paper based coursework front sheet	33.3% (8)	50% (12)	16.7% (4)	0% (0)	0% (0)	1.83
7	I would prefer it if more modules would use Turnitin for submitting assignments/coursework	37.5% (9)	50% (12)	8.3% (2)	4.2% (1)	0% (0)	1.79

(N) = Number in brackets gives actual number of students

The fourth question asked whether or not students preferred to hand in paper assignments, without specifically asking for submission either via the tutor or via the student office (that is, in person at a central location where the students get a paper receipt for their work). The answers here were also very much in favour of electronic submission, with seven students strongly disagreeing with the statement, 11 disagreeing and only two students agreeing with this statement.

When asked whether students prefer to get feedback electronically, overall 78 per cent agreed or strongly agreed, with only one student disagreeing with this statement. Thus, the facility to give feedback seems to mostly be welcomed by the students. This outcome seemed slightly surprising, as the electronic feedback requires the student to read the feedback online rather than receiving a paper copy.

All students preferred to obtain their grades electronically via Turnitin (20 students agreed, or strongly agreed). This seems hardly surprising given the enthusiastic response towards receiving electronic feedback.

The last question in this section was interesting in that it showed a strong support for the adoption of Turnitin in more modules: 87.5 per cent of the students (21 students) would prefer to see Turnitin being adopted in other modules.

The next set of questions related to the core functionality of Turnitin as a tool to detect plagiarism and what effect this 'originality report' has on the students. As all students could readily access their originality reports from each assignment, it can be assumed that they were sufficiently familiar to comment on these.

In the first question of this set (question 8) it was interesting to see how positive the students were regarding their originality report: 83 per cent agreed or strongly agreed with the statement that they liked to see their report (see Table 2).

Overall the originality report appeared to be easy to understand for most students, although a relatively large number of students (seven) indicated that they are undecided on this topic, and two students disagreed with the statement. The students did not receive any formal training on how to use Turnitin, thus it may not be entirely surprising that the students felt slightly insecure about how to understand an originality report.

Some 62 per cent of the students (15 students in total agreed or strongly agreed and a further 5 students were undecided) were afraid that they would be accused of plagiarism although it is not true after using the system. While this appears to be a high number at first, it seems possible that this 'fear' translates into less plagiarizing, as students may as a result be extra careful when including material from other sources.

Table 2 Questions relating to originality report

	Statement	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Average
8	I like to see my originality report	20.8% (5)	62.5% (15)	12.5% (3)	0% (0)	4.2% (1)	2.04
9	I find the originality report easy to understand	12.5% (3)	50% (12)	29.2% (7)	8.3% (2)	0% (0)	2.33
10	I am afraid that I may be accused of plagiarism based on the originality report although it is not true	25% (6)	37.5% (9)	20.8% (5)	12.5% (3)	4.2% (1)	2.33
11	Turnitin makes me unsure about what materials I can quote or use in my assignment	4.2% (1)	37.5% (9)	20.8% (5)	20.8% (5)	16.7% (4)	3.08
12	I get anxious about my originality score when I submit my work to Turnitin	16.7% (4)	29.2% (7)	16.7% (4)	29.2% (7)	8.3% (2)	2.83
13	I am happy that Turnitin makes plagiarism a lot harder	20.8% (5)	33.3% (8)	33.3% (8)	12.5% (3)	0% (0)	2.37
14	Turnitin makes me feel as if something is being done about plagiarism	29.2% (7)	33.3% (8)	33.3% (8)	4.2% (1)	0% (0)	2.13

(N) = Number in brackets gives actual number of students

The next question (question 11) tried to find out if a potential fear translated into more careful consideration when including third party material: The answers seem to suggest that the students are split halfway on this topic. While some students are unsure some others seem to be quite confident in terms of including materials in their work. This seems indicative that the assumption that the mere presence of the system encourages students to critically evaluate the materials used may well be true.

Question 12 gauged whether students felt anxious about the originality report – again the students appeared either anxious, or not anxious at all. Similar to question 11, this may be because some students are more confident in the kind of materials they use (and how they use them) and subsequently are not anxious about their originality score.

About half of all students (13 students) were happy that Turnitin made plagiarism harder. This seems at first slightly surprising, though it may be a reflection of the fact that some students feel disadvantaged by other students ‘getting away’ with plagiarism. However, it is interesting to note that three students disagreed with the statement.

