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The Effect of a Policy of Mandatory Use of TurnItIn by Graduate and Postgraduate Online Students on Reducing Unoriginal Writing

Peter P. KIRIAKIDIS¹

Abstract

An accredited online university, located in northern U.S., implemented TurnItIn in order to reduce unoriginal writing of graduate and postgraduate students. The research problem was the lack of empirical research-based findings on the implementation of TurnItIn similarity index rates on reducing unoriginal academic work. This study was grounded in the social learning theory. The research question that guided this study was "What is the effect of the implementation of TurnItIn reports containing similarity index rates on reducing unoriginal writing in online classes of graduate and postgraduate students?" Archived data containing the similarity index rates of TurnItIn reports were collected in the first semester of the year 2013 for two cohorts of 122 graduate and 118 postgraduate students before and after the implementation of TurnItIn reports in online classes. The findings revealed that the implementation of TurnItIn reduced unoriginal writing in graduate and postgraduate online classes. A statistical significant difference between the means of the two cohorts of similarity index rates of TurnItIn was found. The empirical evidence was that the implementation of TurnItIn has helped the online institution's administration and faculty members at the research site to reduce unoriginal writing. Education stakeholders may use these findings to improve academic integrity.

Keywords: *online education, graduate and postgraduate online courses, online institutions, academic integrity, plagiarism, policies on reducing unoriginal writing, staff*

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Introduction

TurnItIn is a plagiarism prevention and detection software designed to ensure the integrity of academic work. TurnItIn reports include the similarity index rate of each student's academic work submitted to www.TurnItIn.com.

Research Problem

The research site was an accredited online university, located in northern U.S., educating online graduate and postgraduate students. The research site implemented the use of TurnItIn reports in online classes to detect and reduce unoriginal writing in graduate and postgraduate online classes. Administrators at this university have implemented a policy on academic integrity which requires students to submit their academic papers to TurnItIn via each course shell with a link to the TurnItIn website. TurnItIn reports are posted to each course shell and are available to administration, faculty, and students together with a copy of the academic work of each student. This policy was implemented in the year 2012 to minimize plagiarism. A copy of the policy is found in the faculty and student handbooks. The policy is clearly communicated to faculty and students. The research problem was the lack of research-based findings on the implementation of this policy to provide administrators and faculty members with empirical evidence on the effectiveness of the use of TurnItIn reports on reducing unoriginal writing as measured by the similarity index percentages reported by TurnItIn in terms of the use of Internet resources, peer-reviewed articles, published dissertations, and so forth for online classes.

Nature of the Study

TurnItIn is a company that uses a database of documents to ensure original academic work by checking submitted papers against 14 billion web pages, 150 million student papers and leading library databases and publications. The university at the research site emphasizes in the student handbook that students accept the responsibility for academic honesty and as a result a student who enrolls at the university thereby agrees to respect and acknowledge the research and ideas of others in his or her work and to abide by those regulations governing work stipulated by the academic program.

At the research site, a policy was implemented in the year 2011 where faculty members were required by policy to submit academic papers to TurnItIn and the similarity index percentages were received by these faculty members in the online course shells. In the year 2012, a new policy was developed requiring all students to submit their academic papers to TurnItIn and the similarity index percentages were received by both the students and their faculty members in the online course shells. Both policies required faculty members to examine the similarity index rate, found in each TurnItIn report of each student's assignment, to detect unoriginal writing. When the faculty members detect plagiarism then the academic integrity policy was used.

These two policies were implemented to help students with academic integrity and were neither a one-on-one mentoring for reducing unoriginal academic work nor a specific professional development model of university intervention. This study involved the collection and analysis of archived quantitative data (i.e., collection of archived similarity index percentages) resulting in statistical data.

