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Predictors of Examination Integrity among Secondary School Students: Framework for Proactive Actions Against Examination Malpractices

Fidelis O. Igbe[1], Nathaniel Ethe[2], Moses C. Ossai[3]

[1] Department of Educational Foundations, Delta State College of Education, Mosogar
[2] Department of Educational Psychology, Delta State College of Education, Mosogar
[3] Department of Educational Psychology, Delta State College of Education, Mosogar

Correspondence: Moses C. Ossai. Email: moses.ossai@descoem.edu.ng, ossaimoses@gmail.com

Abstract
This study focused on determination of predictors of academic integrity during examinations among secondary school students. The population consisted of 300,000 final year secondary school students in South-South geopolitical zone of Nigeria out of which a sample of 3000 students (1720 females and 1280 males) were selected through multistage proportionate stratified random sampling technique. Analysis of data collected with the aid of Examination Integrity Questionnaire (EIQ) that was adopted and validated by the researchers showed significant influence of students' gender on academic integrity during examinations with female students having higher mean score on examination integrity. Moreover, Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Examination Attitude and Past Experience were significant predictors of examination integrity of students. Past experience was the strongest predictor of students' examination integrity. However, there was no significant impact of Age on students' examination integrity. These findings have implications for preventive actions against examination malpractices. For instance, proactive actions should be targeted at improving students' study habits, examination anxiety, moral reasoning, attitude towards cheating or examination ethics and subjective norms before they sit for school examinations. This proactive action framework based on the Modified Theory of Planned Behaviour may be more effective in curbing examination malpractices than the extant practice of administering punitive measures after examination ethics violations.

Keywords: Examinations, Predictors, Academic Integrity, Malpractices, Proactive Framework

1. Introduction

Examination integrity is an aspect of academic integrity which requires honesty, fairness, trustworthiness, respect for examination ethics and responsibility in educational assessment. The International Center for Academic Integrity [ICAI] (2019) defined academic integrity "as a commitment … to six fundamental values: honesty, trust, fairness, respect, responsibility, and courage". Educators, parents as well as the general public are expected to uphold these values in the administration of school examination so as to ensure valid, reliable and accurate information (examination scores) about students' academic achievement. Examination scores obtained from

school test administration free from academic dishonesty are very important for improving instruction and identification of the needs of individual students as well as in attaining educational goals. Unfortunately, several factors inside and outside the school setting as well as within the individual students have contributed to academic misconduct or examination malpractices thereby casting aspersions on the genuineness of results obtained by students at the end of each stage of learning. Some of these factors identified in previous research studies by McCabe & Treviño, 1997; McCabe, Treviño, & Butterfield, 1996; McCabe, Treviño, & Butterfield, 1999; McCabe, Treviño, & Butterfield, 2001) include peer pressure, performance anxiety, tolerance of academic dishonesty by parents and school authorities, inability to manage examinations properly, the demands of students life, self justification habit and so on. For instance, McCabe(1992, 1993); McCabe and Treviño (1993); McCabe and Treviño (1997); McCabe and Pavela (1997); McCabe et al.(1996); and McCabe et al.(1999) established contextual factors within an academic institution and individual as responsible for academic integrity such as practice of honor code, students awareness of institution academic integrity policy, effectiveness of monitoring and reporting of offenders, students perception of severity of penalties and prevalence or popularity of cheating behavior among students' peers. Student factors include age, grade level and gender. These previous research findings led to the adoption of the *"*overt punitive measures" for tackling the problem of examination malpractices in schools. Some of the overt punitive measures include suspension from school, cancellation of results, and outright expulsion of student offenders. These overt punitive measures seem to have failed to deter students from engaging in examination malpractices.

