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Determinants of Plagiarism in Plagiarism Behavior and Their Effects on Total Quality Management: A Multicultural Study

(Faktor-faktor Penentu Plagiat dalam Tingkahlaku Plagiat dan Kesannya Terhadap Pengurusan Kualiti Menyeluruh: Sebuah Kajian Pelbagai Budaya)

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ABSTRACT

Plagiarism is a complex problem faced by many students, lecturers and researchers across the globe that is dramatically increasing, which subsequently affecting the total quality management (TQM) in higher education institutions across the globe. This survey investigates the causal relationships between the predictors of plagiarism and the intention to plagiarize, the roles of intention to plagiarize in plagiarism behavior and consequently, the effects of plagiarism behavior on TQM. A total of 768 postgraduate Malaysian, Nigerian and Omani students participated in this study following quota sampling technique. Structural Equation Modeling (SEM) were used to analyze the data. Results suggested that the predictors of plagiarism were positively and statistically correlated to the intention to plagiarize, while the intention to plagiarize was statistically correlated with plagiarism behavior. Additionally, plagiarism behavior was also found to statistically and negatively correlated with TQM factors; namely continuous improvement, academic performance and work ability. Overall, plagiarism behavior is negatively affecting the TQM in higher education institutions. This study implicates that the issue needs urgent response from educational institutions' authority. If it is overlooked, plagiarism has serious effects on perpetrator, university and learning society at large, because plagiarism reflects poor standard of awarded degree and scholarship.

Key Words: Plagiarism behavior; Predictors of plagiarism; Intention to plagiarize; Higher education; Total Quality Management (TQM), multicultural context

ABSTRAK

Plagiarisme ialah masalah kompleks yang dihadapi oleh ramai pelajar, pensyarah dan penyelidik di seluruh dunia yang meningkat secara mendadak, yang seterusnya menjejaskan Pengurusan Kualiti Menyeluruh (TQM) di institusi pendidikan tinggi di seluruh dunia. Tinjauan ini menyiasat hubungan sebab akibat antara peramal plagiarisme dan niat untuk memplagiat, peranan niat memplagiat dalam tingkah laku plagiarisme dan akibatnya, kesan tingkah laku plagiarisme ke atas TQM. Seramai 768 pelajar pasca siswazah Malaysia, Nigeria dan Oman menyertai kajian ini mengikut teknik persampelan kuota. Pemodelan Persamaan Struktur (SEM) digunakan untuk menganalisis data. Dapatan menunjukkan bahawa peramal plagiarisme berkorelasi secara positif dengan niat untuk memplagiat, manakala niat memplagiat dikaitkan secara statistik dengan tingkah laku plagiarisme. Selain itu, tingkah laku plagiarisme juga didapati mempunyai korelasi secara statistik dan negatif dengan faktor TQM; iaitu peningkatan berterusan, prestasi akademik dan keupayaan kerja. Secara keseluruhannya, tingkah laku plagiarisme memberi kesan negatif kepada TQM di institusi-institusi pengajian tinggi. Kajian ini mengimplikasikan bahawa isu ini memerlukan respons segera daripada pihak berkuasa institusi pendidikan. Jika ia diabaikan, plagiarisme mempunyai kesan yang serius kepada pelaku, universiti dan masyarakat pembelajaran secara amnya, kerana plagiarisme mencerminkan tahap ijazah dan kesarjanaan yang rendah.

Key Words: Tingkah laku plagiat, Peramal plagiarisme; Niat untuk memplagiat; Pendidikan tinggi; Pengurusan Kualiti Menyeluruh (TQM), konteks kepelbagaian budaya

INTRODUCTION

Academic plagiarism has become a global pandemic that pervades across high education institutions worldwide (International Center for Academic Integrity 2016; Lin & Wen 2007; McCabe 1993; McCabe et al. 2001). It is considered to be a major academic and moral crime that is committed by many students, researchers and academicians in recent times (Owunwanne et al. 2010; Taradi et al. 2010; Vandehey et al. 2007). According to many researchers, plagiarism is an epidemic that invades almost all organizations of learning, be it public or private ones (Maloshonok & Shmeleva 2019; Eric et al. 2017). It is perpetrated by the big and small, the students and professors at all levels, whether unintentionally or by intention (Park 2003).

Although plagiarism has been defined in many different ways, all definitions have described plagiarism as an act of adopting or copying other people's ideas, thoughts or inventions without properly attributing or referring to the original sources, or fabricating data, purchasing the research paper and paying others for writing a scientific article, thesis or dissertation (Park 2003; Stone et al. 2010; Nash 2018; Bacon et al. 2019; Maloshonok & Shmeleva 2019). This serious academic crime is considered as a flagrant violation of people's rights, whether consciously or unconsciously (Park 2003; Goh 2015). It is worth noticing that this heinous operation has been labeled several terms in the Arab-Islamic heritage, including but not limited to skinning, scientific theft, literary piracy, scientific robbery, etc. The terminologies used in modern Western academic milieu to describe unauthorized and misappropriation of ideas are not totally different from what have been found in Islamic heritage; such non-native sin against scientific originality (Colon 2001), violation of human rights, theft of intellectual property, or assault on individual identity, property theft, forgery, theft of ideas, and organized crime (Park, 2003).

Studies indicated that the occurrence of plagiarism is not limited to the academic zone, but also in many different professional settings such as politics, journalism and media, science and technology, etc. (Park 2003; Colon 2001). However, academic plagiarism is more dangerous, more deadly and its consequence is more severe due to the fact that academic institution is where moral and virtues are inculcated and transmitted into next generations. It is also believed that the danger of academic plagiarism lies not only in conveying the ideas of others in an irresponsible way, infringing on their intellectual property, harming the integrity of the impersonator himself, hindering the process of personal learning, and learning of others, but also because academic plagiarism in education, often leads to other kinds of crime such as embezzlement and financial frauds (McCable et al. 2002; Martin 2009; Helm 2003; Jackson 2006; Park 2003). Furthermore, according to Altbach (2015) and McCabe et. al (2008), understanding the predictors of plagiarism is very crucial because it can help to reduce the incidence of academic misconduct and ensure the integrity of the degree they offer, in addition to strengthen the entire education system globally. Conversely, underestimating the danger of plagiarism in higher institutions would not only have disgraceful effects on the perpetrators but also the image of the entire institution because it would be implicitly translated to morally supporting the crime. Additionally, when plagiarists are succeeding in their acts, it would encourage others to follow their steps. Bacon et al. (2019) argued that plagiarism might go beyond the moral issue to be practical and societal problems because if the end can justify the means for a student and the student is able to cheat to achieve his own goal, this implies that he acquired less during his academic endeavor and consequently would not be able to face challenges waiting for him after graduation.

