Minimizing Plagiarism Incidence in Research Writing in One State University in the Philippines

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Abstract - *Plagiarism has been an issue in higher education institutions all throughout the globe. The prevalence of this issue has been reported by numerous studies and literatures. However, only few are reported to conduct a study on the prevention of this case. Hence, this study was conducted aiming to minimize the occurrence of plagiarism among teacher education students to increase academic integrity and honesty by utilizing plagiarism detector software (Turnitin). Sixty one (61) teacher education students were selected at the average effect size of 0.5 and subjected into two weeks treatment. One sample pre-test post-test design of quasi-experiment was utilized. Data were gathered using the plagiarism software (Turnitin) on the submitted research manuscripts of the students and compared the similarity indices of the papers before and after the utilization of Turnitin using Paired T-Test statistical treatment at 5% alpha level of significance. Results showed a significant decrease on the similarity index of the submitted manuscripts of the teacher education students before and after the utilization of Turnitin. Through triangulation, several factors were identified influencing students to commit plagiarism such as self-resourcefulness, academic culture, and weak plagiarism detection scheme. Finally, the paper gives set of recommendations to further minimize the incidence of plagiarism.*

Keywords – *Turnitin, Research, Plagiarism*

INTRODUCTION

Plagiarism is an act of presenting someone else's words or ideas and claiming it as your own. The prevalence of this problem has been an issue from the students' essay assignments [1] up to the publication of research works [2]. This issue has been the experience of different institutions in different countries across the globe. There are many descriptions of plagiarism [3]. This can be pertaining to making in someone else's works as your own; copying ideas and/or phrases from some else's without giving proper attribution; failing to put a quotation in quotation marks to direct citations; interpreting information incorrectly; and changing words but copying the sentence structure of a source without proper attribution. These kinds of plagiarisms may be present in any form of literature more particular in the review of related literatures of thesis manuscripts.

In Asian countries, several researches were conducted to determine the extent of plagiarism and create intervention strategies to fight the incidence of this case [4]-[6]. Despite of these strategies, cases of plagiarism are still evident at present. In a recent study conducted on prevalence, motives, and views of academic dishonesty in higher education [7], it was found that students view of academic dishonest behavior (plagiarism or cheating) as ordinary school acts in which students actions are products of teacher's and students' incompetence. Having this kind of thinking among students may probably result to negative implication about positive behaviors and attitudes that are expected to them.

In the Philippine setting, there are two (2) legal bases for giving sanction to plagiarism incidences, the Intellectual Property Code (RA 8293) in 1997 and the Cybercrime Prevention Act (RA 10175) in 2012. These two have been disseminated all throughout the country. However, a lot of issues were born in relation to plagiarism in which majority came from the educational institutions. Plagiarism in State Colleges and universities has become one of the controversial issues in doing research work in the past years [8]-[9]. In more particular aspect when students are in the process of writing their thesis as part of the course requirements under CHED Memorandum 30 s. 2004. Methods of Research, as stated in CMO 30 s. 2004 is a 3-unit credit course in Bachelor of Secondary Education that focuses on development of research relevant to one's own specialization. The subject focuses on the understanding on the essentials of research from the identification of problems, construction of hypotheses, methodological advances in research, and preparation of proposals, data analysis procedures and research report. Guided by the aforementioned scenario and the mandate of education, it is imperative to conduct a study on preventing plagiarism among educational institutions.

Turnitin as a text-matching software has been used worldwide as a tool in minimizing the incidence of plagiarism. It is a text-matching software that checks a student's written works in comparison to what has been published in the internet. Since several studies concluded the effectiveness of this software in checking the originality of one's research writing work [10]-[13], this research is conceived to determine its effectiveness in minimizing plagiarism issues in research writing among undergraduate teacher education students.

The study is anchored on stimulus-response (S-R) theory of Thorndike which proposes that all learning consists primarily of the strengthening of the relationship between the stimulus and the response. In particular sense, this study makes use of the law of effect stating that responses that produce a satisfying effect become more likely to occur and responses that produce a discomforting effect become less likely to occur again. This research proposed the model as shown by the path diagram below. It is hypothesized that using Turnitin as a mediating tool would decrease similarity index on the research papers of the students against the research articles already published on-line, hence; preventing them to commit plagiarism.
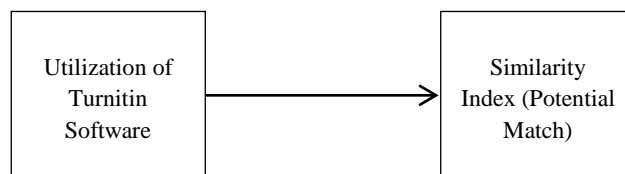

Figure 1. Paradigm of the Conceptual Framework

Objectives of the Study

Promotion of academic honesty and integrity is through prevention of plagiarism among education students is the primary objective of this study. In particular, it intends to minimizing extent of plagiarism in students' research works. To achieve the objectives of the study, the following question were answered: 1) What is the average similarity index of students' research works on the existing published articles in the internet before introducing the turnitin software? 2) What is the average similarity index of students' research works on the existing published articles in the internet after introducing the turnitin software? 5) Is there a significant decrease on the average of the students' research works on the already published online articles before and after introducing turnitin software?