The participants in this study were two cohorts of online students. The cohorts were selected without random assignment. The first cohort consisted of students before the implementation of the program where faculty members were required by policy to submit academic papers to TurnItIn and the similarity index percentages were received by these faculty members in the online course shells. The second cohort consisted of students after the implementation of the program where students were required by policy to submit academic papers to TurnItIn and the similarity index percentages were received by both the students and their faculty members in the online course shells. The differences in the means between the similarity index percentages of the first cohort and the similarity index percentages of the second cohort were analyzed. Archived similarity index percentages were entered into SPSS 20.0 for the two cohorts. An independent *t* test was used to measure the variance in the similarity index percentages between the two cohorts to provide statistical evidence of the treatment effect.

Purpose of the Study

The purpose of this quantitative research was to determine if there was a significant difference in the means of the similarity index percentages, found the TurnItIn reports, of graduate and postgraduate

academic papers before and after the implementation of TurnItIn. The means of the similarity index percentages found in TurnItIn reports before and after the implementation of the program were compared to determine if there was a significant either increase or decrease in the students' academic integrity. The findings of this study might help university administrators, program developers, and researchers to design, implement, and evaluate staff development opportunities for faculty members and to provide support to online students to submit original academic work.

Theoretical framework

This study was based on the social learning theory that if students are engaged in activities that reduce unoriginal writing within a supportive online learning environment then unoriginal writing may be reduced (Bandura, 1997/1986/1997; Kearsley, 1994). Actively engaged students in preventing plagiarism via TurnItIn can enhance their responsibility for academic honesty and respect and acknowledgement of research and ideas of others in their academic work. The successful implementation of the TurnItIn intervention program might have had an effect on reducing unoriginal writing of graduate and postgraduate students. The TurnItIn intervention program supported the premise that intervention could cause a reduction in overall student academic integrity (i.e., reduction in unoriginal writing). Students could benefit from the program in terms of receiving feedback from TurnItIn and feel more positive and confident of their original writing skills. The online university administrators provided support to faculty members about TurnItIn features by providing workshops to faculty members and by posting materials about plagiarism and TurnItIn reports in each online course to help faculty members to improve instructional practices in order to help students improve their original writing skills. Resource materials were provided to all faculty members and students at the research site.

Definitions of Terms

Academic honesty: Academic honesty refers to students accepting their responsibility for respecting and acknowledging the research and ideas of others.

Unoriginal writing: Unoriginal writing is the use of intellectual materials produced by scholars without acknowledging the academic work. Examples of unoriginal writing include (a) copying of passages from works of others into an assignment, paper, discussion posting, or thesis or dissertation without acknowledgment; (b) using the views, opinions, or insights of another author without acknowledgment; and (c) paraphrasing another author's characteristic or original phraseology, metaphor, or other literary device without acknowledgment.

Assumptions, Limitations, Scope, and Delimitations

The study was conducted at an accredited online university, which uses the TurnItIn program. The study was bounded by one institution at the research site. For the sample of this study, two cohorts of students were selected without random assignment and were homogenous samples comprised of students who attended online classes before and after the implementation of the program. The two cohorts of students were unrelated samples or different students. The scope was delimited to the specific sample at the research site, which consisted of online students whose papers were submitted to TurnItIn before and after the implementation of the program. The limitations included that the findings of the study might not be applicable to online students and faculty members at other higher learning institutions. Accessibility to the TurnItIn program by both faculty members and students at the research site was applicable to the participating university's academic needs. The researcher assumed that the similarity index percentages provided by TurnItIn were reliable and valid and an accurate tool for detecting plagiarism. The researcher also assumed that the TurnItIn program implemented at the research site was in line with the vision and mission of the institution.

Research Question and Hypotheses

What is the effect of the implementation of TurnItIn reports, containing similarity index percentages, on reducing unoriginal writing of graduate and postgraduate students in online classes?

H0: There is no statistical significant difference in the mean similarity index percentages between graduate and postgraduate online classes before and after the implementation of the TurnItIn intervention program.

H1: There is a statistical significant difference in the mean similarity index percentages between graduate and postgraduate online classes before and after the implementation of the TurnItIn intervention program.