The magnitude prevalence of plagiarism in institutions of higher learning is unknown precisely; nevertheless, the available statistics suggested that 30% to 81% of the students in high institutions have engaged in various forms of academic plagiarism during their learning endeavors (Eric et al. 2017). More extremely, Jones (2011) found that 92% of surveyed students reported that they had cheated at least once or know someone who had cheated before. Unfortunately, Ison (2014) investigated 368 dissertations and compared them in terms of dissertation written by online students versus on campus following the traditional framework, he discovered that 61% of online students and 57% of on campus students committed plagiarism in their academic writing. It was also found that the danger of plagiarism is not limited to short term effects on the perpetrators and institutions alone but also long-term effects on the image of the institutions, youths' moral decay and many other social and educational problems.

Although many empirical studies have been conducted on the predictors of plagiarism (Owunwanne et al. 2010; Taradi et al. 2010; Vandehey et al. 2007; Hard et al. 2006), little attention is paid on the subsequent effects of it on total quality management in a multicultural context. Although cultural comparison of plagiarism is beyond the scope of this study, it should be stressed that plagiarism behavior varied across different culture (Rawwas et al. 2004; McCabe et al. 2008; Maloshonok & Shmeleva 2019; Peled et al. 2018). Cross-cultural studies demonstrated that some cultures

condone plagiarism due to their cultural underpinnings. For example, Maloshonok and Shemelva (2019) asserted that Russian students are more open to plagiarism and more likely to involve in academic cheating behavior than students from the United States of America and European countries. Moreover, Zafarghandi et al. (2012) also suggested that plagiarism in Western societies is lower compared to their Eastern counterparts. According to the authors, Western societies exhibit strong emphasis on external rules and make decision based on directness, fact and logic while their Eastern counterparts care for relational concern and make decisions based on personal relationship, which generally trigger plagiarism behavior. According to Peled et al. (2018), in high uncertainty avoidance culture where people have a lower tolerance of risk, learners would be reluctant to engage in deviant behaviors and consequently avoid plagiarism act. Conversely, people in low uncertainty avoidance culture may engage in deviant behaviors such as plagiarism due to their higher tolerance of risk. Hence, it is very important, if not essential, to investigate the determinants of plagiarism and their effects on total quality management in institutions of higher learning, which is the main aim of this study.

THEORETICAL UNDERPINNINGS

This study employed the Deterrence and Social Learning theories to investigate the determinants of plagiarism as its theoretical framework. According to the Deterrence theory, involvement in plagiarism acts may largely depend on the sanction system especially in the enforcement of the rules and guidelines. According to studies (Ogilvie & Stewart 2010; McCabe & Trevino 1993), the three primary threat perceptions that influence whether an individual will engage in deviant behaviors include perceptions of sanction certainty, severity and celerity. Deterrence theory emphasized that for plagiarism or any deviant behaviors to be curbed, perpetrators must perceive that they will be caught and prosecuted, and severe punishments will be imposed on them. Hence, an individual would compare and contrast the certainty, severity and celerity in a given situation on one hand and the benefits of engagement in such act on the other. It is firmly believed that the engagement in the act will be more likely when the expected benefits outweigh the risk and severity of sanction (Ogilvie & Stewart 2010; McCabe & Trevino 1993). Furthermore, the social learning theory suggests that academic plagiarism act may also be influenced by plagiarists' perceptions of their peer behavior (McCabe & Trevino 1993). It also postulates that human beings learn through "the influence of example" (Bandura 1986, p. 527). Therefore, when the learners discovered that their academic colleagues have been rewarded or receiving normal or no punishment for their involvement in plagiarism acts, their inclination to this ruinous crime would be enhanced and they too will consequently commit it.

Conversely, the Zone of Proximal Development theory (ZPD) developed by Vygotsky suggests that through an effective guide, high supports and constructive comments, learners would perform their ultimate ability and achieve their desired goals. According to the theory of Scaffolding which becomes synonymous to the ZPD, when guardians provide adequate information, feedback, and concrete comments as well as modeling skills and provide hints and clues to trigger ideas, it would enhance the learners' morale, autonomy and skills, and ultimately this would propel them to achieve their targeted goal (Copple & Bredekamp 2009; Wood et al. 1976). Vygotsky delineated scaffolding as a means for growth, where learners complete small, less challenge and manageable steps in order to reach the goal under supervision and guardians of skilled instructors or more knowledgeable peers. These theories collectively indicated the pivotal role of supervisors and supervisor committee to guide their students and provide adequate support, feedbacks and necessary information to enhance students' writing skills that would eventually reduce their inclinations towards plagiarism acts. Hence, it is hypothesized that when the supervisors provide constructive and concrete feedbacks, commenting on their supervisees' academic works and allocating time to discuss with them, as well as showing them the authentic way to success, the students would avoid committing plagiarism in their writing processes, as they have learnt the way to success without resorting to it.

DETERMINANTS OF ACADEMIC PLAGIARISM

Many factors have been documented across disciplines to have been the triggers of students' plagiarism intention and subsequently their plagiarism behavior. Although behavior could not be solely attributed to intention because their many behaviors happened unintentionally, an actual behavior is an outcome of psychologically predetermined intention. The factors believed to trigger plagiarism are whether personal factors such as motivation, lack of knowledge of what constitutes plagiarism, lack of research skills, personality trait or environmental factors such as cultural differences, peers' behaviors, lack of constructive feedback, and situational

factors such as instructors' or supervisors' goal structures (Imran & Ayobami 2011; Yang et al. 2013; Yu et al. 2016; Giluk & Postlethwaite 2015; Beasley 2014; Anderman 2007; Rinn et al. 2014; Peled et al. 2018).