MATERIALS AND METHODS

This study utilizes quasi-experimental design with one-group pretest-posttest. In this approach, all participants are first assigned to the experimental group. Before the utilization of the treatment, it is assumed that only the internal and external factors affect the extent of potential match between the actual submitted papers of the students against the published online articles. Students' works were subjected to turnitin potential match/similarity index checking twice

(before and after). The decrease between the score provided by the software served as the data for analysis.

The participants of this study were carefully selected using qualifications: first, they should be enrolled in a research class; second, they do not have prior experience using turnitin software; and third, they should be teacher education students. After the selection process using Statistical Power with an average effect size, a total of 61 Bachelor of Secondary Education students were found fitted in the set criteria, hence; they served as participants of the study. Data were collected upon the consent of the identified participants.

Aside from the research works submitted to the research instructor, the researcher triangulate the results of the turnitin by interviewing one-by-one the students to determine some internal and external factors associated with committing plagiarism. An 8-item Likert Scale type of test which was validated by the experts in the research field and Cronbach alpha value of 0.778 which indicated that the items are reliable being higher than the 0.700 acceptable value explained in some literatures [14]-[17].

After the retrieval of the questionnaires, data provided by the participants were tabulated to MS Excel together with their scores before and after the utilization of turnitin software. The turnitin software classified similarity index into colors. Blue means that the submitted paper has no similarity index. Green can be interpreted as very low to low level of similarity index; Yellow means that the similarity index is in the moderate level; Orange indicates that similarity index is high; and Red signifies that the similarity index is very high [18]-[20]. Paired t-test was used to find significant difference between the scores in potential matching of the students' works. Statistical Package for Social Science (SPSS) was used to test the significance of the statistics. The study was conducted in a State University where the utilization of plagiarism detector (software) is not yet fully implemented.

RESULTS AND DISCUSSION

Average Similarity Index of Students' Research Works On The Existing Published Articles In The Internet Before Introducing The Turnitin Software

Result of the Turnitin shows that before introducing the software to the students, majority of them has committed high extent of similarity index having 52.46 percent of the total sample. It is also noteworthy that only less than 10% of the respondents belong to Green category (low to very low level) of similarity index. In general, before introducing the Turnitin software, the respondents belong to the Orange category in which similarity index is on the High level. Parallel to the result of the study on internet plagiarism among college students [21], it was found out that 85.9% of the students (in nine colleges and universities) between the ages 17-23 do copy and pasting internet articles into their papers without giving proper attribution and citation. The result of the study proved that in the advent of advanced technology where everything can be placed online, the prevalence of cheating (plagiarism) is more likely to happen. Hence, students nowadays are more prone to committing plagiarism than before due to accessible information on-line. The study about the extent of cheating among college and university students [22] supported the previous statement concluding that more than half of the undergraduate students in universities engaged in 'cut and paste' scheme and revising published articles on-line in a manner that it would not easily be detected by plagiarism detector. As a whole, the result in general signifies that there is a high possibility among students to commit plagiarism in doing research paper.

Table 1. Average Similarity Index of Students' Research Works On The Existing Published Articles In The Internet Before Introducing The Turnitin Software

Similarity Index	Statistic		
	Color Code	Before	Percentage %
1% - 25%	Green	4	6.56
26% - 50%	Yellow	16	26.23
51% - 75%	Orange	32	52.46
76%-100%	Red	9	14.75
Total		61	100.00
Mean		56.64% (Orange)	

Table 2. Average Similarity Index of Students' Research Works On The Existing Published Articles In The Internet After Introducing The Turnitin Software

Similarity Index	Statistic		
	Color Code	After	Percentage %
1% - 25%	Green	42	68.85
26% - 50%	Yellow	9	14.75
51% - 75%	Orange	8	13.11
76%-100%	Red	2	3.28
Total		61	100.00
Mean		23.36% (Green)	

Average Similarity Index of Students' Research Works On The Existing Published Articles In The Internet After Introducing The Turnitin Software

Table 2 shows that after the utilization of Turnitin Software, majority of the respondents showed similarity index range of 1%-25% which categorized as Green or Very Low Level. Also it is reflected that only 3.28% of the respondents commit similarity index under Red category. The result signifies that after the two weeks period given to the respondents, an observable decrease in the similarity index of their output is found. This provides an implication that the utilization of potential match detector can prevent the occurrence of plagiarism among students. Overall, the frequency, of the similarity index follows a decreasing pattern from Green Code to Red Code. This trend could be attributed to the number of frequencies of the students. Since utilization of Turnitin could be done even outside the university, students from time to time could revise their submitted paper and making similarity index as little as they could. Stappenbelt and Rowles (2010) [23] concluded that the use of plagiarism detection software in an educational capacity could be very successful in teaching students' proper citation and attribution to one's own work. The use of plagiarism detection software likewise could develop integrity among students in avoiding plagiarism.