Examination malpractices is referred to as cheating in examinations or in broad terms as 'academic dishonesty' in international research literature. It is a global educational pandemic comparable in magnitude and spread to the 'coronavirus' (COVID-19). New strategies are needed in the fight against examination malpractices because the overt punitive measures that have been previously employed seems to be failing. For instance, in a study of the endemic nature of academic dishonesty which lasted for 12 years from 2002-2015, McCabe and The International Center for Academic Integrity (2020) reported that from a sample size of 70,000, "95% of the surveyed students admitted to cheating on a test and homework, or committing plagiarism" in the United States of America (USA). In **China, students caught engaging in examination malpractices from 2016 onwards are sentenced to seven-year jail term.** In the United Kingdom, there was an increase of 11% in sanctions for examination malpractices in 2019 over 2018 (Office of Qualifications and Examinations Regulation, 2019). The Nigerian situation is equally worrisome. For example, Onyechere (2017) stated that examination malpractices are contributors to the economic, social and political underdevelopment of the country. There is no doubt that examination malpractices is a plaque which has defied all previous measures adopted to curb it and the consequences have been very disastrous. It is very disturbing to note that the number of candidates caught engaging in examination malpractices in public examinations in Nigeria every year is still very significant.

2. Statement of Problem

The major problem of the study is how to tackle examination malpractices in Nigeria's educational system through establishing the basis for a proactive strategy different from the punitive methods in practice. The magnitude of the problem caused by examination malpractices among secondary school students in Nigeria is very high. For instance, Omeri (2012) who was the Director General of National Orientation Agency (NOA) reported that Nigeria ranked number one in the world's examination malpractice index because the average annual examination malpractice index that year was 12 per cent. The Nigerian situation is so pathetic that Magaji (2019) stated that examination dishonesty is responsible for "most cases of collapsed buildings, death through medical negligence, drug trafficking, armed robbery, drug adulteration, separatist agitation, kidnapping, insurgency, low quality political leadership as well as other vices bedeviling the society".

Furthermore, significant number of candidates are caught engaging in examination dishonesty in public examinations in Nigeria every year. For example, in the 2019 May/June examinations of West African Examinations Council (WAEC); National Examinations Council (NECO); and Joint Admissions and Matriculation Board (JAMB), the number of candidates caught cheating were 180,205 (11.33%), 40,630 (3.53%) and 34,120 (1.90%) respectively. In 2022, the number of confirmed examination malpractice cases in the WAEC examination rose to 365,564 (22.83%) according to Ossai et al. (2023). Given that these were the ones caught

while many others who engaged in malpractices may have evaded the anti-cheating devices put in place by the examination bodies, it becomes more imperative to develop other inherent techniques to checkmate examination dishonesty which no candidate can evade. The question is whether Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude, Past Experience, Age and Gender can predict Examination Integrity thereby forming basis for proactive framework to tackle the problem of examination malpractices in Nigerian schools. This is the challenge taken up by this study.

3. Justification for the Study

The strategies adopted by the examination bodies to curb examination malpractices seems to have limited success hence it is imperative for academics to discover other means of tackling this educational monster. New measures such as determination of the propensity of a candidate to engage in examination malpractices so as to checkmate it, is the emerging strategy (Madara, Namango & Katana, 2016; Zanon, Hutz, Yoo & Hambleton, 2016; Ossai, 2018; Ossai et al. 2014, 2020, 2023). One dimension of the preventive approach is to devise a means of measuring the propensity of a candidate to either engage or disengage in the act of cheating in examinations. There must be a way for educational counselling psychologists to determine whether a candidate has positive or negative disposition towards examination malpractices. The work of Zanon, Hutz, Yoo & Hambleton (2016) showed that it is possible for an assessment instrument to achieve this. Since it is possible to measure Intelligence Quotient (IQ), then by extension there must be a way to measure "Examination Integrity". If intelligence test scores do predict academic achievements so also the examination integrity instrument will predict examination integrity behaviour thereby providing the framework for teachers, guidance counsellors and school administrators to take proactive actions to checkmate examination malpractices in schools.

