

DETERMINANTS OF PLAGIARISM IN PLAGIARISM BEHAVIOR AND THEIR EFFECTS ON TOTAL QUALITY MANAGEMENT IN A MULTICULTURAL STUDY

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ABSTRACT

Background and Purpose: Plagiarism is considered an epidemic and a complex problem faced by many students, lecturers and researchers at higher institutions across the globe. This study investigates the causal relationships between the predictors of Plagiarism on the one hand and the intention to plagiarize on the other. It also aims to study the roles of intention to plagiarize in plagiarism behavior and, consequently, the effects of plagiarism behavior on total quality management.

Methodology: Seven hundred sixty-eight postgraduate students from Malaysian, Nigerian and Omani higher institutions voluntarily participated in this study following the quota sampling technique. Structural Equation Modeling (SEM) was used to analyze the data gathered.

Findings: The 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. The analysis also indicated that plagiarism behavior was statistically and negatively correlated with total quality factors, namely continuous improvement, academic performance and work ability.

Contributions: Overall, this study showed that plagiarism negatively affects the total quality management in higher institutions, thus requiring an urgent response from the institution's authority. Plagiarism has a variety of fatal consequences for the student as an individual and the institution at large.

Keywords: Plagiarism behavior, Total Quality Management (TQM), multicultural context.

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1.0 INTRODUCTION

Academic plagiarism has become a global pandemic that pervades higher institutions worldwide (International Center for Academic Integrity, 2016; Lin & Wen, 2007; McCabe & Trevino, 1993; McCabe et al., 2001). It is considered a prominent academic and moral crime that many students, researchers and academicians have recently committed (Owunwanne et al., 2010; Taradi et al., 2010; Vandehey et al., 2007). Plagiarism is an epidemic that invades almost all learning organizations, whether public or private (Maloshonok & Shmeleva, 2019; Eric & Won, 2017). It is perpetrated by the big and the small, the students and professors at all levels, whether unintentionally or by intention (Park, 2003).

Although plagiarism has been defined in different ways, all definitions have described it as an act of adopting or copying other people's ideas, thoughts or inventions without properly attributing or referring to the original sources, fabricating data, purchasing the research paper and paying 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 offence is considered a flagrant violation of people's rights, consciously or unconsciously (Park, 2003; Goh, 2015). It is worth noticing that this heinous operation has been labelled under several terms in the Arab-Islamic heritage, including but not limited to skinning, scientific theft, literary piracy, and scientific robbery. The terminologies used in the modern Western academic milieu to describe unauthorized and misappropriation of ideas are not totally different from what has been found in Islamic heritage; such as non-native sin (Colon, 2001), sin against scientific originality, violation of human rights, theft of intellectual property, or assault on

individual identity, property theft, forgery, theft of ideas, and organized misconduct (Park, 2003).

Studies indicated that plagiarism is not limited to the academic zone but also in many professional settings such as politics, journalism and media, science and technology (e.g. Park, 2003; Colon, 2001). However, academic plagiarism is more dangerous, and its consequence is more severe because the academic institution is where morals and virtues are inculcated and transmitted to the next generations. It is also believed that the danger of academic plagiarism lies not only in irresponsibly conveying the ideas of others, infringing on their intellectual property, harming the integrity of the impersonator himself, and hindering the process of personal learning and learning of others, but also leading to other kinds of atrocity such as embezzlement, and financial frauds (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 strengthening the entire education system globally. Conversely, underestimating the danger of plagiarism in higher institutions would have disgraceful effects on the perpetrators and the image of the whole institution because it would be implicitly translated to morally supporting the violation and wrongdoing. Additionally, when plagiarists succeed, it encourages others to follow their steps. Bacon et al. (2019) argued that plagiarism might go beyond the moral issue to be a practical and societal problem because if the end can justify the mean for a student and can cheat to achieve his own goal, this implies that he acquires less during his academic endeavour 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 suggest that 30% to 81% of the students in higher institutions have engaged in various forms of academic plagiarism during their learning endeavors (Eric & Won, 2017). More remarkably, Jones (2011) found that 92% of surveyed students reported that they had cheated at least once or knew someone who had cheated before. Similarly, Ison (2014) investigated 368 dissertations and compared them in terms of dissertations written by online students versus on-campus following the traditional framework. He discovered that 61% of online 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 cultural comparison of plagiarism is beyond the scope of this study, it should be stressed that plagiarism behavior varies across different cultures (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 tolerant of plagiarism and more likely to be involved in academic cheating than students from the USA and European countries. Moreover, Zafarghandi et al. (2012) also suggested that plagiarism in Western societies is lower than in their Eastern counterparts. According to the authors, Western societies exhibit a strong emphasis on external rules and make decisions based on directness, fact and logic, while their Eastern counterparts care for relational concerns and make decisions based on personal relationships, which generally trigger plagiarism behavior. According to Peled et al. (2018), in a high uncertainty avoidance culture with lower risk tolerance, learners are reluctant to engage in deviant behaviors and consequently avoid plagiarism. Conversely, people in low-uncertainty avoidance cultures may engage in deviant behaviors such as plagiarism due to their risk tolerance. Hence, it is vital, if not essential, to investigate the determinants of plagiarism and their effects on total quality management in institutions of higher learning.

