

## Using Logistic Regression to identify causes of examination malpractices among senior high students in Ghana

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### Abstract

The last few decades have witnessed growing concern among researchers on the problem of academic integrity faced across all levels of the educational system. The problem of academic dishonesty has culminated into widespread of examination malpractices in most educational systems like the case in Ghana. Using descriptive survey research design, this study investigated causes and perceptions of examination malpractices using 300 students from selected senior high schools. The results of the study indicated the most common cheating mechanisms or examination malpractices among senior high students were copying from each other and swapping of scripts during examination. It was also revealed that students will most likely engage in examination malpractices when there is lack of preparation, peer influence, lack of supervision, and assisted by dishonest teachers or invigilators.

**Keywords:** Academic dishonesty; Examination malpractice; Ghana; Senior High School Students

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### Introduction

There is a myriad of assessment methods used in determining students' performance in an academic environment. Such assessment methods include but not limited to group discussion, quizzes, homework, class exercises, group presentations, class tests, and examinations. Notwithstanding, examinations have proved to be the main indices used for students' assessment in most of the educational levels. Similarly, researchers have opined that examination continues to be used as the finest instrument for an impartial assessment and

evaluation of learners even though their achievement in examination possibly will

not be the true reflection of their capability (Anzene, 2014; Chaminuka & Ndudzo, 2014). Examination has over the years been used to motivate students for studying effectively, to facilitate students' upward movement from lower to upper classes, and to predict learners' future higher education options and career competencies (Suleman et al., 2015). Apart from its support for educators to assess the efficiency of their instruction and learning methodologies and strategies for imminent refinement, examination is

also useful in evaluating learners' knowledge, skills, abilities, and competences (Shahid, 2007).

Although examination has been used as a major tool for assessing students, it comes with a lot of challenges such as the pressure it puts on the psychological and psychosocial wellbeing of students. This pressure of examinations leads to anxiety of failure; passion for a certificate; cravings for choice of professions; and the desire to satisfy stringent university entry requirements (Petters & Okon, 2014). This has led to a lot of fraudulent and dishonest activities been undertaken before or during examinations worldwide. Similarly, Ushie, and Ishanga (2016) noted that most students think getting a qualification or certificate is important than getting the required knowledge and skills that will make them succeed in their various fields. This thinking and the societal preference for educational certificates or qualifications, compel students to engage in misconducts or dishonest activities during examinations.

In fact, for over five decades, growing awareness has been thrown on the devastating effect of academic misconduct such as dishonesty, complicity, and infringement of copyright, which is demonstrated by an increasing amount of literature, social media accounts, and demand from managers (Ashworth et al., 2003; McCabe et al., 2001; Petress, 2003). This suggests that academic dishonesty debatably destroys the ethical worth of trustworthiness because it undervalues the place of assessments or examinations in educational institutions. Arguably, academic dishonesty happens from primary school through graduate school

(Sheard et al., 2003), and can be said that many learners might cheat more than once in their academic pursuit, thus making research related to academic dishonesty a significant issue more than ever.

The reliability of assessment and the quality of education are undermined by the rampant cheating in examination exhibited by high school learners thereby causing a mounting apprehension among educators and employers. Cheating by high school students is likely to have a carryover effect in the workplace. Regrettably, Graves (2008) reiterated the fact that the possibility of learners who cheat during examinations committing fraudulent actions in the workplace is very paramount than those who do not get themselves involved in academic dishonesty. Research has shown that academic fraudulence is a worldwide occurrence in educational establishments and not delimited to specific countries or geographical areas as evidenced by cases of academic fraudulence by tertiary students in many continents and countries, such as Poland, Germany, and Portugal, the Middle East, and Nigeria (Hughes et al., 2007; Lin & Wen, 2007; McCabe et al., 2008; Olasehinde-Williams et al., 2003; Teixeira & Rocha, 2008). Further, studies have shown that in America, cheating among students has been increasing consistently for the last six decades (Mize et al., 2002). The situation in most African countries is almost the same (Anzene, 2014; Patrick, 2014). According to Omeri (2012), Nigeria was number one in the World Examination Malpractice Index in 2012.