Literature Review

This body of research builds upon studies suggesting that TurnItIn can be used as tool to identify integrity issues. Sutherland-Smith and Carr (2005) stated that while TurnItIn may suggest plagiarism, the ultimate decision to act upon the violation is that of the faculty member. Parry (2011) stated TurnItIn has deterred plagiarism and is now ushering in a new method of teaching students how to track their own use—or lack thereof—of citations and research material. Leadership includes all stakeholders in a school (Zepeda, 2008) and is a collective action of the learning community to build shared purpose (Crowther, Ferguson, & Hann, 2009) to reduce unoriginal writing. Faculty members as leaders can help increase student learning (Hirsch & Killion, 2009) and the more they collaborate, the more leadership is shared (Fullan, 2006/2007).

In the online learning environment, faculty members should “engage issues of teaching and learning” (Supovitz, Sirinides, & May, 2010) and should “influence the behavior of students” (Crowther et al., 2009) to reduce unoriginal writing. The online institution’s leaders should help faculty members to “establish and achieve the goals and objectives of the school” (Cowan, 2006). Leaders should “actively engage change and contribute to student learning” (Murphy, 2005). Successful shared leadership is about adapting practices and attitudes with students and with one another to be more effective (Donaldson, 2006). Saunders, Goldenberg, and Gallimore (2009) asserted that roles

and responsibilities were important to effective leadership teams. Material resources contribute to the success of the school (Hord, 2004/2007).

Professional development will enable teachers to grow in the job (Wallis, 2008, p. 34) and to improve student learning (Viadero, 2005/2007). Professional development requires focus on pedagogy (Guskey & SukYoon, 2009) and could help faculty members examine student work (Whitcomb, Borko, & Liston, 2009) via workshops (Reeves, 2010) and opportunities to learn from and with each other (Mangrum, 2010).

Scholars have found evidence that high quality staff development programs affect student achievement (Christie, 2009; Darling-Hammond & Richardson, 2009; Darling-Hammond, Bransford, LePage, & Hammerness; Desimone, 2009; Guskey, 2002; Leonard & Leonard, 2005). Faculty members need ongoing opportunities to apply learning to the classroom (Chappuis, Chappuis, & Stiggins, 2009; Diekelmann & Mendias, 2005).

Leaders of online universities need to meet the ever-increasing demand for technologically advanced learning opportunities (Taylor, 2006) and should embrace the challenges of extending online educational opportunities to learners (Calvert, 2005; Rhoda, 2005; Shea, Pickett, & Li, 2005). Twigg (2005) and Paloff and Pratt (2007) and Sulaiman and Mohezar (2006) have indicated that learner success in the online classroom may depend most on the competency of mentors.

An valuable asset of any institution of higher learning is the faculty members (Schuster & Finkelstein, 2006). Lack of academic preparation has negatively impacted students' success rates in college (Steinberg & Almeida, 2008). Student accountability is an aspect of a quality education (Fisher & Frey, 2008). Peer collaboration has been shown to raise achievement among students (Tribe & Kostka, 2007).

Scholars have supported the idea that technological competence is a good predictor of performance in the online environment (Barkley, 2006). According to Larreamendy-Joerns and Leinhardt (2006), educational technologies may help in improving students' academic achievement (Hornik, 2007). Technology-based education is emerging as an increasingly visible feature of education (Kern, 2010). According to Holstead, Spradlin, and Plucker (2009), training is needed to match future education needs.

Effective educators use professional development knowledge to provide high quality instruction (Killion, 2008) and understand the developmental changes of learners (Supovitz & Christman, 2005). Educators need to work together (Bouck, 2007) and be willing to work together (Murawski & Dieker, 2008).

Research Design

The quasi experimental quantitative design was selected because the similarity index percentages were quantitative measures (e.g., numbers between zero and 100) found in TurnItIn report for each academic paper submitted to www.TurnItIn.com. Only numeric data were collected because empirical data were sought about the effect of the aforementioned policy on reducing unoriginal work as measured by the similarity index percentages. Archived similarity index percentages were collected and analyzed to determine if there was a statistical significant difference in the means of similarity index percentages between the two cohorts of online students. Data from the two cohorts were not randomly assigned (Creswell, 2003). Two cohorts were unrelated samples because they were different students (Gravetter & Wallnau, 2005). The first cohort was the control group that consisted of students who took classes before the implementation of the policy. The second cohort was the experimental group that consisted of students who took online classes after the implementation of the policy (Caras, Sandu, 2013; Sandu, Ponea, Unguru, 2010; Sandu, 2012).

