

Comparative study on the usage of Internet-based plagiarism-detection service presenting two distance learning courses: Wawasan Open University Perspective

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Accepted subtheme: Quality assurance

Abstract: The internet opens a library of wealth to the student and educator but this opens the ease of copying by any student when writing any assignments. In this paper we will look at how Wawasan Open University implemented the usage of plagiarism-detection software in their course delivery. In 2010, the university introduced the compulsory usage of Internet-based plagiarism-detection software known as Turnitin (Turnitin TM) where students are required to scan their assignments using the service before officially submitting them for grading. In this study we observe two distinctly different course clusters where one cluster is numerically-based and the other is narrative-based. We observed the Similarity Index Report on the assignment from students of the Business Accounting II, Auditing and Assurance in Malaysia, Human Resource Management and Organisational Behaviour from the 2011 cohort. Our finding suggested that any plagiarism detection software can be useful to any course that requires a student to demonstrate a strong sense of originality in their assignments. Essentially, the software would provide additional advantages in any narrative management courses where the course is the intention of the instructor to make sure the student demonstrate a high level of creativity. However, courses that require students to conform to any regiment should not be subjected to the anti-plagiarism process as this is futile, as in the case of any numerical and mathematical courses. Courses that require a high level of verbatim citation such as law, assurance, literature and divinity would not work very well with the software. The inability of current software to differentiate between patterns and strings of plagiarism and cited work makes this exercise futile.

Introduction

Electronic media has resulted in today's society to becoming more informed. The ease of having instantaneous information from the Internet has resulted in the prevalence of plagiarism. The Internet brings great opportunities and challenges to educators when delivering their courses. The internet opens a library of wealth to the student and educator. However, the *ease of copying* becomes a bane to the educator. This is not an exception to Wawasan Open University, one open distance learning institution in Malaysia.

Technology in education often presents challenges and surprises to both the educator and the student. In 2010, the university introduced the compulsory usage of Internet-based plagiarism-detection service known as Turnitin whereby students are required to scan their assignments using the service before officially submitting them for grading. It has been argued by some educators like Brown et al (2010) that the usage of plagiarism-detection software may not be suitable for *all disciplines*. In this paper we looked at the usage of Turnitin on four courses from two major disciplines at Wawasan Open University. The first discipline would be courses that are calculation based and the second are more narrative in nature. From each type, we then studied the results of one intermediate level course and a final level course in order to analyse the implication and appropriateness of the system.

Literature Review

Brown et al (2010) reported that the usage of the plagiarism detection software Turnitin is low among faculty members in an unnamed university even though it helped faculty members identify incidences of plagiarism among students. Colleges that taught courses that involved writing such as Education, Nursing, Arts and Letters and Business were keen in the software while colleges that offer curricula which were mathematically based, having hands on programming, or having design work were not keen with the software. The originality report alone was not conclusive to support any allegations of plagiarism. The faculty had to follow up with their own investigations before taking any disciplinary actions against any student. The software acted a tool of creating awareness among students by using proper citations and quotations within the paper and not as a plagiarism watchdog. The same view is taken by Kirkpatrick (2006), Murray and

Rowell (2009) and Todd (2010). Although there were many providers of anti-plagiarism software available, none of the systems were reliably capable detecting plagiarism (Kajjonen and Mozgovoy, 2010). Therefore, there was the need for the instructor to intervene when detecting plagiarism.

While most literature is of the opinion that the academics should enforce plagiarism detection, Snyder Gibson and Chester-Fangman (2011) was of the opinion that the university librarian is the main administrator to police the attempts of any student to plagiarize, Wheeler and Anderson (2011) suggested that any actions to combat plagiarism should involve *everyone* in a university. Rolfe's (2011) UK study differed from her American counterpart Brown et al (2010). The biosciences staff and students were very supportive to the usage of Turnitin. Incidence of plagiarism did not reduce due to the worsening of referencing and citation skills of the students. There was a culture among the students to "copy and paste" as this has been a norm entrenched within the schooling system. On the upside the initiative improved the students writing skills. Dee & Jacob (2012) were of the opinion that it was ignorance citation guideline that made students plagiarise, and not because of some malicious intent. Some form training must given to students to make them aware about the problem of plagiarism.

McCord (2008) theorized that it is the design framework of the assignments that cause students to plagiarize. It was easier to plagiarise when the assignment do not require synthesis. Educators should design their assignments so that students are very much involved in the learning process. Fact-based background work should be avoided and higher-level work involving synthesis included instead.

However, one cautionary note from Patel, Bakhtiyari and Taghavi (2011) that universities were deeply engrossed in focusing on academic papers and web page plagiarism through anti-plagiarism services. The suites of anti-plagiarism software were unable to differentiate between patterns and strings of plagiarism and original thought. Some focus must be given to more sophisticated manners of cheating such as ghost-writing, online translators and fake bibliography when dealing with the whole plagiarism issue.