2.0 LITERATURE REVIEW

2.1 Theoretical Underpinnings

This study has employed the Deterrence and Social Learning theories to investigate the determinants of plagiarism and their effects on total quality management as its theoretical framework. According to the Deterrence theory, involvement in plagiarism acts may largely depend on the sanction system, especially the enforcement of the rules and guidelines. According to Ogilvie and Stewart (2010) and McCabe and 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 emphasizes 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 the one hand and the benefits of engagement in such an act on the other. It is firmly believed that engagement in the act will be more likely when the expected benefits outweigh the risk and severity of the sanction (Ogilvie & Stewart, 2010; McCabe & Trevino, 1993).

Furthermore, the social learning theory suggests that academic plagiarism may also influence plagiarists' perceptions of their peer behaviour (McCabe & Trevino, 1993). It also postulates that humans learn through "the influence of example" (Bandura, 1986, p. 527). Therefore, when the learners discover that their academic colleagues have been rewarded or receive regular or no punishment for their involvement in plagiarism acts, their inclination to this ruinous offence would be enhanced, and they, too, consequently commit it.

Conversely, the Zone of Proximal Development theory (ZPD) developed by Vygotsky suggests that the learners would perform their ultimate ability and achieve their desired goals through a practical guide, high support and constructive comments. From the scaffolding perspective, when more-knowledgeable others (MKO) provide adequate information, feedback, concrete comments, modeling skills, hints or clues, it would enhance the learners' morale, autonomy, and skills, and ultimately achieve their targeted goal (Copple & Bredekamp, 2009; Wood et al., 1976). Vygotsky defined scaffolding as a means for growth, where learners complete small, less challenging, and manageable steps to reach the goal under the supervision and guardianship of skilled instructors or more knowledgeable peers. These theories collectively indicated the pivotal role of supervisors and supervisor committees in guiding their students and providing adequate support, feedback, and necessary information to enhance students' writing skills, which would eventually reduce their inclinations towards plagiarism acts. Hence, it is hypothesized that when the supervisors provide constructive and concrete feedback, comment on their supervisees' academic works, and allocate time to discuss with them, the students will avoid plagiarism in their writing processes.

2.2 Determinants of Academic Plagiarism

Many factors have been documented across disciplines as the triggers of students' plagiarism intention and, subsequently, their plagiarism behavior. Although behavior could not be solely attributed to intention because many behaviors happen unintentionally, actual behavior results from psychologically predetermined intention. The factors believed to trigger plagiarism are either personal factors such as motivation, lack of knowledge of what constitutes plagiarism, lack of research skills, personality traits 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 a master goal structure (instructor/supervisor goal adopted) enhances the students' learning outcomes. Eric