Specifically, it is strongly believed and empirically supported that master goal structure (instructor/supervisor goal adopted) enhances the students' learning outcomes. Eric et al. (2017) ascribed goal structure to the instructor behavior whether to enhance their mastery goal orientation or to diminish it. One major feature of mastery goal orientation is that the instructors (supervisors) emphasize on acquirement of knowledge, put forth efforts, face academic challenges and accept temporary failure as opportunities to improve (Eric et al. 2017). This type of instructor gives adequate and constructive feedbacks which eventually boost the students' academic performance. Studies found that mastery goal structure dramatically reduce students' inclination towards plagiarism (Park 2003; Eric et al. 2017). Park (2003) also asserted that students are likely to cheat when they believe that their instructors would not bother to read their project and provide constructive comments.

Moreover, a pool of research indicated that ethical sensitivity towards plagiarism varied across different societies (Park 2003; 2004; Pirneci et al. 2015; Ison 2014; Nash 2018). Traditionally, plagiarism was a virtue across different cultures because it was considered as a constructive imitation (Pirneci et al. 2015; McCabe et al. 2008). However, this view is totally rejected in the modern life. There are many academic research that investigated plagiarism phenomenon in mixed-culture contexts. Ives at al. (2017), McCabe et al. (2008), and Rawwas et al. (2004) found students' cultural backgrounds are consistently related to their plagiarism tendencies and plagiarism behaviors. More specifically, Aljurf et al. (2019) also found that cheating and particularly plagiarizing is more pervasive in Arabic countries compared to their Western counterparts. Nash (2018) also discovered that plagiarism is very common among Arab students compared to the Americans. According to this study, the main reasons for this prevalence are cultural underpinning, lack of research skills, language barriers, peers' behavior, certainty of not being caught or little repercussion and tolerance for plagiarism in some societies. Consistently, Ibegbulam and Eze (2015) in their study conducted on Nigerian samples discovered that overwhelmingly majority of their respondents have low understanding of what constitute of plagiarism. It was found that people from high-uncertainty avoidance culture were unlikely to commit plagiarism unlike their low-avoidance culture equivalents.

Plagiarism and Total Quality Management

Plagiarism is believed to have devastating consequences not only on perpetrators or plagiarizers such as embarrassment and punishment, but its consequences fall upon the institutions and society at large. Among the consequences of plagiarism if it is not properly handled is that the institutions of higher learning would produce graduates who are most likely not able to carry out their responsibilities and manage the challenges facing them. One of the pivotal functions of institutions is to prepare learners for their future roles and equip them with necessary knowledge and adequate skills to effectively play their parts in the development of the society. If these students by illegal way graduate without adequate knowledge and skills, they would not be able to serve the taxpayers. Plagiarism is found to have treacherous effects on organizations' continuous improvement and image, future academic performance, employees' work ability, and total quality management.

Furthermore, Teodorescu and Andrei (2009) affirmed that long-term effects of plagiarism are more devastating, because it directly and fundamentally impacts youths' attitudes, their work habits and inculcate into them questionable ethical foundations. In addition, plagiarism would promote dysfunctional academic personnel, fake academic titles, contaminate values system, psychological wellbeing and total quality management.

Proposed Model

The researchers proposed in the current study, six predictors for intention to engage in plagiarism act based on previous studies. These factors are lack of research skills, severity of punishment, cultural differences, certainty of not being caught, peer behavior, and lack of feedback from the supervisor. These factors have been hypothesized to be the triggered intention to plagiarize which consequently led to plagiarism behavior. Moreover, plagiarism behavior is hypothesized to negatively affect the total quality management (continuous improvement, academic performance, and work ability) (see figure 1).