We noticed the literature review all dealt with whether any anti-plagiarism software should be used or not. The issue of when the software should be used is not explored at all. We will address this issue here. Secondly we noticed that researchers either used

statistical analysis or the case study method to research the issues mentioned above. We wanted our research to be more expansive. The statistical analysis shows the breadth of the issue of plagiarism while the case study method brings out the details of the issue.

Methodology

As mentioned earlier in the introduction, there was a concern from the management of Wawasan Open University that students could copy their assignments from the internet while researching their paper. In order to discourage the practice of plagiarism, the university compelled the usage of Turnitin. Students were required to scan their assignments before officially submitting them. In this study we observed two distinctly different programmes in the university. In the first cluster the student was assessed on their ability to manipulate numbers while the other was narrative based. The numerical based courses were from the accounting programme which comprised of the second year course *Business Accounting II (BA 2)* and the final year course *Auditing and Assurance in Malaysia (A & A)*. Conversely, the narrative based courses were from the Management programme of these two courses: i.e. second year *Human Resource Management (HRM)* and the final year *Organisational Behaviour (OB)*. One 2011 cohort class from each of the above courses were studied.

The assignments

BA 2 and A & A (Numerical-based courses)

The BA 2 instructor required the student to perform three case studies concerning the preparation of the book-keeping and the final accounts of three partnerships. The skills of “understanding” and “applying” as suggested by Bloom’s were required here. Students need to apply the steps they learned in their course material in the case studies presented to them. The steps had to be applied religiously. Marks would not be awarded if the students deviated from them.

A & A was designed to test the skills of “remembering”, “understanding”, “applying” and “analysing” as suggested by Bloom’s. The assignments consisted of two parts. In part 1, students were required to answer 5 mini essay questions concerning auditing standards and guidelines. The instructor tested the ability of the student to connect the requirement of the question with suitable citations of auditing standards and guidelines. A brief discussion of the citations was encouraged.

Two case studies were presented in Part 2. Both case studies had serious issues pertaining to governance. The students would have to read the case and identify all the major issues of governance in the two case studies. The students would have to identify the issues and solve it while citing relevant auditing guidelines and standards.

HRM and OB (Narrative-based courses)

Both the HRM and OB were designed to test the skills of “remembering”, “understanding”, “applying” and “analysing” as suggested by Bloom’s. The assignments consist of two parts. In part 1, students were required to answer 3 to 5 essay-type question. Students were required to apply the management concepts. Students were tested on their critical thinking apart from the ability to regurgitate the ideas they studied in the course material. Questions for example “*In your opinion, how can Human Resource Management help an organisation to achieve its competitive advantage?*”, “*Compare and contrast between the Theory X and Theory Y orientation.*” and “*Which orientation you think is better applied in today 21st century globalised business environment?*” tested the ability of students to apply critical thinking within the theoretical framework HRM and OB. The expression of personal opinion was encouraged here.

The students were presented with 2 to 4 questions based on a case study in Part 2. The students would have to read the case and identify all the major problems in the case study. Students were encouraged to identify the underlying causes of problems and not just their symptoms. They should be able to link each identified problem to relevant theory and evidence from the case study.

To show the different assignment questions setup between these four courses, the weightages (%) for each of the course according to Bloom’s Taxonomy of Learning are stated below.

Table 1 Bloom's Taxonomy Analysis

Bloom's Taxonomy	Remembering	Understanding	Applying	Analysing	Evaluating	Creating
BA 2	0%	50%	50%	0%	0%	0%
HRM	10%	20%	40%	20%	10%	0%
A&A	0%	10%	30%	30%	30%	0%
OB	5%	10%	30%	35%	20%	0%

The method of analysis

To better understand the scenario, we used both quantitative and qualitative research methodology of analysis in this study. Descriptive statistics comprising of mean, median, range, minimum and maximum were used to get a general overview of the scenario at hand. Figures could not describe issues such as writing skills, thus a certain level on qualitative analysis was need. We analysed every students' similarity index reports from each of the aforesaid courses.

Peculiarities highlighted in the narration of the each similarity index report were observed. We took note of narrations such as referencing from internet sources, publications from journals or articles and from student papers whether from the same or different cohort. We crossed checked the narration to the actual internet sources and publications to see whether the students had properly cited their work properly or not. We studied looked at the narration see if there were copying done among students of the same class. Although we were unable to see student papers from other educational institutions, we checked to see whether there were instances whereby students were referencing from works from selected paper or not. The findings were then summarised.

Two pairs of observations would be made. First, we would observe the levels of "plagiarism" that occur between the reports from the two forms of disciplines i.e. accounting and management. Our first hypothesis was:

There are differences in the similarity index of accounting courses as compared to management courses.