Therefore, new approaches are needed to complement the "overt punitive measures". A proactive strategy is needed. This strategy requires identification of variables that could lead to the detection of potential cheats in school examinations so that they could be reformed before they sit for the actual examinations.The present study, therefore, focuses on specific individual-centred predictors of academic performance such as Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude and Past Experience as predictor variables for Examination Integrity with a view to establishing a framework for proactive actions against examination malpractices.

4. Objectives

The major objective of the study is to determine if Gender, Age, Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude towards Cheating in Examinations (Exam Attitude), Past Experience in Cheating in Examinations (Past Experience) are predictors of Examination Integrity. On the basis of this objective, it was hypothesized that these variables will significantly predict examination integrity thereby providing a framework for preventive actions against cheating in school examinations.

5. Method

Correlational Survey research design was used in the study. The population of the study consisted of all 300,000 final year secondary school students that enrolled for the 2023 May/June West African Examinations Council (WAEC) Senior School Certificate Examination (SSCE) in the six states that make up the South-South geopolitical zone of Nigeria. A sample size of 3000 students were selected from 3 states through multistage proportionate stratified sampling technique which yielded 1720 females and 1280 males.

Data was collected with the aid of an Examination Integrity Questionnaire (EIQ) adopted from Academic Integrity Measurement Instrument (AIMI) developed by Ossai et al. (2023). EIQ was used to measure the examination integrity of secondary school students across private, public, urban and rural schools. The EIQ items measured Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude, Past Experience, Age and Gender of students. EIQ consists of Sections A and B. Section A elicits responses on the students Age, Gender among other variables on students demography while Section B has a total of 102 items made up of the

aforementioned 6 segments. First segment measures Study Habits with 16 items; second segment measures Examination Ethics with 20 items; third segment measures Examination Anxiety with 20 items; fourth segment measures Moral Background with 15 items; fifth segment measures Attitude towards Cheating in Examinations (Exam Attitude) with 13 items; and, the sixth segment measures Past Experience in Cheating in Examinations (Past Experience) with 18 items. EIQ utilized a four-point scale format in which responses to each item ranges from SA = Strongly Agree, A = Agree, D = Disagree and SD = Strongly Disagree. Depending on the direction of an item SA could be scored as 4 or 1; A as 3 or 2; D as 2 or 3 and SD as 1 or 4. Collectively, the composite score on EIQ is indicative of the examination integrity quotient of the respondent. The EIQ was first subjected to face and content validity by expert assessment of 3 specialists in the fields of educational measurement and evaluation and counselling psychology. Their assessments helped to fine tune the items. Data for validation of EIQ was generated from 100 subjects drawn from a different local government area outside the sample area. The pilot study data was analyzed with Principal Component Factor Analysis which yielded Cronbach Alpha index of .94 for the entire instrument. Odd and Even split half method was used to test internal stability for each of the two parts and this produced indices of .85 and .83 respectively. Each of the six segments of the EIQ were also subjected to Factor Analysis and their Cronbach Alpha indices ranges from .77 to .97.

The researchers and their assistants personally administered the copies of the validated EIQ to the 3,000 respondents who agreed to participate in the research. This procedure helped to achieve 100% rate of return of completed questionnaire.

The Point Biserial Correlation was used to run the analysis for determining the association between Gender and Examination Integrity since the independent variable (gender) is dichotomous while the dependent variable (examination integrity) is a continuous or scale variable. Multiple Regression was used in the analysis of the predictive power of Age, Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude towards Cheating in Examinations(Exam Attitude), Past Experience in Cheating in Examinations (Past Experience) on Examination Integrity as dependent variable because they are all scale variables but they were tested to satisfied the conditions of 'Normal Distribution'; being free from 'Outliers'; and, 'Non-collinearity'.

6. Results

The data analysis output tables and their interpretations are presented. To test the hypothesis whether there is significant difference in examination integrity of male and female students, Point Biserial Correlation Levene's t-Test was run and the result in Tables 1 and 2 were obtained.