and Won (2017) ascribed goal structure to instructor behavior, whether to strengthen mastery goal orientation or to diminish it. One prominent feature of mastery goal orientation is that the instructors (supervisors) emphasize acquiring knowledge, putting forth efforts, facing academic challenges and accepting temporary failure as opportunities to improve (Eric & Won, 2017). This instructor gives adequate constructive feedback, eventually boosting the students' academic performance. Studies found that mastery goal structure dramatically reduces students' inclination toward plagiarism (e.g. Park, 2003; Eric & Won, 2017). Park (2003) also asserted that students are likely to cheat when they believe 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 (e.g. Park, 2003, 2004; Ison, 2014; Nash, 2018). Traditionally, plagiarism was a virtue across different cultures because it was considered a constructive imitation (McCabe et al., 2008). However, this view is rejected in modern life. Many academic studies investigating the plagiarism phenomenon in mixed-culture contexts (Ives et al. 2017; McCabe et al., 2008; Rawwas et al., 2004) found that students' cultural backgrounds consistently relate to their plagiarism tendencies and behaviors. More specifically, Aljurf et al. (2019) also found that cheating, particularly plagiarism, is more pervasive in Arabic countries than in their Western counterparts. Nash (2018) also discovered that plagiarism is more prevalent among Arab students than Americans. According to this study, the main reasons for this prevalence are cultural underpinning, lack of research skills, language barriers, peers' behavior, the certainty of not being caught or little repercussions, and tolerance for plagiarism in some societies. In their study conducted on Nigerian samples, Ibegbulam and Eze (2015) discovered that the overwhelming majority of their respondents do not understand what constitutes plagiarism. It was found that people from high-uncertainty avoidance cultures were unlikely to commit plagiarism, unlike their low-avoidance culture equivalents.

2.3 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 handled correctly, is that the institutions of higher learning would produce graduates who are most likely unable to carry out their responsibilities and manage the challenges. One of the pivotal functions of institutions is to prepare learners for their future roles and equip them with the necessary knowledge and adequate skills to play their parts in society's development

effectively. If these students graduate illegally without sufficient knowledge and skills, they cannot 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 the long-term effects of plagiarism are more devastating because it directly and fundamentally impacts youths' attitudes and work habits and inculcates questionable ethical foundations into them. In addition, plagiarism promotes dysfunctional academic personnel and fake academic titles and contaminates the values system, psychological well-being, and total quality management.

3.0 RESEARCH DESIGN

3.1 Participants

Seven hundred sixty eight 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 targeted groups' desired sample size was identified to represent 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 first identified the general categories for the targeted cases and then selected the sample size based on a predetermined number of cases in each stratum. The main general categories identified when selecting the participants are gender, age, parents' social economic status and location. 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 (IIUM and USIM) and Nigerian institutions (the University of Lagos and University of Ilorin), while 268 participants (35%) were selected from Omani universities (Sultan Qaboos University and Open University of Oman).

3.2 Procedures

The study was conducted on the campus premises across the targeted institutions. Potential participants were informed about the general nature of the study, and assurances were given that their anonymity and confidentiality would be strictly maintained. Moreover, participants were given a small incentive (token of appreciation - a pen and a small notebook) for their participation and involvement in the research. The participants were then asked to complete

the self-reported survey that combined three constructs, 11 factors and five demographic variables.

3.3 Measures

Four scales were adopted from the literature to collect data for this research. The first was the academic dishonesty scale designed by Witherspoon et al. (2010) to test the extent to which the learner is involved in academic plagiarism. Using Exploratory Factor Analysis (EFA), the scale items were loaded on three distinctive factors, namely, copying the ideas of others, copying texts from the Internet, and copying texts from other sources, respectively. According to the scale constructors (Witherspoon et al., 2010), in addition to new items added to this scale, they had adopted the McCabe scale. The internal consistency of the scale was tested via Cronbach's Alpha coefficient, and they found that the scale was highly reliable, with the alpha coefficient ranging between .80 to .86 for the three dimensions, respectively, which indicates that the scale of academic dishonesty is fit to use for any meaningful research activity. Moreover, the intention to plagiarize scale was also adopted from Mayhem et al. (2009). It consists of five items measuring students' willingness to plagiarize.

The scale construction is based on Beck and Ajzen's (1991) planned behavior theory. This theory attempts to predict and fully understand the motivational effects of an 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 the intention to cheat were selected for this study. Beck and Ajzen presented the internal consistency of the scale. With the value of Cronbach's alpha of .91, the scale was psychometrically sound and appropriate for academic research. Concerning academic plagiarism indicators, McCabe and Trevino's (1993) scale was adopted, and two factors related to the current study were selected: acceptance of academic integrity policy and peer behavior. Four items measured the acceptance factor for academic integrity policies. The factor measures the extent to which students understand the university policies 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 the McCabe and Trevino's (1993) scale to measure peer behavior factors. These items measure the frequency and prevalence of plagiarism or academic fraud in the universities the participants belong to.