Essentially, academic dishonesty is very complex and hydra-headed and needs

multiple ways of solving the menace. There are innumerable studies that have been conducted on academic dishonesty to help researchers grasp the severity of the challenge and what solutions they might proffer to help ameliorate or solve it entirely. There is evidence to show that academic dishonesty has reached an alarming rate and has become so pervasive that there is some form of examination malpractice worldwide at all levels of the education system or outside of the system (Petters & Okon, 2014). Accordingly, Jimoh (2009) opined that it is a very worrying and alarming phenomenon as students develop very sophisticated ways of carrying out academically dishonest activities during every examination season. Consequently, certification has lost its value as the examination process is fraught with unending fraudulent activities that compromise the credibility of certificates (Petters & Okon, 2014).

McCabe (2005) conducted a study on cheating among college and university students across several universities in the United States of America and noted that there are six academically dishonest conducts by students that are associated with tests and examinations. They include but not limited to copying from other students on a test or examination with or without the awareness of the other student(s); using illegal duplicate transcripts or fraudulent transcripts during tests or examinations; having access to the contents of a previously taken test or examination from someone who has taken it in an earlier period; assisting another person to commit academic dishonesty on a test or examination; using untruthful or fake reasons for the postponement of taking a test/examination or turning in a

written task, in order to obtain additional time to learn or prepare a task; and/or one's ability to get information from another person who has previously taken a test/examination about the contents, the difficulty, or the salient points that need to be considered while preparing for a test/examination. Similarly, Makaula (2018) found the following methods of cheating among secondary school students in Malawi; bringing prepared answers to the exams hall; copying from other students during exams; copying from textbooks; writing on body parts; use of cell phones/calculators; copying from notebooks hidden in restrooms; swapping of written answers; and replacing old scripts with new ones.

A critical analysis of the Ghanaian educational system in terms of Senior High School student' assessment and evaluation has shown that, schools rely heavily on examinations, especially summative assessment (Suleman et al., 2015). Stakeholders such as examination administrators, parents, students, and teachers have been enticed into devising fraudulent means of passing examinations because of the over-reliance on examination results and certificates as the sole indices for gaining admissions into higher education, scholarship, and employment opportunities (Phiri & Nakamba, 2015). These categories are herein referred to as agents of examination malpractices (Busayo, 2008; Onuka & Durowoju, 2013). Studies have shown that teachers and invigilators are complicit in examination malpractices or cheating (e.g., Oghuvbu, 2007; Oche, 2012; Suleman et al., 2015). For instance, Suleman et al. (2015) found that teachers aided students during examinations to help them obtain

good grades in the subjects they teach. Oche (2012) also found that teachers sometimes fake exams scores for students or change actual marks of students to improve their grades. On parental involvement in examination malpractices, Ojo and Olumuyiwa (2011) indicated that parents sometimes visit the examination centres or boards in a bid to obtaining excellent or higher grades for their children. At the school level, Chaminuka and Ndudzo (2014) revealed that some schools organize examination in venues where students are seated much closed to one another with inadequate spaces in between desks, causing overcrowding at the examination centres which leads to improper supervision and collusions. To Onyibe et al. (2015) collusion as examination malpractice occurs when students copy from one another when writing the same examination papers within the same examination hall. Another form of collusion in examination misconduct is when the examination question papers are leaked by the examination organizers or contractors to candidates, parents or the enthusiastic school management before the examination time leading to mass cheating (Onyibe et al., 2015).