Difference Between The Matching Percentage Of The Students' Research Works On The Already Published Online Articles Before And After Introducing Turnitin Software

Based on the result of the similarity index on students' researches before and after the utilization of Turnitin software, the test of significant difference was done. It can be noted from the result that the mean of 56.64% similarity index on research papers submitted by the teacher education students infers that before the utilization of the plagiarism detector (software), teacher education students are in the Orange category. Thus, before the implementation of the Turnitin plagiarism software, very high extent of exposure of the students in copying other's work without giving proper attribution to the original author. After the given two weeks interval, the average similarity index of students' research papers turned into 23.36% which belongs to Green category or very low extent of similarity to the existing articles published on-line. Thus, it is worthy to note that after the students are taught on how the software works, a decrease of 33.28% on the similarity index was garnered.

Using T-test for dependent samples, the average difference on the similarity indices before and after the utilization of Turnitin software is found significant at 5% alpha level of significance. In this manner, a significant decrease on the average of the students' research works on the already published online articles before and after introducing Turnitin. Thus, findings of the study implied that the utilization

of Turnitin software can prevent the prevalence of plagiarism among students' works in more particular, research works. The result supports the conclusions of several authors that Turnitin software is effective in checking the originality of one's research writing works [10]-[13].

Table 4. Difference Between The Matching Percentage Of The Students' Research Works On The Already Published Online Articles Before And After Introducing Turnitin Software

Assessment	Mean	Color Code	Result
Before	56.64	Orange	Significant
After	23.36	Green	
Difference	33.28		

T-value = 10.427; p-value:<0.001

Factors Affecting Students to Commit Plagiarism

After the conduct proper, respondents were asked about the factors that affect them why they tend to be engaged in plagiarism as previously identified before the utilization of Turnitin software. Several responses were gathered having the top 3 as follows in order: *I am afraid to fail my research subject; I know that everyone does it so as I; I do not have enough time* while the last three (3) as follows: *I have much to do to other subjects, I do not have interest to cite, it annoys me; and I feel lazy whenever I do my research.* The result of the survey conveys the eagerness of the students to pass their research subject to the extent that they opt to commit plagiarism since the study was conducted in a State University where the implementation of plagiarism detection scheme is not yet strong.

Likewise, the study proved that plagiarism is still a practice by the students as revealed by the top 2 reason identified by the respondents. Bulk of activities of the students affects the quality of the research paper they submit as they tend to do copy pasting without giving proper attribution to the original author. The study of Owunwanne, et al. (2010) [24], relate cheating to Darwin's Origin of the Species

by emphasizing on "Survival of the fittest". Based on their findings, students adopt this theory while enrolled in school. In more specific manner, students are being pressured by their peers, they lack of preparedness, and extremely high expectations. There are some students also focused on extra-curricular activities and major subjects, hence; doing research becomes least in the priority. Based on the results of the study, it is found that as long as there is a weak scheme about its detection, the prevalence of plagiarism will still be a problem. Hence, parallel to the result, a study on the review of electronic services for plagiarism detection in student submissions [25] stated that some universities have not yet appreciate the full scope of the problem (plagiarism), hence; universities were encouraged to operate pro-active anti-plagiarism scheme to eradicate plagiarism in students' submissions.

CONCLUSION AND RECOMMENDATION

As stated earlier, the intention of this paper is to minimize the occurrence of plagiarism in research among teacher education students. It is worthy to note that observable high extent of similarity index was found on the supposedly submitted research manuscripts of the students. Interestingly, two weeks after introducing Turnitin software to the teacher education students, the extent of similarity index became low. To this reason, in addition to the significant difference found, it is reasonable to conclude that utilization of Turnitin software, when introduced properly in addition to ample time, can prevent the existence of plagiarism among teacher education students. In consonance to the findings presented, it is therefore concluded that the occurrence of plagiarism incidence in research of the students is evident at present among students of teacher education.

Also, if the preventive measure(s) in higher education is not that strong, then the possibility of committing plagiarism among students will be a big problem in the future. The findings of the study proved the conclusion that culture of the students in the academic

institution affects the prevalence of plagiarism. Finally, the use of Turnitin plagiarism software can help academicians to prevent the incidence of plagiarism particularly in doing research.

With these reasons, it is recommended that a sound plagiarism detection scheme be implemented in State Universities to lessen plagiarism incidence and to strengthen academic integrity among students. In a specific sense, plagiarism checking is done before researches of students accepted as partial fulfillment of the requirements for the degree. Since the study focused only on minimizing the prevalence of plagiarism among researches submitted by teacher education students which specifically done under one-sample design, other researchers are encouraged to test the effectiveness of plagiarism detectors not only in research but also in other submissions using other design to strengthen the result of the present endeavor.

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