Most students seemed to see the systematic use of Turnitin as an indication of something being done about plagiarism. This may suggest that a more widespread use of the system may convey the message that plagiarism is taken seriously, although it appears that the use of Turnitin alone may not be sufficient to convince students of this. Possibly a more widespread introduction in other modules would enhance the perception.

The following four questions related to how confident students are with regards to plagiarism and citing correctly.

16 of the 24 students in total wanted to have more information about what plagiarism is. This seems to indicate that there is at least some uncertainty in this group of students as to what exactly is plagiarism. This high number of students is slightly surprising, as all students did receive a formal presentation at the beginning of their programme on plagiarism and plagiarism detection (see Table 3).

While overall there are some students who are confident about writing a bibliography, a significant number are not sure or are undecided about how to write a bibliography.

However, although some of the students were not confident about how to write a bibliography, the introduction of Turnitin seems to have had a positive effect in terms of students reading up on how to reference correctly, with just over half of students agreeing with this statement.

However, despite resources on referencing being readily available, only about half of the students felt confident about quoting other people’s works correctly, which may indicate a further need to train the significant minority which seems unsure about how to quote.

Table 3 Confidence in citing

	Statement	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Average
15	I would prefer to get more guidance about what plagiarism is	12.5% (3)	54.2% (13)	25% (6)	8.3% (2)	0%	2.75
16	I am confident when writing a bibliography	8.3% (2)	29.2% (7)	45.8% (11)	12.5% (3)	4.2% (0)	2.50
17	I have read up about how I should reference something correctly after starting to use Turnitin	12.5% (3)	41.7% (10)	29.2% (7)	16.7% (4)	0% (0)	2.58
18	I feel confident about quoting other people's works correctly	16.7% (4)	29.2% (7)	33.3% (8)	20.8% (5)	0% (0)	2.46

(N) = Number in brackets (actual number of students)

The last set of questions asked the students to evaluate the reliability of Turnitin both in terms of detecting the correct sources and the overall stability of the system.

Generally, the students rated Turnitin as very reliable: none of the students disagreed with the statement and only three students were undecided (see Table 4).

At least two students indicated that the originality report did not find the source the students used for their assignments. Of course this may be either because sometimes the originality reports pick up on some random sentences or frequently used phrases from other assignments stored in the database, or it can be because some sources may not be available to Turnitin because of technical limitations.

In terms of the originality reports there was less confidence in the system: although around half of the students found them generally accurate, 50 per cent of the students were undecided.

Finally, the majority of students felt safe that their assignments will not get lost when using Turnitin, a possible concern especially for students who are less experienced with computers.

In the open-ended feedback it was interesting that 22 answers stressed the convenience of the system in one form or another, for example by making it possible to submit without queuing at the student office or more generally in terms of the ease of use of the system. However, two students singled out the fact that something was done about plagiarism as the aspect they liked most about Turnitin.

In terms of negative points, the sometimes wrong (or at least confusing) originality report and slow network connections were the most often named, although some students chose not to indicate any negative points at all.

Although the dataset is very limited in terms of numbers, it is still interesting to highlight some interesting correlations that can be observed in the data set.

From the data in Table 5, there appears to be a group of students who find Turnitin both convenient and easy to use (ρ convenient/easy = 0.668). This group of students, not surprisingly, also wants more modules to adopt Turnitin (ρ convenient/more modules = 0.517 and ρ easy to use/more modules = 0.538). Students in this group are generally happy that something is being done about plagiarism (ρ convenient/happy plag = 0.663 and ρ easy to use/happy plag = 0.530). Interestingly, those that find Turnitin easy or convenient to use are not necessarily the same students as those that prefer electronic feedback (ρ convenient/feedback elec = 0.146 and ρ easy to use/feedback elec = 0.000).