Population and Sample

For the purpose of this study, an online university that has implemented a policy, which includes a requirement for every student to submit to TurnItIn every assignment, was selected. The participating online institution implemented a policy requiring every student to use TurnItIn and requiring faculty members to monitor students' work to detect plagiarism by reviewing the similarity index percentages found in the TurnItIn reports of academic papers submitted to TurnItIn.

The student population of this study was online graduate and postgraduate students registered in an accredited online university. From the student population at the research site, the sample consisted of two cohorts where the first cohort consisted of students who took online courses before the implementation of the TurnItIn policy and the

second cohort consisted of students who took online courses after the implementation of the TurnItIn policy. Both faculty members and students received instruction in TurnItIn before and after the implementation of the TurnItIn policy.

In order to examine whether or not the TurnItIn policy had an effect on students' similarity index percentages, the selection criteria of the participants had to be met to measure the variance in the similarity index percentages between the two cohorts before and after the implementation of the TurnItIn policy. The participants were selected based on these criteria: (a) each student was a fulltime online student; (b) the faculty members of the students of the first cohort had submitted students' academic papers to TurnItIn (i.e., before the implementation of the TurnItIn policy); (c) the students of the second cohort had submitted academic papers to TurnItIn (i.e., after the implementation of the TurnItIn policy), and (d) each online course had a link to www.TurnItIn.com for faculty members and/or students to submit academic papers. Each course shell contained reports from TurnItIn containing the similarity index percentage for each academic paper.

Instrumentation and Materials & Measures for Ethical Protection

The similarity index percentages of both cohorts were collected by the administrator responsible for research at the research site. One set of data consisted of similarity index percentages of the control group. The other data set consisted of similarity index percentages of the experimental group archived to the end of the first semester in the year 2013. The administrator responsible for research at the research site collected these archived similarity index percentages for the purpose of this study and saved both sets of data into an Excel document. Each set of data contained no names of students or faculty or course code/name to ensure the confidentiality of information about the participants. The archived data received from the participating institution will be kept in a locked and secure file cabinet on a jump drive, which is password protected, in the researcher's home for at least 5 years.

The similarity index percentages were the collected data that represented students' numeric scores assigned by TurnItIn before and after the implementation of the TurnItIn policy. The differences in the means of the similarity index percentages between the two cohorts were analyzed. The sample was online students whose identification

information remained completely anonymous; therefore, the participants' rights were protected. Archived data collection was not affected by professional relationships between the researcher and stakeholders at the research site. The researcher was a university researcher at the research site and was neither in a direct supervisory role nor an online faculty member of the participants. The role of the researcher was to gather empirical evidence to support this study.

Reliability and Validity of the similarity Index Percentages

TurnItIn uses a database of documents to ensure original academic work by checking submitted papers against over archived student papers, journals, periodicals and books. TurnItIn shows the similarity index percentage, which indicates how much of the student's paper matches content from their databases containing billions of documents. The similarity index is based on the overall similarity of the submitted academic paper to documents in the databases of TurnItIn. TurnItIn (2006) admits that a reading that shows a high percentage *does not necessarily mean the paper has been plagiarized*. The results found in the TurnItIn report should be read as a prioritized list. The higher the percentage, the more frequently the source appears in the submitted academic paper, *whether cited appropriately or not* (Turnitin, 2006). The listed sources in the report are numbered and color coded so that they may be referenced with the submitted academic document in the *Paper Text* section where portions of the text have been color-coded and number-coded to match the sources found in TurnItIn's databases. The feedback report can help to identify specific instances of plagiarism, if, in fact, plagiarism exists in the submitted document. Faculty members, administrators, and students may examine the academic integrity of each one of these instances and should compare the submitted writing with the source material TurnItIn has identified. Stakeholders should examine the highlighted portion of academic papers for proper citations of sources, paraphrasing, originality, and referencing of materials cited in the academic paper. Researchers teamed up with a group of teachers, mathematicians, and computer scientists to form Plagiarism.org, which was the world's first Internet-based plagiarism prevention service and is now recognized by educators worldwide as TurnItIn (www.TurnItIn.com).