In the second section of the academic plagiarism Indicators, the researchers designed a measure of the following five factors: lack of deterrent punishment, feedback, lack of research skills, student cultural differences, and impunity (certainty of not being caught). This scale consists of 25 items, and five items measure each factor. The internal consistency of the scale was tested by the Alpha coefficient. The value of Cronbach's alpha was .89 and above, which indicates that the scale is suitable for any research activities. To measure total quality management, a self-reported scale with 40 items was constructed to measure the construct. However, using the exploratory factor analysis technique, the items were eventually reduced to 16. These items were loaded into three distinctive factors: 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.

These items were then compiled in a single questionnaire format with five demographic variables such as gender, age, university, educational level and nationality before being distributed to the target participants. The number of items on the scale was 74, with five 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 adequately transmitted. Hence, three questionnaire types were distributed: English, Arabic and Malay.

The participants were then asked to indicate their agreement or disagreement with the items' contents by marking (✓) in front of every statement that he/she felt was expressing their opinion. It is also worth mentioning that some slight modifications were made to the adopted items without affecting the substance of the scale, the credibility of its stability, and the Alpha coefficient, which has been re-analyzed to confirm this.

3.4 Preliminary Analysis

Multivariate analyses have fundamental assumptions to be fulfilled before the results can be meaningfully interpreted and generalized. After data collection, data were screened to identify the possible existence of missing data and outliers. The analysis result indicated a lack of evidence of systematic missing data and outliers. Moreover, the 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. The results were consistent with previous results, indicating that the normality assumption was maintained. Although the univariate normality assumption holds for the dimensions of the study, the multivariate assumption was also tested because an inspection of the univariate assumption does not guarantee that the multivariate assumption holds.

3.5 Linearity Assumption

The validity of inferences established in the multivariate statistical test results heavily relies on the extent to which the data have fulfilled the fundamental assumptions. One of the most imminent structural equation modelling (SEM) requirements 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 threaten the statistical analyses in the general and structural equation in particular because of its severe consequences on estimating the model fit. Like many parametric statistical methods, SEM assumes linearity between pairs of continuous variables. According to Tabachnick and Fidell (2001), linearity is a fundamental 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, indicating that the assumption of linearity is tenable.

Moreover, the 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 are small, that suggests the best fit of the model. A fitting function that equals zero indicates a perfect fit for the model. It primarily aims to examine the extent to which the postulated structure is consistent with the empirical data. Since the current study has a sample size ($n = 768$), the employment of ML is more appropriate in providing accurate, consistent and efficient estimations with the smallest standard errors among all consistent estimators and distributing them normally. As previously mentioned, SEM with maximum

likelihood was used to examine the complex relationships between exogenous, endogenous and moderation variables.

The goodness of fit indices is presented in Table 2 with their respective Chi-Square, df and p-value. Other indices such as GFI, AGFI, NFI, TLI, CFI and RMSEA are also presented. According to statistical practitioners (Byrne, 2011; Kline, 2016), GFI, AGFI, NFI, TLI, CFI value of $\geq .90$ and RMSEA less than .05 are generally considered to suggest a good fit between a proposed model and the data.

4.0 ANALYSIS AND DISCUSSION

4.1 Correlation among the Factors

One of the fundamental requirements for the 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 Pearson correlation showed moderate statistical relationships among all concerned factors. As 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 ($r = .627, p = .001$), while plagiarism behavior was statistically but negatively correlated with continuous improvement ($r = -.687, p = .001$), academic performance ($r = -.672, p = .001$), and work ability $r = -.645, p = .001$. These moderate correlation values justified the usage of SEM for this study due to the fact that concerning constructs were fairly related while, on the other hand, suggesting a 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