At the same time, students who are happy that something is being done about plagiarism, maybe unsurprisingly, tend to be sure about how to

Table 4 Questions relating to reliability

	Statement	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Average
19	Turnitin usually finds the sources I use for my assignments	4.2% (1)	54.2% (13)	33.3% (8)	8.3% (2)	0% (0)	1.96
20	Overall, Turnitin is reliable	16.7% (4)	70.8% (17)	12.5% (3)	0% (0)	0% (0)	2.50
21	Overall, Turnitin originality reports are accurate	8.3% (2)	37.5% (9)	50% (12)	4.2% (1)	0% (0)	2.04
22	I feel safe that my work will not get lost when submitting it via Turnitin	33.3% (8)	37.5% (9)	20.8% (5)	8.3% (2)	0% (0)	2.75

(N) = Number in brackets (actual number of students)

Table 5 Correlations of answers

	Convenient	Easy_to_use	Con_stdo	Pref_paper	Feedback_elec	Grades_elec	More_modules	Like_orig	Orig_easy	Afraid_false	Unsure_quoting	Anxious_orig	Happy_plag	Something_done	Guidance	Confid_blog	Read_how_ref	Con_quoting	Finds_source	Reliable	Orig_accurate	Feel_safe
Convenient	1	.668	.469	-.272	.146	.201	.517	-.041	.138	-.250	-.431	-.421	.663	.573	-.306	-.075	-.030	.069	.323	.475	.196	.141
Easy_to_use	.668	1	.530	-.461	.000	.217	.538	.089	.117	-.118	-.298	-.374	.530	.381	-.118	-.060	-.122	-.019	.290	.381	.000	.140
Con_stdo	.469	.530	1	-. 638	.440	.622	.679	.049	-.165	-.179	-.263	-.396	.390	.289	-.219	-.053	-.252	.050	.082	.290	.233	.114
Pref_paper	-.272	-.461	-. 638	1	-. 622	-. 557	-. 566	-.109	-.039	.396	.517	.745	-.377	-.206	.314	.038	.077	-.161	-.302	-.352	-.431	-.199
Feedback_elec	.146	.000	.440	-. 622	1	.715	.502	.000	.274	.099	-.234	-.442	.288	.310	-.416	-.059	.301	.331	.312	.405	.390	.418
Grades_elec	.201	.217	.622	-. 557	.715	1	.649	-.060	-.051	-.256	-.340	-.470	.351	.034	-.371	-.066	.066	.203	.157	.432	.514	.335
More_modules	.517	.538	.679	-. 566	.502	.649	1	.144	.251	-.264	-.487	-. 606	.511	.349	-.453	.103	.269	.379	.100	.486	.193	.071
Like_orig	-.041	.089	.049	-.109	.000	-.060	.144	1	.537	.120	.003	.007	.033	.049	.170	-.040	.136	.269	.319	.188	-.175	.104
Orig_easy	.138	.117	-.165	-.039	.274	.051	.251	.537	1	.157	-.249	-.195	.220	.473	-.418	.226	.571	.593	.394	.226	-.147	.260
Afraid_false	-.250	-.118	-.179	.396	-.099	-.256	.264	.120	.157	1	.518	.614	-.357	-.086	.032	-.367	.165	-.290	-.303	-.327	-. 533	.027
Unsure_quoting	-.431	-.298	-.263	.517	-.234	-.340	-.487	-.003	-.249	.518	1	.713	-.510	-.488	.552	-.437	-.038	-. 569	-.244	-.255	-.347	-.266
Anxious_orig	-.421	-.374	-.396	.745	-.442	-.470	-. 606	.007	-.195	.614	.713	1	-.510	-.398	.346	-.145	-.146	-.492	-.387	-.321	-.378	-.173
Happy_plag	.663	.530	.390	-.377	.288	.351	.571	.033	.220	-.357	-. 545	-. 510	1	.592	-.257	.154	-.024	.341	.303	.520	.279	.405
Something_done	.573	.381	.289	-.206	.310	.034	.349	.049	.473	-.086	-.488	-.398	.592	1	-.352	.294	.078	.487	.243	.275	-.100	.348
Guidance	-.306	-.118	-.219	.314	-.416	-.371	-.453	.170	-.418	.032	.552	.346	-.257	-.352	1	-.300	-.376	-.322	.059	-.069	-.187	-.129
Confid_blog	-.075	-.060	-.053	.038	-.059	-.066	.103	.040	.226	-.367	-.437	-.145	.154	.294	.300	1	.198	.611	-.208	-.105	-.191	.253
Read_how_ref	-.030	-.122	-.252	.077	.301	.066	.269	.136	.571	.165	-.038	-.146	-.024	.078	-.376	.198	1	.321	-.032	.297	-.065	.122
Con_quoting	.069	-.019	.050	-.161	.331	.203	.379	.269	.593	-.290	-. 569	-.492	.341	.487	-.322	.611	.321	1	.212	.045	.000	.421
Finds_source	.323	.290	.082	-.302	.312	.157	.100	.319	.394	-.303	-.244	-.387	.303	.243	.059	-.208	-.032	.212	1	.379	.459	.161
Reliable	.475	.381	.290	-.352	.405	.432	.486	.188	.226	-.327	-.255	-.321	.520	.275	-.069	-.105	.297	.045	.379	1	.492	.252
Orig_accurate	.196	.000	.233	-.431	.390	.514	.193	-.175	-.147	-. 533	-.347	-.378	.279	-.100	-.187	-.191	-.065	.000	.459	.492	1	.032
Feel_safe	.141	.140	.114	-.199	.418	.335	.071	.104	.260	.027	-.266	-.173	.405	.348	-.129	.253	.122	.421	.161	.252	.032	1