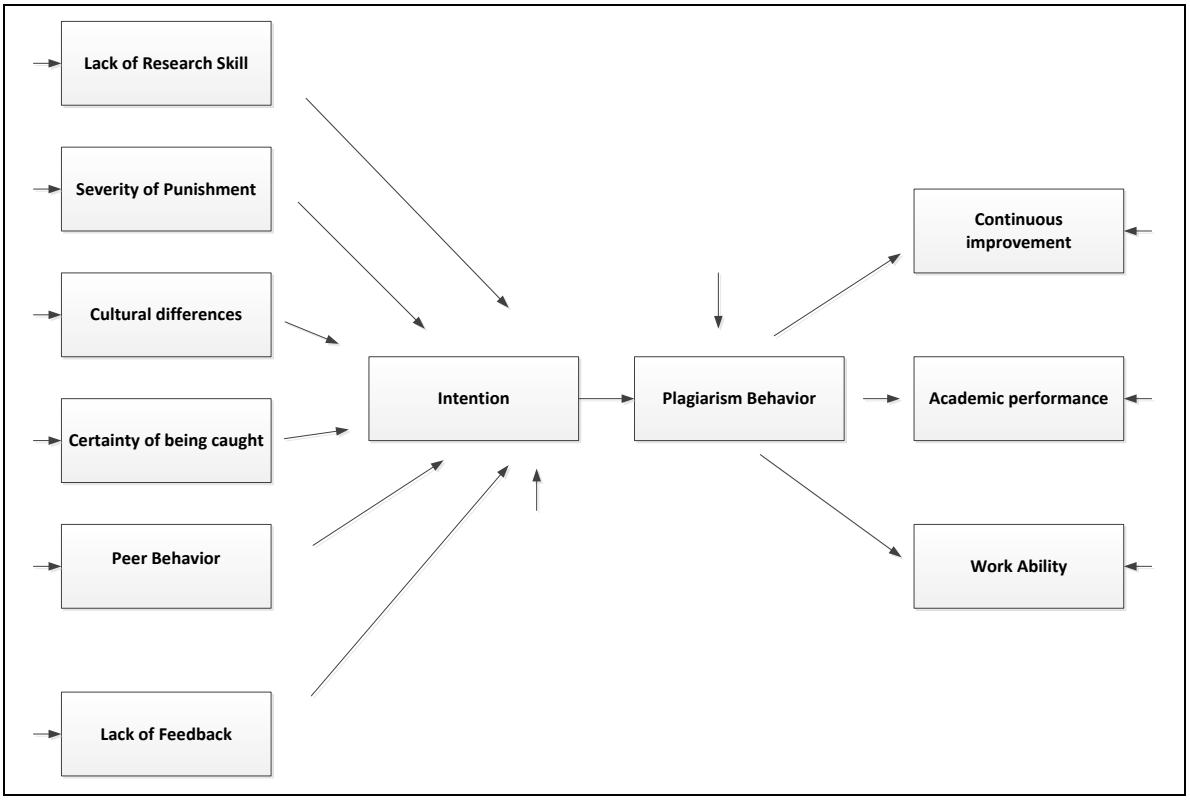

FIGURE 1. Proposed model

METHODOLOGY

RESEARCH DESIGN

This study is a quantitative study and employed the cross-sectional survey design. This designed was used because it is one of the most efficient methods to collect a large sum of data in minimal amount of time (Creswell & Creswell 2017). The study was conducted in the campus premises across the targeted institutions. The participants were informed about the general nature of the study, gave their consents, and assurances were given that their anonymity and confidentiality would be strictly maintained. The participants were then asked to complete the self-reported survey that combined three constructs, eleven factors and five demographic variables. This study has obtained ethical approval and permission to conduct from the institutions where this study was being conducted.

PARTICIPANTS

A number of 768 postgraduate students from selected Malaysian, Nigerian and Omani universities voluntarily participated in this study. The participants were selected following the quota sampling technique, where the desired sample size for the targeted groups was identified to be representative of the group. Quota sampling is a purposive sampling technique, where the researchers attempt to purposively collect data from a homogenous group to improve the representativeness of any particular group across different strata. The researchers firstly identified the general categories for the targeted cases and then selected the sample size based on predetermined number of cases in each stratum. Thus, the size of the quota for each stratum is generally proportionate to the size of that stratum in the population. Therefore, 250 respondents (32.6%) were selected from Malaysian (International Islamic University of Malaysia and

Islamic Science University of Malaysia) and Nigerian institutions (University of Lagos and University of Ilorin) respectively, while 268 participants (35%) were selected from Omani universities (Sultan Qaboos university and Open University of Oman).

DATA COLLECTION METHOD

This study used a questionnaire to collect data. Four relevant scales were adopted from past studies to develop the questionnaire used. The first scale was academic dishonesty scale by Witherspoon et al. (2010) to test the extent to which the learner is involved in academic plagiarism. Using Exploratory Factor Analysis (EFA), the items of the scale were loaded on three distinctive factors, namely, copying the ideas of others, copying texts from the Internet, and copying texts from other sources respectively. The internal consistency of the scale was tested via the Cronbach's Alpha coefficient and obtained a range between .80 to .86 for the three dimensions respectively, which indicates that it is fit to use for any meaningful research activity. Moreover, the intention to plagiarize scale was also adopted from Mayhem et al. (2009), which consists of 5 items measuring students' willingness to plagiarize. The scale constructed is based on Beck and Ajzen's planned behavior theory (1991), which attempts to predict and fully understand the motivational effects of individual's actions that are not fully controlled and understood, and how to identify strategies to change this individual behavior. The planned behavior scale consisted of 20 items and was statistically categorized into four dimensions through EFA: attitude towards behavior, subjective norm, perceived behavioral control, and moral obligation. However, only four items related to intention to cheat were selected for this study. The internal consistency of the scale was found to be psychometrically sound and appropriate to be used for academic research (Cronbach's alpha of .91). In relation to academic plagiarism indicators, McCabe and Trevino scale (1997) was adopted and two factors related to the current study were selected which are acceptance of academic integrity policy and peer behavior. The acceptance factor for academic integrity policies was measured by four items. The factor measures the extent that students understand the university polies regarding the academic integrity policy and their readiness to accept them. The items within the factor also measure the effectiveness of these policies in reducing academic plagiarism among students. Another three items were chosen from McCabe and Trevino scale (1997) to measure peer behavior factor. These items measure the frequency and prevalence of plagiarism or academic fraud in the universities to which the participants belong to.

In the second section of the academic Plagiarism Indicators, the researchers designed a measure of the following five factors: lack deterrent punishment, feedback, lack research skills, student cultural differences, and impunity (certainty not being caught). This scale consists of 25 items, and each factor is measured by 5 items. The internal consistency of the scale was tested by the Cronbach's Alpha coefficient and obtained the value of .89 and above, which indicates that the scale is suitable for any research activities. In order to measure total quality management, self-reported scale with 40 items was constructed to measure the construct. However, using EFA technique, the items were eventually reduced to 16. These items were loaded into three distinctive factors; namely job ability, educational performance, and continuous improvement. The consistency of this internal measure was tested by the Alpha coefficient which ranged between .88 to .94, indicating that the internal consistency of the scale holds, and items were coherent. To construct valid and reliable items, the researchers reviewed the past studies concerning with the constructs and their dimensions in which the constructed items were based were extracted. Based on many studies suggestions, many items were constructed, and experts' comments were obtained before pilot test exercises.

These items were then compiled in a single questionnaire format with 5 demographic variables such as gender, age, university, educational level and nationality before it was distributed to the target participants. The number of items on the scale was 74 with 5 questions relating to personal information. Taking into account the internal environment of the sample, the scale was translated using the back-translation method into two languages: Arabic and Malay (first translated from English to Malay or Arabic and re-translated from Malay or Arabic to English) by different experts to make sure that meanings and ideas are fully and properly transmitted. Hence, three types of questionnaires were then distributed: English, Arabic and Malay.