4.2 Proposed Model

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

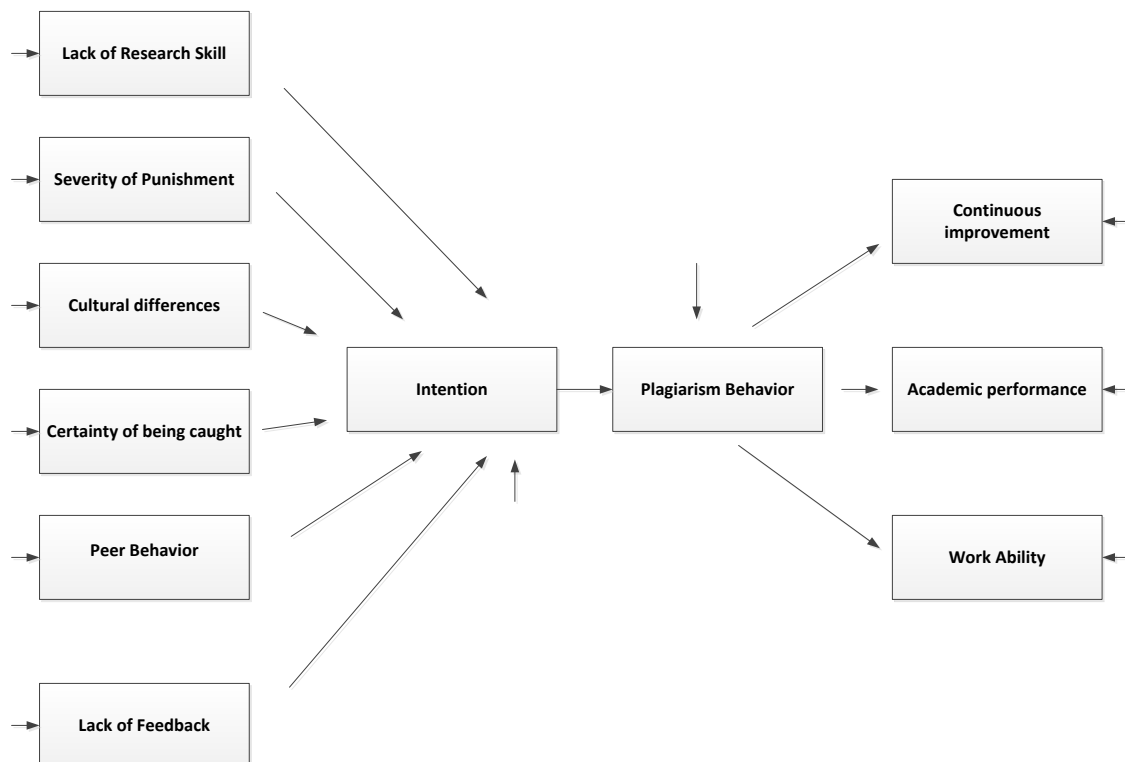


Figure 1: Proposed model

4.3 Results of Measurement Model

Before the commencement of structural equation analysis, the measurement model of the concerned constructs was initially analyzed, and the 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 Hair et al. (2010) suggested. Hair et al. (2010) strongly recommend conducting a measurement model before the summated scale formulation 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 the 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: intention to plagiarize and actual plagiarism behavior. This analysis was also performed as a previous analysis to test the uniqueness of each item before the scale was used for SEM. The result of analysis suggested $\chi^2(160, 363) = 1055, p .001$, (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: continuous improvement, work ability and academic performance. The aim of conducting the analysis was the same as previous analyses; to psychometrically test the individual item before a summated scale was used. The result of the analysis yielded $\chi^2(58, 363) 412.709, p = .001$ (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 their suitability to be used for any subsequent SEM analysis.

Table 2: Goodness-of-fit indices for the CFA, Baseline and Bootstrapping Models

Model	χ^2	df	P	GFI	AGFI	TLI	NFI	CFI	RMSEA
1 st CFA	1044.388	770	.001	.942	.935	.982	.983	.983	.020
2 nd 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

4.4 Testing Direct and Indirect Effects in The Baseline Structural Model

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

Maximum likelihood was used to estimate the parameters, and all analyses were performed on the variance-covariance matrix ($n = 768$ observations). According to Figure 1, determinants of plagiarism (lack of research skills, severity of punishment, cultural difference, certainty of 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 institutions, which is formulated to consist of three dimensions: continuous improvement, academic performance and work ability. To evaluate the appropriateness of the proposed model, the researchers combined 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 $\geq .90$ and above for these indices are considered to indicate adequate and excellent fit to the data, whereas values $\leq .08$ or $.06$ for the RMSEA respectively support acceptable and excellent model fit (e.g., Hu & Bentler, 1999; Marsh et al., 2005).