Threats to Validity

For this study, the researcher has had no control over the quantity and quality of the similarity index percentages of TurnItIn. The generalizations may not be applicable to other similarity index percentages of papers from other online students and faculty members in different contexts. The threat to validity was minimal as those who submit academic papers have no control over the similarity index percentages. TurnItIn prepares the similarity index percentages and faculty members monitor TurnItIn feedback.

Data Collection and Analysis

For the purpose of this study, archived data were collected from online courses. The similarity index percentages of both cohorts were collected by the administrator responsible for research at the research site. The archived data were numeric where each similarity index rate was provided as a percentage between 0% and 100%. The academic level of the students was also numeric where '1' represented 'graduate' and '2' represented 'postgraduate.' The cohort was also numeric where '1' represented 'control group' and '2' represented 'experimental group.' Archived similarity index percentages were entered into SPSS 20.0. An independent *t* test was used to measure the variance in the similarity index percentages between the two cohorts to provide statistical evidence of the treatment effect.

A *t* test was utilized to determine if there was a significant difference between the means of the two cohorts. The *t* test was performed at a confidence level at or above the 95% ($\alpha = .05$). The *t* distribution table was used to determine if obtained *t* statistic was within or outside the critical region, indicating the result was statistically significant evidence of the treatment effect. No covariates and confounding variables were considered because the aim of this study was to determine the difference between two cohorts of students' similarity index rates.

The sample of graduate similarity index rates was $n = 122$. The mean of the similarity index rates of graduates during the academic year 2011-2012 was $M = 34.70$ with a standard deviation of $SD = 20.83$. The similarity index rates of graduates during the academic year 2012-2013 was $M = 14.25$ with a standard deviation of $SD = 12.02$. The mean

difference was $M = 20.45$. The Pearson correlation was $\rho = .702^*$ ($p = 0.03$). The t value was $t = 15.886$ at $p = 0.03$ and $df = 121$. The findings indicated that the mean of similarity index rates was reduced from 35% to 14.25% after the implementation of the policy. The mean similarity index rates of the experimental group were lower than the mean similarity index rates of the control group. Based on the t test for the similarity index rates, the t statistic exceeded the critical values, indicating that this result was considered statistically significant (Table 1). The null hypothesis was rejected and the alternative hypothesis was accepted. A significant difference was found in the mean similarity index rates of graduate students before and after the implementation of the TurnItIn intervention policy.

The sample of postgraduate similarity index rates was $n = 118$. The mean of similarity index rates of graduates during the academic year 2011-2012 was $M = 26.12$ with a standard deviation of $SD = 13.81$. The mean of similarity index rates of postgraduates during the academic year 2012-2013 was $M = 10.35$ with a standard deviation of $SD = 7.28$. The mean difference was $M = 15.77$. The Pearson correlation was $\rho = .527^*$ ($p = 0.02$). The t value was $t = 15.261$ at $p = 0.03$ and $df = 117$. The findings indicated that the mean of similarity index rates was reduced from 26.12% to 10.35% after the implementation of the policy. The mean similarity index rates of the experimental group were lower than the mean similarity index rates of the control group. Based on the t test for the similarity index rates, the t statistic exceeded the critical values, indicating that this result was considered statistically significant (Table 1). The null hypothesis was rejected and the alternative hypothesis was accepted. A significant difference was found in the mean similarity index rates of postgraduate students before and after the implementation of the TurnItIn intervention program.