Examination bodies or agencies in charge of conducting examinations to different categories of test takers provide instructions and set of rules outlining the conduct of the examination, which candidates are expected to religiously follow in that examination. Some basic rules are that candidates are not expected to do or engage in any activity that would make the essence of the evaluation to be defeated. Also, each candidate is not expected to take into the examination hall

any material considered to be of undue advantage. Consequently, they are not permitted to request for any type of assistance from an associate (Asinya, 2012). However, of late, some stakeholders such as examination officials, parents, students, and teachers feel that academically dishonest activities are the right of the learners and thereby connive with each other to perpetuate this illegality. In recent times, what has even exacerbated this is the unprecedented growth of ICT applications, which have produced very complex examination malpractice methods adopted by the perpetrators thereby making it extremely difficult to arrest offenders (Sunday, 2014).

According to Phiri and Nakamba, (2015), despite strong measures instituted to ensure the security of examination papers, conducting examinations in Ghana has become a very difficult and challenging enterprise. Although academic dishonesty such as examination malpractice attracts ugly penalties such as being banned from taking part in any examination held by the specific body for some number of years, rustication, or even arrest and imprisonment, it has rather increased in strength and sophistication (Petters & Okon, 2014). It is however unfortunate that despite the efforts being put in place to reduce or eradicate academic dishonesty, the examination process itself is bedevilled with examination malpractices in most countries of the world (Adams & Esther 2013). The perceived causes of examination malpractices are many. Some empirical studies reveal some perceived roots of academically dishonest activities to be poor preparation for examinations,

low morality of stakeholders, non-completion of syllabi, pressure to pass examinations, lack of monitoring and supervision, cheating by other students, and poor school facilities (Adebayo, 2012; Onyechere, 2008; Suleman et al., 2015).

The implications of examination malpractice are not farfetched. It breeds incompetent graduates who are unproductive, perform poorly on their job, and creates qualification inflation (Nwaba & Nwaba, 2005). Examination malpractices also undermine the credibility of any nation's quality of education (Adanma & Blessing, 2016). It is sad to note that, of late, some learners have the arduous task of defending the grades acquired in examinations that they have participated in. Seemingly, in some cases, students from basic schools (primary, junior, and senior high schools in Ghana) are incapable of spelling their names accurately or appropriately writing the name of their schools. Surprisingly, there are reports which, indicate that some general practitioners struggle to defend their certificates in the course of their duties especially when asked to perform an operation or possibly prescribe an appropriate drug for a patient (Petters & Okon, 2014). This suggests that the falling educational standard needs serious attention and that examination is no longer an ultimate test of one's capability. It is therefore not surprising that most learners exhibit lackadaisical attitude towards their studies and therefore rely on examination malpractice as a short cut to success (Petters & Okon, 2014).

Examinations in secondary schools should be true judgment by a standard, determining the true level of students' performance in each subject (Adanma &

Blessing, 2016). Adanma and Blessing observed that for a long time, particularly in the last two decades, examination malpractices have made it impossible for examinations at any level in the secondary schools in Ghana to be a true reflection of students' knowledge. This means that academically dishonest activities are gradually turning out to be the norm in the entire nation (Boakye, 2015). Hence, the security of examination has, therefore, become the major preoccupation for successive governments (Kagete, 2008).

Consequently, the entire citizenry who had their education prior to the emergence of academically dishonest activities within the school setup perceives the trend as extremely devastating. If the situation is not arrested, Ghana will retrogress educationally and technologically while the rest of the world progress steadily, and this might spell doom for the younger generation (Adanma & Blessing, 2016). According to Liman (1996), stakeholders in the education sector have been overburdened with the compromise and degradation of ethical standards for examinations and such incidences eventually affect the reputation and public confidence in the cogency and validity of the examinations and results. Similarly, examination malpractices and fraudulent activities weaken the trustworthiness and reliability of educational institutions and ultimately affects the learner assessment system.