DATA ANALYSIS METHOD

Multivariate analyses have fundamental assumptions to be fulfilled before the results could be meaningfully interpreted and generalized. Initially after data collection, data were screened to identify possible existence of missing data and outliers. The result of analysis indicated a lack of evidence of systematic missing data and outliers. Moreover, univariate normality of the data set was examined via assessment of

skewness and kurtosis. Interestingly, the results also suggested that the univariate assumption of normality holds for all concerned factors since the values of the skewness and kurtosis within the margin of ± 2.0 based on the suggestion of practitioners (George & Mallery 2010; Trochim & Donnelly 2006; Gravetter & Wallnau 2014; Field 2000). Further analysis was conducted to additionally explore the univariate normality via Kolomogrov-Shimornov and Shiparo-Wilk, whereby the results of analysis were also consistent with previous results, which indicated that normality assumption was maintained. Although the univariate normality assumption holds for dimensions of the study, multivariate assumption was also tested because an inspection of univariate assumption does not guarantee that multivariate assumption holds.

Linearity assumption: The validity of inferences established in multivariate statistical test result heavily relies on the extent the data have fulfilled the fundamental assumptions. One of the most significant requirements of structural equation modeling (SEM) is the linear relationship between the indicators and the latent variables. SEM assumes that the relationships between these two components are linear. A violation of this significant assumption would be a threat to the statistical analyses in general and structural equation in particular because of its severe consequences on the estimation of the model fit. SEM as many as the parametric statistical methods assumes linearity between pairs of continuous variables. According to Tabachnick and Fidell (2001) linearity is a very important assumption due to the fact that Pearson's r which is essential to the vast majority of parametric statistical procedures, captures only the linear relationship among the variables. The linearity assumption for the present data was examined via a studentized residual plot (SRED) in the Multiple Linear Regression. A visual inspection of the scatterplot suggested that the scores were visually clustered along the regression line and scattered with no distinct pattern, suggesting that the assumption of linearity is found to be tenable.

Moreover, Maximum Likelihood (ML) approach was used to estimate the proposed model. ML assesses the discrepancies between the observed variance and covariance and the corresponding reproduced value resulting from the model estimates. ML assumes that observed covariance is drawn from the population. When the discrepancies between the observed and the reproduced value is small, that suggests the best fit of the model. A fitting function which equals to zero indicates a perfect fit of the model. It is primarily aimed to examine the extent, which the postulated structure is actually consistent with the empirical data at hand. Since the current study has a sample size (n =768) employment of ML is more appropriate in providing accurate, consistent and efficient estimations with smallest standard errors among all consistent estimators and distributed them normally. As was previously hinted, SEM with maximum likelihood was used to examine the complex relationships between exogenous, endogenous and moderation variables.

Goodness of fit indices are presented in Table 2 with their respective Chi-Square, df and p-value. Additionally, other indices such as GFI, AGFI, NFI, TLI, CFI and RMSEA are also presented. According to statistical practitioners (Byrne 2011; Kline 2012) GFI, AGFI, NFI, TLI, CFI value of $\geq .90$ and RMSEA of less than .05 are generally considered to suggest a good fit between a proposed model and the data.

FINDINGS

CORRELATION AMONG THE FACTORS

One of the fundamental requirements of meaningful employment of SEM is that correlation among the relevant factors must be established (See Table 1). However, to avoid the problem of multicollinearity, the relationships among the factors should be moderate especially among the exogenous variables. In the current study, the result of Pearson correlation showed moderate statistical relationships among all concerned factors. As it was shown in Table 1, all the observed variables were significantly correlated. The values of the correlation ranged between positive and negative. It was found that, intention to plagiarize was statistically and positively correlated with the lack of research skills (LRS), severe punishment, cultural differences, certainty not being caught, peer behavior and feedback ($r = .705$, $p = .001$; $r = .583$, $p = .001$; $r = .593$, $p = .001$; $r = .606$, $p = .001$; $r = .633$, $p = .001$ and $r = .627$, $p = .001$) respectively. Furthermore, the intention to plagiarize was statistically and positively correlated with plagiarism behavior ($r = .789$, $p = .001$), while plagiarism behavior was statistically but negatively correlated with continuous improvement ($r = .687$, $p = .001$), academic performance ($r = .672$, $p = .001$), and work performance $r = .645$, $p = .001$. These moderate correlation values justified the usage of SEM for this study due to the fact that concerned constructs were fairly related while on the other hand suggested lack of multicollinearity problem.

TABLE 1. Zero-order Correlations among Factors.

Variable	1	2	3	4	5	6	7	8	9	10	11
LRS											
S_Punishment	.664**										
Culture_D	.642**	.838**									
Certainty_x_caught	.657**	.776**	.741**								
Peer_behavior	.671**	.830**	.783**	.786**							
Feedback	.639**	.544**	.573**	.568**	.572**						
Intention	.705**	.583**	.593**	.606**	.633**	.633**					
Plagiarism_B	.711**	.611**	.616**	.617**	.647**	.647**	.627**				
C_Improvement	.669**	.638**	.613**	.690**	.662**	.602**	.657**	.687**			
A_performance	.675**	.661**	.642**	.731**	.679**	.609**	.685**	.672**	.740**		
Work Ability	.662**	.616**	.630**	.653**	.646**	.640**	.639**	.645**	.670**	.736**	
Mean	3.05	2.95	2.91	2.92	3.15	2.27	2.46	2.34	2.80	2.92	3.10
SD	1.25	1.27	1.80	1.18	1.25	.96	1.12	1.05	1.09	1.11	1.23

Note: LRS = Lack of Research Skills, S_punishment = Severe Punishment, Culture_D = Cultural differences, Certainty_x_Caught = Certainty of not being caught, C_Improvement = Continuous Improvement, A_Performance = Academic Performance, W_Ability = Work Ability. N = 768, p = .001

TABLE 2. Goodness-of-fit Indices for the CFA, Baseline and Bootstrapping Models.