Table 1: Group Descriptive Statistics by Gender of Students

GENDER		N	Mean	Std. Deviation	Std. Error Mean
EXAM INTEGRITY	Male	1280	268.19	34.84	.97
	Female	1720	277.14	31.05	.75

The data in Tables 1 and 2 show that there is significant difference in the examination integrity of male and female students. In Table 1, Mean score for males (268.19) is lower than Mean score for females (277.14). Furthermore, independent t-test analysis in Table 2 confirms significant difference ($t = -7.41$, $p = .00 < 0.05$). This indicates significant difference in the examination integrity of male and female students. As seen in Table 1, the higher mean score for female students implies that they may be more prone to better examination integrity.

Table 2: Independent Samples Test for Differences on the Basis of Gender

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.	MD	SED	Lower	Upper
Exam Integrity	Equal variances assumed	23.96	.00	-7.41	2998	.00	-8.95	1.21	-11.32	-6.58
	Equal variances not assumed			-7.29	2569	.00	-8.95	1.23	-11.36	-6.54

Multiple regression was used to determine the association between each of the other independent variables (Age, Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude towards Cheating in Examinations [Exam Attitude], Past Experience in Cheating in Examinations [Past Experience]) and Examination Integrity(dependent variable). Results are presented in Table 3. Data in Table 3 show that Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Examination Attitude and Past Experience are significant predictors of Examination Integrity as seen in the significant Beta weights and t values in Table 3. However, there was no significant predictive relationship between Age and Examination integrity.

Table 3: Coefficients of Predictor Variables

	Unstandardized Coefficients		Standardized Coefficients			95.0%Confidence Interval for B		Collinearity Statistics	
	B	SE	Beta	T	Sig.	Lower	Upper	Tolerance	VIF
(Constant)	1.01	.18		5.56	.00	.66	1.37		
Study Habit	.99	.00	.16	438.71	.00	.99	.99	.62	1.62
Exam Etics	.99	.00	.25	606.46	.00	.99	1.00	.50	2.01
Exam Anxiety	1.00	.00	.28	798.07	.00	1.00	1.01	.68	1.48
Moral Background	.99	.00	.18	488.88	.00	.99	.99	.60	1.66
Exam Attitude	.99	.00	.18	442.38	.00	.99	1.00	.52	1.93
Past Experience	1.00	.00	.27	597.39	.00	.99	1.01	.42	2.36
Age of Students	-.01	.01	.00	-1.39	.17	-.03	.01	.85	1.18

a. Dependent Variable: Examination Integrity

Variable Inflation Factor (VIF) for each of the predictor variables are far below the thresh-hold of 10. The highest VIF is 2.36 for Past Experience. Moreover, each of the predictor variables were regressed stepwise with Examination Integrity as dependent variable (Table 3).

7. Discussion

One of the findings of this study is that examination integrity of students differ on the basis of their gender; but age does not significantly predict the tendency to engage in examination malpractices. Some previous studies found gender and age differences in students' academic integrity such as McCabe and Trevino (1997);

Hendershott, Drinan and Cross (1999); Becker and Ulstad (2007); Olasehinde-Williams, Olawuyi and Alabi (2011); Zhang, Yin and Zheng (2018); On the other hand, other studies found no significant gender differences or relationship between gender and academic integrity such as Muthukamatchi, Veerachamy, Chitradevi (2021). Whereas the question as to whether gender predicts academic integrity remains inconclusive (Williams & Aremu, 2019), it is pertinent to note that most studies reported that males have more tendency to engage in academic dishonesty than females (Salleh, Alias, Hamid & Yusoff, 2013; Mohd, et al. 2013). The present study corroborates these previous findings in research literature because it found significant difference in the examination integrity of male and female students. It appears that female students may have more tendency to exhibit higher examination integrity than the males on the basis of their significant higher Mean Score (277.14) compared to that of the males (268.19). This finding agrees with that of McCabe and Trevino (1997) who found significant differences in the attitude of male and female students towards general academic dishonesty. In the McCabe and Trevino study, female students were less favourably disposed to academic dishonesty. This research outcome may be attributable to the fact that males are more prone to risky behaviour than females (Harris & Jenkins, 2023). This difference in tendency towards risky behaviour between males and females has been attributed to women being more sensitive to the negative consequences of their actions than any gains or advantages that might accrue (Neuroscience, 2023). In other words, females are more psychologically inhibited towards engaging in examination malpractices than the males.