Table 1
Similarity Index Rates of Graduate and Postgraduate Online Students

Cohort	Academic Level	Academic Year	<i>n</i>	<i>M(SD)</i>	<i>r</i> (<i>p</i>)	<i>t</i> (<i>p</i>)	<i>d</i> ^f
1	1	11-12	122	34.70 (20.83)	.702* (0.03)	15.886 (0.03)	1
2	1	12-13		14.25 (12.02)			
1	2	11-12	118	26.12 (13.81)	.527* (0.02)	15.261 (0.03)	11
2	2	12-13		10.35 (07.28)			7

In conclusion, students' similarity index percentages of the experimental group were statistically significant different than students' similarity index percentages of the control group. The data analysis revealed that there was a difference between the combined students' similarity index percentages for the same participants. Thus, the TurnItIn intervention policy has had a positive effect on the students' similarity index percentages at the research site.

Practical Applications of Findings

The findings should assist university online students in submitting original academic work. Online faculty members should monitor TurnItIn reports to ensure that online student submit original writing. University administrators should assist faculty members, staff, and students in creating a professional learning community to accurately interpret TurnItIn reports.

Significance of the Study

The findings may contribute to research about the effects of the TurnItIn similarity index percentages on academic integrity. Other online universities administrators may use the findings to make informed decisions regarding staff development opportunities for faculty members and support for online students regarding academic integrity issues. Institutes of online higher education and professional development providers might benefit from having empirical evidence that TurnItIn similarity index percentages may increase students' academic integrity. The empirical evidence may assist administrators, faculty members, and

students at the research site in developing, implementing, and evaluating policies on unoriginal writing.

Implications of Findings

Online students' writing may be improved by using the features of TurnItIn. Online faculty members may use TurnItIn as a tool to maintain academic integrity in their classes. Society may benefit from authentic academic work of graduate and postgraduate students who will be more credible members of society. The implementation of the TurnItIn policy may provide not only graduate and postgraduate online students with positive experiences in ensuring academic integrity but also undergraduate students in improving their writing skills and reducing unoriginal work. The empirical evidence provided justification for the allocation of human and capital resources for high quality professional development programs regarding how and why to use TurnItIn similarity index percentages. The empirical evidence supports the decision of the administrators at the research site to implement TurnItIn similarity index percentages and encourages the continuation of development opportunities for faculty members to ensure students' original writing. The TurnItIn policy contributes to the goals of administrators at the research site to increase original writing because when students become proficient in producing original academic work then society benefits. Thus, TurnItIn policy has the potential to increase original writing of graduate and postgraduate online students who may become lifelong learners.

Recommendations for Action

University stakeholders should support: (a) online students, at all academic levels, to submit original academic work and (b) faculty members and staff with specific professional development on academic integrity. At the research site, the policy on academic integrity should be evaluated for its effectiveness on student writing. Also, at the research site, the policy on professional development should be evaluated for its effectiveness on student writing to ensure that the intended goals of staff development are met.

Recommendations for Further Study

Further research could be done using other features of TurnItIn such as the percentages of the use of (a) Internet sources, (b) publications, and (c) student papers. Scholars interested in replicating this study should collect data from: (a) a larger sample, (b) several online programs including undergraduate studies; and (c) several online universities. Scholars may: (a) explore the long term effects of TurnItIn policy by tracking the similarity index percentages of the same group of students and (b) conduct qualitative studies to understand the perceptions of university stakeholders of TurnItIn policy.

Summary

Archived data containing the similarity index rates of TurnItIn reports were collected for two cohorts of graduate and postgraduate students before and after the implementation of TurnItIn policy in online classes. The findings revealed that the implementation of TurnItIn reduced unoriginal writing in graduate and postgraduate online classes. A statistical significant difference between the means of the similarity index rates of two cohorts was found. The empirical evidence was that the implementation of TurnItIn policy has helped the online institution at the research site to reduce unoriginal writing. Education stakeholders may use these findings to improve academic integrity. TurnItIn policy has the potential to increase original writing of graduate and postgraduate online students who may become lifelong learners.

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