Bold = Correlation is significant at the 0.01 level (2-tailed)

Italics = Correlation is significant at the 0.05 level (2-tailed)

quote (ρ happy plag/unsure quoting = -0.545). However, students who were unsure of how to quote tended to prefer paper assignments (ρ unsure quoting/pref paper = 0.517). Further, those students that were the most likely to prefer paper submissions were most likely to be anxious about their originality report (ρ anxious orig/pref paper = 0.745). In turn, those students who were anxious about their originality reports also were very likely to be unsure of how to quote correctly (ρ anxious orig/unsure quoting = 0.713). This could suggest that more information on how to quote correctly might overcome the feeling of anxiety for some students and at the same time might suggest that some students do not actively seek to plagiarize, but rather feel insecure about how to avoid it (and subsequently adopt a negative attitude towards plagiarism prevention).

Finally, interestingly there appears to be a correlation between finding the originality report easy to understand and reading up on how to reference correctly (ρ read how ref/orig easy = 0.571). This may indicate that there is indeed a formative element in students seeing (and understanding) their originality reports, resulting in more attention being paid to correct use of referencing.

Discussion and implications

The findings of this small study seem to strongly support the more widespread adoption of Turnitin. Although there are some limitations of the study, such as the exploratory and small sample of postgraduate-only students, the results seem to be broadly positive for the use of Turnitin. While there are some concerns over the interpretation of originality reports, most students in this study were largely positive about Turnitin. Some students explicitly welcomed the introduction as a way to reduce plagiarism, though most students seemed to prefer the convenience of electronic submission in comparison to the more traditional submission via the student office.

Overall it appears that there are mainly two types of students: those who are confident about how to avoid plagiarism and how to quote correctly tend to be happy about the introduction of Turnitin. However, a different group of students tends to be less positive about Turnitin, though this seems mostly a result of their own lack of knowledge and insecurity about plagiarism and what is acceptable when quoting, rather than a malicious intent to plagiarize. This relative lack of students who deliberately set out to cheat is consistent with other studies (e.g. Macdonald and Carroll, 2006), and underlines the fact that education together with effective detection is a viable way to cut plagiarism.

As such, the introduction of Turnitin (and therefore the visible use of detection systems) seems to have a noticeable effect on students. Firstly, the effect seemed formative, with at least some students seeking advice on how to reference correctly. Secondly, the effect seemed deterrent, as only two cases of plagiarism were detected during the semester. This is a surprisingly low rate if any of the plagiarism rates reported in the literature are to be applied (e.g. Eagle and Hunt, 2005; Szabo and Underwood, 2004). Yet, the fact that two cases were found also highlights that even with visible detection methods in place plagiarism does still occur, thus the introduction of electronic detection is a tool to reduce, but not to eradicate, plagiarism, which again is consistent with the literature (Carroll, 2005).

As the students did not receive any special training on how to use Turnitin, it may be somewhat less surprising that some students seemed to be confused about the originality reports (though generally not about how to operate the website), and what they meant in terms of plagiarism. This seems to support the argument by Brown and Howell (2001) that a clear definition of plagiarism will potentially reduce incidences of plagiarism.