Model	χ^2	df	P	GFI	AGFI	TLI	NFI	CFI	RMSEA
1st CFA	1044.388	770	.001	.942	.935	.982	.983	.983	.020
2nd CFA	1055.315	803	.001	.965	.957	.983	.963	.985	.028
3rd CFA	412.709	58	.001	.910	.907	.908	.919	.921	.051
Baseline Model	1943.835	678	.001	.901	.893	.933	.953	.951	.055
Final model (Bootstrapping Model)	1731.722	114	.001	.966	.936	.967	.972	.958	.064

RESULTS OF MEASUREMENT MODEL

Before the commencement of structural equation analysis, the measurement model of the concerned constructs was initially analyzed, and appropriateness of the model was established. Three measurements were conducted to test the quality of each item before the items were combined in a summated scale as suggested by many researchers (Hair et al. 2010). Hair et al. (2010) strongly recommend that measurement model should be conducted prior to formulation of summated scale for SEM. Interestingly, the measurement model analysis suggested χ^2 (164, 363) 1044.388, p =. 001 (GFI = .942, AGFI = .935, TLI = .982, CFI = 983, RMSEA = .020, Confidence interval ranged between 000-.092. This result showed that measurement model for the first construct (predictors of plagiarism) was satisfactorily fit and accepted as the final measurement model. Furthermore, the second measurement model was conducted on two factors which are intention to plagiarize and actual plagiarism behavior. This analysis was also performed as pervious analysis to test the uniqueness of each item before the scale is used for SEM. The result of analysis suggested χ^2 (160, 363) = 1055, p .001, (GFI = .965, AGFI = .957, TLI = .983, CFI = .985, and RMSEA = .028). This result showed an accurate model fit and was eventually accepted as the final model. Finally, the last measurement model was performed on total quality management factors which consist of continuous improvement, work ability and academic performance. The aim of conducting the analysis was as the same as previous analyses; to psychometrically test individual item before a summated scale was used. The result of the analysis yielded χ^2 (58, 363) 412.709, p =. 001 (GFI = .910, AGFI = .907, TLI = .908, CFI = 921, RMSEA = .051, Confidence interval ranged between 000-.090. These

results indicated the authenticity of the concerned items and its suitability to be used for any subsequent SEM analysis.

TESTING DIRECT AND INDIRECT EFFECTS IN THE BASELINE STRUCTURAL MODEL

The proposed model was tested by combining all the measurement models together and simultaneously entered them into the equation after obtaining satisfactory measurement model results. As was previously highlighted, the measurement models were used for three major constructs, namely, determinants of plagiarism construct, intention and plagiarism behavior construct and total quality management construct. This conceptual structural model was formed based on strong theoretical foundation and literature review where determinants of plagiarism were found to be predicted by intention to plagiarize and subsequently leads to plagiarism behavior which negatively affects total quality management of higher institutions.

Maximum likelihood was used to estimate the parameters and all analyses were performed on variance-covariance matrix (n = 768 observations). According to Figure 1, determinants of plagiarisms (lack of research skills, severity of punishment, cultural difference, certainty not being caught, peer behavior and lack of feedback) predict intention to plagiarize, while these intentions lead to plagiarism behavior. Moreover, the figure also hypothesized that plagiarism behavior would negatively affect the total quality management of higher institution which is formulated to consist of three dimensions; continuous improvement, academic performance and work ability. To evaluate appropriateness of the proposed model, the researchers combined between absolute and relative fit indices (Hu & Bentler 1999). The robust chi-square (χ^2) test of exact fit and degrees of freedom (df) are provided for all models. However, because of oversensitivity of the (χ^2) to sample size and minor model misspecifications, common goodness-of-fit indices were also adopted and interpreted, such as Goodness-of-fit Index (GFI) adjusted goodness-of-fit Index (AGFI), Incremental fit indices, (IFI), Normed Fit Index (NFI), the comparative fit index (CFI), the Tucker-Lewis Index (TLI), the root mean square error of approximation (RMSEA). Values ≥.90 and above for these indices considered to indicate adequate and excellent fit to the data, whereas values ≤.08 or .06 for the RMSEA respectively support acceptable and excellent model fit (Hu & Bentler 1999; Marsh et al. 2005).

The results of theoretical baseline model suggested a significant model chi-square χ^2 (678, 363) = 1943.835, p = .001 indicating that the observed and model-implied covariance matrices may be significantly different. However, due to highly susceptible to sample size especially when it larger than 200 other indices were used to assess the goodness of the model. Based on the cut-off values suggested by Hu and Bentler (1999), the model was reasonably fit with GFI = .901, AGFI = .893, TLI = .933, NFI = .953, CFI = .951, and RMSEA = .055. These indices suggested that the proposed model adequately fit the data. Moreover, the results indicated that the academic plagiarism was predicted by intention factor (r = .63, p = .001), which was also predicted by determinants of plagiarism factors. However, the baseline analysis suggested that plagiarism behavior negatively affected total quality management.

The results of analysis indicated that lack of supervisors' feedback (β = .51, p = .001), certainty of not being caught (β = .68, p = .001), peer behavior (β = .66, p = .001), severity of punishment (β = .58, p = .001) and lack of research skills (β = .56, p = .001) were the major determinants of intention to plagiarize respectively. Additionally, the results also suggested that cultural differences play significant role in intention to plagiarize (β = .40, p = .001) which means that different culture manifests different behavior towards plagiarism. The factor loadings for the items were ranged between .52 to .81, while total variance explained for the factors were ranged between .56 to .80 which indicated that the items perfectly targeted the constructs they measured (See figure 2).

BOOTSTRAP ANALYSIS FOR DIRECT AND INDIRECT RELATIONSHIP

Due to the complexity of the model and involvement of mediator variables, the researchers decided to employ Bootstrap analysis. The calculation of the contribution of indirect effects based on Z-score required the sample data to be normally distributed. However, since it is empirically proven that normality is merely a myth that is difficult to be realized and achieved especially when the assessment of indirect effects is based on multiplicative of regression weight of independent and mediator variables (Kline 2016); hence, the effects of indirect effect might be statistically biased. Therefore, to overcome the problem of normality biasness, Shrout and Bolger (2002) proposed that bootstrapping technique should be employed to investigate the contribution of indirect effects in the model. Bootstrapping is a data-based simulation that considers sample size as a pseudo population to generate a certain number of bootstrap samples through random sampling with replacement. So, this bootstrap resampling approach was used to test the stability and generalizability of the proposed model and

precise contribution of indirect effect into the general total variance explained of the model.