In this study, Age is not a significant predictor of examination integrity and this finding is contrary to research findings in literature that suggested "that younger students tend to cheat more than older students" (McCabe, Trevino & Butterfield, 2001; Salleh, Alias, Hamid & Yusoff, 2013). The finding of the present study regarding insignificant predictive relationship between Age and Examination Integrity could be explained on the basis of the fact that there was no wide gap in the ages of the students that participated in the study. The ages of the participants ranges between 16 and 18 years unlike some previous studies that utilized students of wider age range such as the Study by Nazir, Aslam & Nawaz, (2011) on students in Pakistan where they found that students at the lower undergraduate levels showed more disregard for academic ethics. Their finding corroborates the results of the Ossai (2012, 2013) studies which implicated inexperience and less maturity of fresh students as responsible for their greater disposition towards engaging in examination malpractices. Younger students tend to have more favourable disposition towards examination dishonesty because they do not have enough experience about the the consequences of violating examination ethics but as they climp the academic ladder and become more experienced, they tend to become more aware of the dangers of engaging in examination malpractices. However, this should not be confused with students who have become so experienced in the act of cheating in examinations without being caught (past experience) especially in the context of the the "subjective norm" and "perceived behavioural control" segments of the Modified Theory of Planned Behaviour (MTPB).

In the context of the modified theory of planned behaviour (MTPB) which recognizes the impact of moral background, past experience, attitude, subjective norm and behavioral control towards formation of intention and actual involvement in examination malpractices, the findings of significant association between the other independent variables (Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude, Past Experience) and Examination Integrity scores of students have greater relevance. On the variables of study habits and examination anxiety, there is a preponderance of studies on their relationship with academic achievement but very few , if any, have considered their association with examination integrity or academic integrity. For instance, in a study by Asha and Anju (2020) on the relationship between study habits and academic achievement of high school students, it was found that study habits had very strong positive relationship with academic performance hence it was concluded that "a rise in study habits score will also raise the academic achievement score among high school pupils." By extension, as found in the present study, study habits also has very strong relationship with examination integrity. It could also be said that a rise in study habits will improve the examination integrity of students as reported in the research by Ossai (2011a). The present study has confirmed that study habits is a significant predictor of examination integrity. Similarly, examination anxiety has been established in previous studies as a predictor of academic achievement such as Christopher (2017) who found that uncontrolled or very high levels of test anxiety are associated with poor academic performance. In the same vein, examination anxiety has been found to be a predictor of examination integrity. Uncontrolled test anxiety could lead to positive predisposition towards academic dishonesty (Ossai, 2011b).

Regarding moral background, attitude and past experience as correlates of students' academic performance, some studies have found positive relationship. For instance, Ukwetang et al. (2021) discovered that "students' academic performance is influenced by family moral and family life background". Similarly, there is significant relationship between attitude towards schooling, educational values, achievement motivation and academic performance of students (Dagnew, 2017; Mao et al, 2021). On these premises, the present study extended the frontiers of knowledge by establishing significant relationships between these predictor variables (Examination Ethics, Moral Background, Attitude, Past Experience) and examination integrity. Most significantly, the very strong prediction of examination integrity by past experience should be taken seriously. It justifies the inclusion of this variable (past experience) in the Modified Theory of Planned Behaviour (MTPB) as well as gives credence to the subjective norm and perceived behavioural control segment of MTPB (Bagraim, et al. 2014). The ease with which individuals engage in cheating in examinations without being caught determines the propensity of repetition of the behaviour and tendency of more individuals joining in the behaviour. Therefore, it is imperative for counsellors and psychologists to take cognizance of these predictor variables in developing proactive actions geared towards curbing academic dishonesty in schools.