The results of the theoretical baseline model suggested a significant model chi-square $\chi^2 (678, 363) = 1943.835, p = .001$, indicating that the observed and model-implied covariance matrices may be significantly different. However, due to the highly susceptible sample size, especially when it is larger than 200, other indices were used to assess the model's goodness. 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 academic Plagiarism was predicted by the intention factor ($r = .63, p = .001$), which was also predicted by the 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 ($\beta = .51, p = .001$), certainty of not being caught ($\beta = .68, p = .001$), peer behavior ($\beta = .66, p = .001$), severity of punishment ($\beta = .58, p = .001$) and lack of research skills ($\beta = .56, p = .001$) were the major determinants of intention to plagiarize respectively. Additionally, the results also suggested that cultural differences play a significant role in the intention to plagiarize ($\beta = .40, p = .001$), which means that different culture manifests different behavior toward Plagiarism. The factor

loadings for the items ranged between .52 to .81, while the total variance explained for the factors ranged between .56 to .80, which indicated that the items perfectly targeted the constructs they measured (See figure 2).

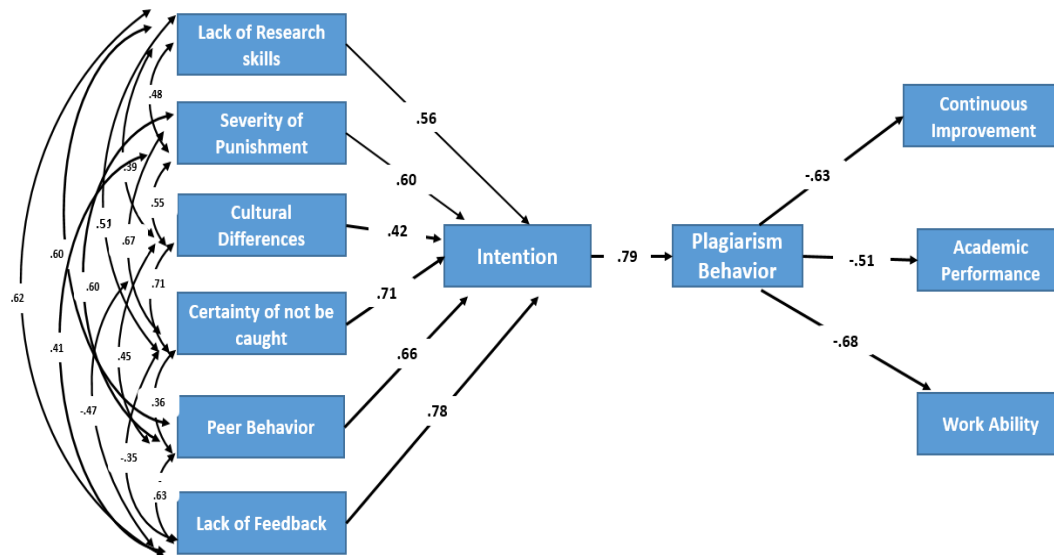


Figure 2: Structural equation modelling

4.5 Bootstrap Analysis for a Direct and Indirect Relationship

Due to the complexity of the model and the involvement of mediator variables, the researchers decided to employ Bootstrap analysis. The calculation of the contribution of indirect effects based on the Z-score required the sample data to be normally distributed. However, it is empirically proven that normality is a myth that is difficult to realize and achieve (Kline, 2016), especially when the assessment of indirect effects is based on the multiplicative regression weight of independent and mediator variables. Hence, the indirect effects might be statistically biased. Therefore, to overcome the problem of normality bias, 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 proposed model's stability, generalizability, and the indirect effect's precise contribution to the general total variance explained in the model.

A normal sampling distribution is a prerequisite for using the Z score (Sobel, 1982) to estimate indirect effects in SEM. However, as an indirect effect is multiplicative, the normality

of its sampling distribution is not guaranteed and is even seldom normally distributed (Zhang & Koda, 2012). Therefore, the reported indirect effect in baseline moderator might be biased and 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 the 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 a 99% confidence interval to estimate the effect of the indirect variable. The chi-square's value with its degree of freedom was significantly reduced ($\chi^2 = 1731.722$, $df = 144$). Furthermore, the analysis also suggested that goodness of fit indices were 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 is slightly above the optimal value of $\leq .05$, it is still significantly below the recommended cutoff of .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 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 standard errors are to be compared with the values of approximate maximum likelihood estimates to accurately examine the model's uniqueness. As seen in Table 3, the values of the standard error of standard error (SE-SE) indicated that the 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 beta (β) values 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 ($\beta = .78$, $p = .001$) followed by certainty of not caught ($\beta = .71$, $p = .001$) and peer behavior ($\beta = .66$, $p = .001$). Moreover, severe punishment ($\beta = .60$, $p = .001$), cultural difference ($\beta = .42$, $p = .001$) and lack of research skills ($\beta = .56$, $p = .001$) 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 ($\beta = .79$) while plagiarism behavior was negatively and significantly correlated with work ability ($\beta = -.68$), continuous improvement ($\beta = -.61$, $p =$

.001) and academic performance ($\beta = -.51$, $p = .001$) respectively and explained about 37% of its variance.