A normal sampling distribution is a prerequisite requirement for using Z score to estimate indirect effects in SEM (Sobel 1982). However, as an indirect effect is multiplicative, the normality of its sampling distribution is not guaranteed and even seldom normally distributed (Zhang & Koda 2012). Therefore, the reported indirect effect in baseline moderator might be biased and consequently could not be meaningfully generalized. The Multivariate normality assumption was then tested through AMOS software, the Mardia's test coefficient (1970) of multivariate kurtosis was 198.122 with a critical ratio of 277. 764 which indicated non-normality of the data.

The bootstrap analysis based on the structural model showed evidence of good fit and remarkable stability across the 2000 iteration. In addition, 2.5% and 97.5% of percentile scores were requested to generate 99% confidence interval to estimate the effect of indirect variable. The chi-square's value with its degree of freedom was significantly reduced (χ^2 = 1731.722, df = 144). Furthermore, the analysis also suggested that the goodness of fit indices was significantly improved and above the recommended value threshold of $\geq$ .90; AGFI = .966, AGFI =.936, NFI = .972, CFI = .958, TLI = .967, IFI = .972 and RMSEA = .064. Although the RMSEA value slightly above the optimal value of $\leq$ .05, it is still significantly below recommended cut-off .08. The bootstrap standard errors for each regression weight are presented in table 3. The table lists the bootstrap estimate of the standard error for each of the independent variable in the model. Each value represents the standard deviation of the parameter estimates computed across the 2000 bootstrap samples. Statistically, the values of standards errors are to be compared with the values of approximate maximum likelihood estimates to accurately examine the uniqueness of the model. According to table 3, the values of standard error of standard error (SE-SE) indicated that standard errors of bootstrap were extremely small, suggesting the accuracy of the model estimation and the absence of discrepancy between the results of the bootstrap analysis and the original normal theory-based analysis.

Generally, the values of beta (β) also slightly improved for Bootstrap analysis compared to baseline estimation. Interestingly, all determinants of academic plagiarism were found to be statistically significant. More precisely, lack of supervisor's feedback was found to be the major predictor of intention to plagiarize (β = .78, p = .001) followed by certainty of not caught (β = .71, p = .001) and peer behavior (β = .66, p = .001). Moreover, severe punishment (β = .60, p .001), cultural difference (β = .42, p = .001) and lack of research skills (β = .56, p = .001) were also found to be significantly correlated with intention to plagiarize respectively. Furthermore, according to the analysis, the intention to plagiarize significantly predicted plagiarism behavior (β = .79) while plagiarism behavior was negatively and significantly correlated with work ability (β = -.68), continuous improvement (β = -.61, p = .001) and academic performance (β = -.51, p = .001) respectively and explained about 37% of its variance.

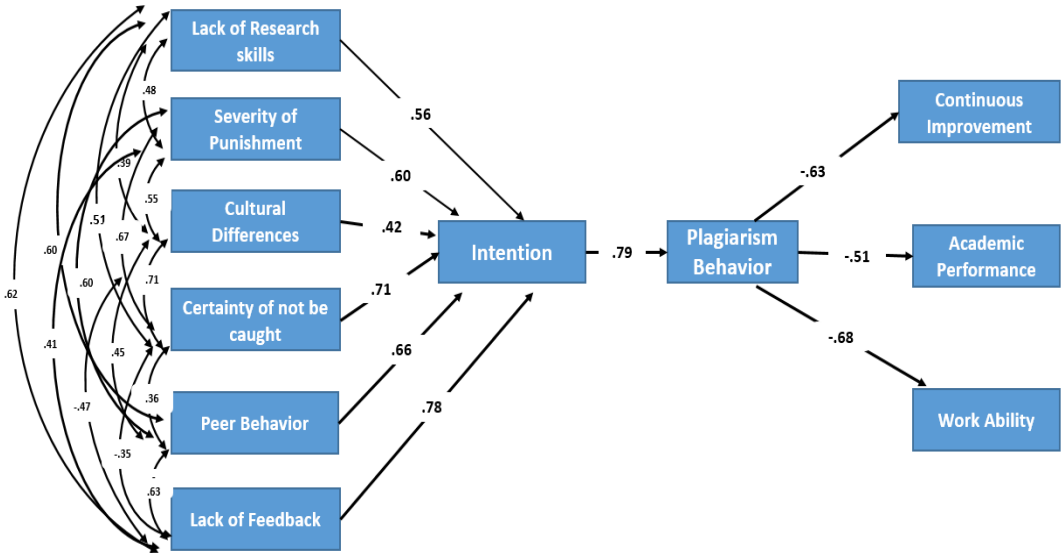

FIGURE 2. Structural equation modeling

TABLE 3. Bootstrap Standard Errors for the Structural Model Figure 3.

Parameter (Unstandardized)			SE	SE-SE	Mean	Bias	SE-Bias
Intention	←	Research Skills	.040	.001	.231	.001	.001
Intention	←	Punishment	.055	.001	.202	-.001	.001
Intention	←	Cultural differences	.038	.001	.126	-.001	.001
Intention	←	Certainity of not being Caught			.065	.001	.001
Intention	←	Peer Behavior	.032	.001	.232	.001	.001
Intention	←	Feedback	.045	.001	.097	.001	.001
Peer Behavior	←	Intention	.211	.001	.045	.001	.001
Continuous Improvement	←	Peer Behavior	.029	.001	.145	.001	.001
Academic_Perform	←	Peer Behavior	..043	.001	.067	.001	.001
Work Ability	←	Peer Behavior	.031	.001	.311	.001	.001

Note: LRS = Lack of Research Skills, S_punishment = Severe Punishment, Culture_D = Cultural differences, Certainty_x_Caught = Certainty of not being caught, C_Improvement = Continuous Improvement, A_Performance = Academic Performance, W_Ability = Work Ability.