Secondly we would observe whether there are differences between the levels of

“plagiarism” between a lower level course and an upper level course. Bloom’s taxonomy would separate a lower level course from an upper level course. The second hypothesis would be worded as follows:

There are differences in the similarity index of lower level Bloom taxonomy courses as compared to higher level courses.

Findings

In this study, we analysed every students’ similarity index reports from each of the following courses. 30 reports for BA 2 and 24 for HRM were looked at. Both were second year courses. For the final year courses, 35 reports were analysed for OB and 15 for A & A.

As mentioned earlier, quantitative analysis gives a “helicopter” view of the case study. We tabulated the quantitative results from our study as in Table 2.

Table 2 Descriptive Statistics

	Second Year		Final Year	
	<i>BA 2</i>	<i>HRM</i>	<i>A&A</i>	<i>OB</i>
Mean	37%	24%	36%	18%
Median	37%	19%	29%	17%
Range	73%	79%	80%	77%
Minimum	0%	0%	0%	0%

(%) denote the percentages of similarity index recording

Comparing between the accounting and management courses

We noticed that the similarity indices were higher for the accounting cluster courses (which were considered as numerical courses) as compared to the management cluster courses (which are narrative). The mean from the two observed accounting courses i.e. BA 2 and A&A were 37% and 36% respectively, were higher as compared to management cluster courses i.e. HRM and OB, 24% and 18% respectively. The same pattern was observed for the median. There was a regimented answer scheme for the lower level accounting course, BA 2 as the student would get the marks for having the correct figure and the correct format. The A & A instructor would test some numerical

analysis together with some narrative analysis. The A & A instructor would require his student to cite certain accounting and auditing standards in verbatim while connecting the accounting and auditing framework to the question at hand. Marks may not be awarded if the student rephrased certain terminology from the standards in different wording. Rewording of certain terminology would create a different legal implication as this is not encouraged when dealing with disciplines like auditing.

The HRM and OB instructors would require their students to be eloquent. They were required to be creative when suggesting methods to solve issues in the cases presented in the assignments. Although the students need to use selected management terminology, the usage was not as expansive as in A & A as the students could reword any explanations of management terminology in their own words.

There was no much differences between all four courses when it came to the spread (or “range” in this case). Turnitin has a certain peculiarity whereby it will cite the first student to submit a certain answer either with its narrative or form. The later a student submits an answer the higher the student’s similarity index as it seems the student has “stolen” the answer from the earlier student. This was a concern highlighted by Patel, Bakhtiyari and Taghavi (2011).

Comparing the between the different levels of difficulty

By comparison between final year and second year Management courses, we found that there were significant differences between similarity indices of the two courses (Mean HRM = 24% vs. OB = 18%). The means of the two Accounting courses were not very far off (BA 2 = 37% vs. A & A = 36%). The A&A instructor would require his student to have the ability to “apply, “analyse” and “evaluate” under the Bloom’s Taxonomy. Apart from that A&A students were also required to cite in verbatim selected accounting and auditing standards. Marks would be deducted if students fail to cite in verbatim the relevant standards.

The marking schemes for both management courses were not as tight as the marking schemes of the accounting courses. For the Management courses, the markers need to exercise a high level of personal judgment, discretion and professionalism when awarding grades.

To sum up, we accept our first hypothesis.

There are differences in the similarity index of accounting courses as compared to management courses.

The conclusion coming from the second hypothesis is now reworded as

There are differences in the similarity index of lower level narrative courses as compared to higher level courses. The same does not apply for numerical based courses in this case accounting.

Conclusion

We would like to conclude whether “policing” any assignment using any plagiarism detection software will be useful or not is determined by the learning outcome of a particular course. While McCord (2008) suggested that instructors should include synthesis in their assignments to avoid the problem of plagiarism, we disagree as it boils down to the learning outcome of the course. The learning outcome of the course should not be sacrificed for the sake of having very little “plagiarism”.

Any plagiarism detection software will be useful to any course that requires a student to demonstrate a strong sense of *originality* in their assignments. The software will be useful in any narrative management courses course as it is the intention of the instructor to make sure the student demonstrate a high level of creativity. This is in line with the thoughts of Brown et al (2010) and Kajjonen and Mozgovoy (2010).

Conformity is language of the day for any anti-plagiarism discussion. Courses that require students to rework any certain pre-set steps should not be subjected to the anti-plagiarism process as this is futile as in the case of any numerical and mathematical courses. Courses that require a high level of verbatim citation such as law, assurance, literature and divinity would not work very well with the software due to the limitations of the software to detect strings and patterns as supported by Patel, Bakhtiyari and Taghavi (2011). To conclude, the inability of current software to differentiate between patterns and strings of plagiarism and cited work makes this exercise futile.

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