It is a common phenomenon when examination malpractices occur that authorities blame schools for their complicity and particularly students and teachers blame each other (Kyei, 2014). One way of alleviating the compromise and degradation of ethical standards for

examinations is to solicit student's perception of examination malpractices and identify the perceived causes of examination malpractices in the selected Senior High Schools. The researchers are of the view that it's timely to investigate the students' perceptions and causes of examination malpractices in Senior High Schools to help recognise the strategies currently adopted by students. This may assist the handlers of senior high schools and examination officials in curbing academically dishonest activities before, during, and after examinations in secondary schools in Ghana. The main purpose of this study was therefore to examine the pattern of cheating or examination malpractices among the selected SHS students in Accra and to also identify factors that contribute to the tendency of students to engage in those cheating mechanisms.

### Research Questions

1. What is the trend of examination malpractices in the selected senior high schools in Accra?
2. What are the learners' perceived causes of examination malpractices?

## Materials and Methods

### Participants

The sample for this study consisted of a convenience sample of 300 students selected across six senior high schools who were in forms 2 and 3 within the capital city of Accra. The justification for settling on second and final year students was that these students had spent at least a year in the school and had taken at least one end of year examination in their respective schools and could talk

realistically about examination malpractices in their schools.

Out of the 300 students selected, one of them did not complete the questionnaire. Of the 299 that completed and returned the questionnaire, 174 (58%) were girls while 125 were boys. In terms of form, the majority (66%) were in form 2. This is because, at the time of data collection, most of the final year (form 3) were busy preparing for their end of school final examination and were not mostly on campus. In terms of age, 12%, 26%, 32% and 20% of the selected students were aged 15, 16, 17, and 18 respectively.

### Measuring Instrument

A questionnaire designed by the researchers was used to collect data for this study. The items of the questionnaire were arrived at after careful review of the literature for existing questionnaires and views from experts in the field of educational assessment and evaluation as well as an informal conversation with students on issues of examination malpractices or cheating. Prior to the data collection, the questionnaire was reviewed by 3 experts and pilot tested. The questionnaire contained both dichotomous (yes/no) and Likert scale (strongly disagree, disagree, neutral, agree, and strongly agree) items. The first section of the questionnaire contained items on students' demography such as gender, age, and form or class. The second part asked students to indicate which of the forms of examination malpractices they have engaged in before, during an examination. Sample items in this section include; "Have you sent foreign material to the examination hall before?", "Have you copied friends during an examination before?", and Have you swapped script

with someone during examination before?”. There were five of such items in the second section and the last questions asked student to select from a list of 10, the most common examination malpractices in their schools. The third section was made up of 12 Likert scale items to which students’ have to indicate their level of agreement. Sample of items are; “I will cheat only when it is a difficult exam”, “I will cheat in examination if my friends cheat”, “lack of proper invigilating by teachers encourages cheating during examinations”, and “lack of appropriate punishment measures for students involved in exams malpractices encourages cheating during exam”.

### Data Collection Procedure

Following the approval of the municipal and district directorates of education, the headmasters of the sampled schools were contacted to seek permission for the study in their schools. The details of the questionnaire and plans of the study were explained to school authorities and students in the sampled schools. The consent of the teachers and students was sought through written and verbal communication before administering the questionnaire. Respondents were informed that participation was anonymous and voluntary. The respondents were allowed to complete the questionnaire and return it

on the same day they received it. The questionnaires were administered by the third author who is a teacher in one of the schools and familiar with the other schools. It took approximately 25 minutes to complete one questionnaire, and the entire data collection exercise lasted 6 days.

### Data Analysis

In order to achieve the objective of this study, both descriptive and inferential statistical techniques were applied to the data. Specifically, descriptive statistics, scale reliability, factor analysis were performed first, followed by logistic regression and test of mean differences on each subscale across gender, form, and religion using independent t-test. Logistic regression analyses is preferred over the Ordinary Least Square (OLS) regression when the outcome variable is measured on binary scale (e.g., Yes and No or 1 and 0). All analyses were conducted using SPSS 22.0 with a significant level at 0.05.