Proactive framework strategies or preventive actions against examination malpractices such as counselling programmes targeting students who have high tendency towards engaging in acts of cheating in school examinations should consider these variables (Gender, Study Habits, Examination Ethics, Examination Anxiety, Moral Background, Attitude towards Cheating in Examinations, Past Experience in Cheating in Examinations) as well as utilize diagnostic test measures in which items derived from these variable are components. The fact that past experience is the strongest predictor of examination integrity supports the previous views that the degree of tolerance or subjective norms towards a behaviour tends to provide impetus for the repetition of such behaviour. Also noteworthy is the significant difference in the examination integrity score of males and females. Female students seem to have an edge over the males in the integrity scale. All of these findings have implications for proactive approach towards reorienting the disposition of students away from acts of academic dishonesty. Improving students' Study Habits, Examination Ethics, Examination Anxiety, Moral Background/Reasoning, Attitude and Past Experience in Cheating will ultimately lead to improvement of students' disposition towards examination integrity. Guidance and Counselling services in the schools will help to propagate the preventive approach towards curtailing examination malpractice. Fadipe and Uwadia (2021) strongly held that Counselling services in schools will encourage students to improve their study habits, manage their time and levels of examination anxiety as well as provide a social atmosphere that encourages honesty, high moral standards and promotion of fairness, equity and justice. School Counsellors and Psychologists are well trained to tackle examination anxiety which often is the first signal of academic deficiency along with poor study habits. The answer lies in what Putwain, Joost and Thijmen (2023) described as boosting the "academic buoyancy" of students in order to take care of "test anxiety" and other setbacks. This is situated within the framework of the MTPB in that examination malpractices thrives where students have not been helped to develop proper attitudes towards the ugly behaviour of examination malpractices. Moreso, when students perceive that there is little or no control of the behaviour by the school personnel hence many of those actually engaged in examination malpractices go free because they were not caught in the act. There is need, therefore, for all stakeholders in education to look in the direction of adopting more preventive approaches to tackle the problem of examination malpractices in schools. Such preventive approaches should put into consideration students' Gender, Study Habits, Examination Ethics, Examination Anxiety, Moral Background/Reasoning, Attitude and Past Experience in Cheating.

8. Conclusion

Research has established that Gender, Study Habits, Examination Ethics, Examination Anxiety, Moral Background/Reasoning, Attitude and Past Experience in Cheating are significant predictors of Examination Integrity. Therefore, these factors should be considered in any preventive or proactive framework against examination malpractices. The Modified Theory of Planned Behaviour (MTPB) is suitable for addressing the menace of examination malpractices or academic dishonesty. MTPB arose from observations that there are other variables that determine the tendency of an individual to engage in the target behavior (academic dishonesty) and these include demographic factors, moral upbringing, past experience and personality factors. In other words, the three original elements of Theory of Planned Behaviour [TPB] (Ajzen, 2006) which comprised of Attitude towards

Behaviour (ATB), Subjective Norms (SN) and Perceived Behavioural Control (PBC) could be influenced by demographic factors, moral obligation and moral reasoning because the phenomenon of academic dishonesty is not just a spontaneous event but an activity that is planned, coordinated and executed. That being the case, it is, therefore, possible to measure the tendency or propensity of an individual to engage in the act of examination malpractices as demonstrated by Ossai et al. (2014; 2020; 2023) where inventories for measuring examination behaviour of students at the secondary school and tertiary educational institutions levels were developed. Scores from these measurements are the bedrock of the proactive framework for preventive actions against examination malpractices in schools.

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