DISCUSSION

The findings of this empirical study provide pivotal insights into the determinants of intention to plagiarize and actual plagiarism behavior among selected postgraduate students in three different countries with different cultures. The study asserted the importance of knowing the antecedent of plagiarism because when the reasons of plagiarism are known, the appropriate measure could be taken to curb this serious offence. Unfortunately, it seems that plagiarism is winning the war, despite regulations, penalties and severe punishment, this disastrous behavior is persisting and gaining ground. It was found that all predetermined determinants of plagiarism statistically predicted the intention to plagiarize and the actual plagiarism behavior. These findings are consistent with the underpinning theories described above (the deterrence theory and the social learning theory) and many previous empirical studies from different domains, settings and samplings (Park 2003; McCabe & Trevino 1993; Stone et al. 2010; Nash 2018; Bacon et al. 2019; Maloshonok & Shmeleva 2019; Simon et al. 2015). These studies suggested that when the atmosphere is conducive for plagiarism, the intention would arise, and actual plagiarism would certainly happen. For instance, Park (2003) found that students would likely be inclined to plagiarism and commit it when they observe that their instructors or supervisors would not bother to read, comment and closely supervise their projects. Additionally, peer behavior, impurity, lack of research skills, cultural differences and certainty of not being caught were also found to be immensely contributing to the intention to plagiarize and subsequent plagiarism behavior (Maloshonok & Shmeleva 20019; Simon et al. 2015; Mccabe et al. 2008; Giluk & Postlethwaite 2015; Beasley 2014; Rinn et al. 2014; Peled et al. 2018).

Furthermore, researchers also found that the threat of penalty and severe punishment if guilty of plagiarism significantly curb plagiarism behaviors among students (Maloshonok & Shmeleva 2019; Simon et al. 2015; Imran & Ayobami 2011; Yang et al. 2013; Yu et al. 2016). This finding is consistent with the deterrence theory which emphasizes that for misconduct to be prevented, the perpetrators must perceive that they will be caught, and severe punishment will be imposed on them if they are found guilty. This would lead to a decrease of misconduct because many individuals are not willing to risk it. According to the deterrence theory, learners' inclination towards plagiarism would increase when the benefits they have accomplished outweigh the possible sanctions and punishment (Ogilvie & Stewart 2010; McCabe & Trevino 1993). In relation to peer behavior and culture differences, it was found that they also boost plagiarism behavior. Since learning acquisition often occurs through observation of others and or reinforcement from others, seeing colleagues successful through back doors of plagiarism would enhance the tendency of other students to behave in similar way (McCabe & Trevino 1993). Consistent with

the social learning theory, plagiarism act is learned and enhanced through the acceptance and reinforcement of cheating in peer groups. If learners found that their colleagues have been successful in cheating, this would enhance their inclination towards cheating without an iota fear of been caught, prosecuted, and punished.

Mccabe et al. (2008) and Rawwas et al. (2004) found cultural background plays a significant role in plagiarism. According to them, many Arab students do not understand what constitutes the plagiarism act and they do not know that direct copying from sources without paraphrasing is an act of plagiarism. Aljurf et al. (2018) unequivocally asserted that academic cheating and plagiarism were more pervasive among Arabs compared to their Western counterparts and they ascribed that to different cultural underpinnings. Similarly, Ibegbulam and Eze (2015) also found that a majority of Nigerian students have low understanding of what constitutes plagiarism, which translated to high magnitude of committing this devastating crime.

On the other hand, this study found that plagiarism behavior to be negatively related to total quality management. Unsurprisingly, plagiarism would enormously affect institutions' total quality due to the fact that when a student graduates, heor she would not be able to perform his or her responsibilities. In accordance with this finding, Teodorescu and Andrei (2009) also found that the effects of plagiarism are very destructive for both perpetrators and society. According to them, the plagiarism effect is not only limited to the embarrassments and severe punishment if the perpetrator is caught, but more than that, it causes great damage on the youths' attitudes, work habits and infuse questionable ethical foundations to future generations.

CONCLUSION

This study investigated the determinants of plagiarism and their effects on total quality management in institutions of higher learning. This research has found that the determinants of plagiarism have a direct relationship with the intention to plagiarize and an indirect relationship via plagiarism behavior. It is also found that plagiarism behavior significantly and negatively affects total management quality. However, more importantly, this study has also indicated that the danger of plagiarism act is not restricted to the perpetrators alone but also affects the total quality management of the institutions by suppressing continuous improvement, destroying work ability, and spoiling students' academic performance. The study also suggests a number of possible implications for instructors and institution administrators. Due to high prevalence of plagiarism in many institutions of higher learning and the danger that academic cheating poses on total quality management, highlighting the determinants of plagiarism is extremely essential. Understanding these factors can help to reduce incidence of plagiarism at institutions, ensure the integrity of the degrees they offer and strengthen their brands and the credibility of higher education systems. Furthermore, results have also shown that when instructors or supervisors are reading students' work and making constructive comments, the possibility of plagiarism act is drastically diminishing. Also, when perpetrators are facing severe punishments when they are found guilty of plagiarism, it would send a good signal to the others that the act is unacceptable. Despite its practical and theoretical contributions, this study has its limitations too. One of the major limitations of this study is that the data were self-reported. Although self-reported data have been used extensively in empirical research on plagiarism, it poses challenges to the researchers in terms of its validity and reliability. In self-reported measure, sources of errors are varied, and the response bias concerned is real; hence, future studies should adopt other measurement approaches and different data collection procedures. Another limitation is the quota sampling technique used to identify and select the participants. Quota sampling technique is purposive, non-random sampling technique, and despite that the technique seriously considers representative issue across strata, equal representation of the participants in the population still cannot be totally guaranteed. Finally, future studies may also identify other key features such as causal relationships among the complex constructs that are not evident in the findings of this study. Thus, it is strongly recommended that an experimental design or a longitudinal approach or a mixed method approach could be used to gain more knowledge antecedents of plagiarism and their effects on total quality management.

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