Table 3: Bootstrap standard errors for the structural model in 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	← Certainty 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.

4.6 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 antecedents of plagiarism because when the reasons for plagiarism are known, the appropriate measure can be taken to curb this serious offence. Unfortunately, plagiarism seems to win 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 (i.e. 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 to plagiarism, the intention will arise, and actual plagiarism

will undoubtedly 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, Maloshonok and Shmeleva (2019), Simon et al. (2015), Imran and Ayobami (2011), Yang et al. (2013), and Yu et al. (2016) found that the threat of penalty and severe punishment if guilty of plagiarism significantly curb plagiarism behaviors among students. 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 decrease misconduct because many individuals are unwilling to risk it. According to the deterrence theory, learners' inclination toward plagiarism would increase when the benefits they have accomplished outweigh the possible sanctions and punishment (Ogilvie & Stewart, 2010; McCabe & Trevino, 1993). Concerning 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 succeed through the back doors of plagiarism would enhance the tendency of other students to behave similarly (McCabe & Trevino, 1993). Consistent with the social learning theory, plagiarism is learned and enhanced through accepting and reinforcing cheating in peer groups. If learners found that their colleagues have successfully cheated, this would enhance their inclination towards cheating without fear of being caught, prosecuted and punished.

Mccabe et al. (2008) and Rawwas et al. (2004) found that cultural background plays a significant role in plagiarism. According to them, many Arab students do not understand what constitutes plagiarism, and they do not know that direct copying from sources without paraphrasing is an act of Plagiarism. Aljurf et al. (2019) unequivocally asserted that academic cheating and plagiarism were more pervasive among Arabs than their Western counterparts, and they ascribed that to different cultural underpinnings. Similarly, Ibegbulam and Eze (2015) also found that most Nigerian students have a low understanding of plagiarism, translating to the high magnitude of committing this devastating offence.

On the other hand, this study found plagiarism behavior negatively related to total quality management. Unsurprisingly, plagiarism would enormously affect institutions' total

quality because when students graduate, they will not be able to perform their responsibilities. Following this finding, Teodorescu and Andrei (2009) 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 embarrassment and severe punishment if the perpetrator is caught, but more than that, it causes great damage to the youths' attitudes and work habits and infuses questionable ethical foundations into future generations.

5.0 CONCLUSION

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 has also been found that plagiarism behavior significantly and negatively affects total management quality. These findings are consistent with many previous empirical studies which have documented the pivotal role played by these determinants in the intention to plagiarize and subsequent plagiarism behavior (McCabe et al., 2008; Giluk & Postlethwaite, 2015; Beasley, 2014; Anderman, 2007; Rinn et al., 2014; Peled et al., 2018). However, more importantly, this study has also indicated that the danger of plagiarism 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. 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 to the subsequent effects of it on total quality management in a multicultural context. The study also suggests several possible implications for instructors and institution administrators. Due to the high prevalence of plagiarism in many institutions of higher learning and the danger that academic cheating poses to total quality management, highlighting the determinants of plagiarism is essential. Understanding these factors can help reduce plagiarism at institutions, ensure the integrity of 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 is drastically diminished. Also, when perpetrators face severe punishments when they are found guilty of plagiarism, it signals to others that the act is unacceptable.

5.1 Limitations and Future Research

Despite its practical and theoretical contributions, this study also has its limitations. 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 regarding its validity and reliability. In self-reported measures, sources of errors vary, and the response bias 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. The quota sampling technique is a purposive, non-random sampling technique, and even though it seriously considers representative issues across strata, equal representation of the participants in the population still cannot be 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, longitudinal approach, or mixed method approach be used to gain more knowledge of the antecedents of plagiarism and their effects on total quality management.

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