Of course, this study was exploratory in nature, and therefore further research would be desirable to find out if the findings of this study can be replicated. Research with larger groups of students would be especially useful. In addition, research on students from different types of institutions and different degrees and on undergraduate as well as postgraduate courses would be desirable. Conversely, it would also be interesting to see if after receiving more training on how to reference correctly, students' perceptions of Turnitin would be more positive.

Overall, however, it was reassuring to find that the students reacted positively to the introduction of Turnitin. When considering that one of the arguments against the use of Turnitin is that it treats students as criminals (Carbone, 2001), the reaction of students when asked directly seems reassuring for educators who are considering whether or not to use electronic plagiarism detection systems such as Turnitin. Also the research supported the view that few students actively set out to cheat, but rather that a combination of education and detection has the potential to cut down on plagiarism – and that the students are very much in favour of this approach.

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Appendix 1: Summary of questions and statistical data

		<i>Mean</i>	<i>Std. D</i>	<i>Ra</i>	<i>Min.</i>	<i>Max.</i>
1	I find Turnitin easy to use	1.67	0.761	3	1	4
2	I find Turnitin a convenient way to submit my assignments/coursework	1.62	0.770	3	1	4
3	I find Turnitin more convenient than handing in my work at the student office	1.38	0.647	2	1	3
4	I prefer handing in paper assignments	3.96	0.908	3	2	5
5	I prefer getting my feedback electronically rather than on a paper based coursework front sheet	2.00	0.798	3	1	4
6	I prefer to see my grades electronically on Turnitin rather than on a paper based coursework front sheet	1.83	0.702	2	1	3
7	I would prefer it if more modules would use Turnitin for submitting assignments/coursework	1.79	0.779	3	1	4
8	I like to see my originality report	2.04	0.859	4	1	5
9	I find the originality report easy to understand	2.33	0.816	3	1	4
10	I am afraid that I may be accused of plagiarism based on the originality report although it is not true	2.33	1.129	4	1	5
11	Turnitin makes me unsure about what materials I can quote or use in my assignments	3.08	1.213	4	1	5
12	I get anxious about my originality score when I submit my work to Turnitin	2.83	1.274	4	1	5
13	I am happy that Turnitin makes plagiarism a lot harder	2.37	0.970	3	1	4
14	Turnitin makes me feel as if something is being done about plagiarism	2.13	0.900	3	1	4
15	I would prefer to get more guidance about what plagiarism is	2.29	0.806	3	1	4
16	I am confident when writing a bibliography	2.75	0.944	4	1	5
17	I have read up about how I should reference something correctly after starting to use Turnitin	2.50	0.933	3	1	4

(Continued)

Appendix 1 (Continued)

18	I feel confident about quoting other people's works correctly	2.58	1.018	3	1	4
19	Turnitin usually finds the sources I use for my assignments	2.46	0.721	3	1	4
20	Overall, Turnitin is reliable	1.96	0.550	2	1	3
21	Overall, Turnitin originality reports are accurate	2.50	0.722	3	1	4
22	I feel safe that my work will not get lost when submitting it via Turnitin	2.04	0.955	3	1	4

Ra = Range, N = 24

Appendix 2: Answers to 'What do you like best about Turnitin'

The convenience of submitting electronically
 Convenience of doing it from almost everywhere
 It is electronic, no que (sic) at the student office
 submitting online sitting in our room
 easy to use, receipt, confident that work will not get lost
 comfortable
 it is a easy way to handing in my coursework and haven't wait in a long q.
 It is easy know my grades and feedback
 straightforward to use
 not having to queue up at the student office and having to deal with the
 rude staff there, flexible times
 I like the fact that I do not need to stand in endless queues to submit my
 work
 fast, easy entrance
 fast, easy and convenience
 I like the way to submit because it is easy sure that my assignment has sent
 as it shows on screen
 I don't have to go to university to hand in my works, I even don't have to
 print it out
 It is a very good system, especially plagiarism
 The quick way of submit
 It is much more convenient than submitting paper assignments

Good method for submitting work

When I have to submit my paper, it's easy to use

Convenient to hand in assignment, student office will have more time to deal with other issues rather than submitting students' work

Submit work online

No long queue for assignment submission, easy to use, no paperwork

Great that something is being done about cut and paste culture

Forces students to work not copy. Good for honest students.

Biographical note

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