### Results

**Research Question One:** What is the trend of examination malpractices in the selected senior high schools in Accra?

To answer question one, responses of the students to items 5, 6, 7, 8, 9, and 10 of the questionnaire were analysed and the results presented in Tables 1 and 2.

Table 1:

*The type of examination malpractices students engage in*

Type of examination malpractices	Yes	No
Have you ever had examination papers or questions ahead of time before?	82	216

Have you sent foreign materials to the examination hall before?	51	248
Have you copied from friends during examination before?	155	144
Have you swapped scripts or pieces of information with someone during examination before?	107	192

From Table 1, it can be deduced that most examination malpractices that is common to majority of the students is copying from each other during examination, followed by swapping of scripts, then assistance by teachers or examination invigilators. Similarly, the malpractices that is least practiced by the students is carrying of

Table 2:  
*Common examination malpractices in my school*

Common examination malpractices in my school	N	%
Sending of prepared answers by teachers and parents to students	7	2.3
Cheating directly from textbooks	32	11

From Table 2, it can be deduced that the most common or popular cheating mechanism among the schools sampled was cheating or copying from each other followed by script changing, coping directly from textbooks or foreign materials and the leakage of examination questions.

**Research Question two:** what are the students' perceived causes of examination malpractices?

To answer research question 2, exploratory factor analysis and logistic regression analysis were performed. The findings of

Have you ever been favoured or assisted by a teacher or invigilator during examination before?	94	205
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foreign materials into the examination halls.

To determine the common methods of examinations malpractices in the selected schools, frequency counts and percentages were used to analyse the students' responses to item 10 on the questionnaire and the results presented in Table 2.

Leakage of examination questions/paper	27	9.3
School authorities colluding with supervisory staff to assist students	7	2.3
Cheating/copying from one another	181	61
Impersonation	5	1.7
Scripting changing	40	13

the exploratory factor analysis are presented first followed by that of the logistic regression.

### Exploratory Factor Analysis

A principal axis factoring with varimax rotation was conducted on the 12 items related to students perceived causes of examination malpractices (KMO = 0.842, Bartlett tests = 648.80,  $p < 0.000$ ) and four factors with eigenvalues greater than 1 that explained 59% of the variance were retained. A further inspection of the screen plot justified the four factors. A careful inspection of the items that loaded under

each factor lead to the names; *lack of preparation* (4 items), *peer influence* (3 items), *lack of supervision* (2 items) and *teacher/invigilator assistance* (3 items). Example of items that loaded under the “*lack of preparation*” subscale were “I will cheat when I don’t have enough time to prepare for examination” and “I will cheat if we are not able to complete syllabi on time.” The “*peer pressure*” subscale contained items such as “I will cheat in examination if my friends cheat,” and “If I don’t cheat, those who cheat will have advantage over me.” Similarly, the “*lack of supervision*” subscale contained items such as “lack of proper invigilation by teachers encourages cheating in examinations.” And finally, the “*teacher/invigilator assistance*” subscale retained items such as “some teachers encourage cheating during the examination to improve their results.” Factor scores for the above names sub-scales were computed and used for further regression analysis.

### Logistic regression

Because “copying from friends” or “swapping of scripts during examinations” was popular among respondents, logistics regression analyses were conducted to identify which of factors can cause students to engage in such practices. Logistic regression analysis is used to predict the odds of a categorical event, that is an event that has only two values (yes or no), for example, “cheating in an examination” from a set of independent variables. Because copying from friends and swapping of scripts were measured on the binary scale (Yes and No), two separate logistic regression models were run.

The first one was run using the dependent variable “Have you copied from friends during examination before?” and the second had the dependent variable “Have you swapped scripts during examination before?” In both analyses the independent variables were; gender, age, form, lack of preparation, peer influence, lack of supervision, and teacher or invigilator assistance.

The results of the analysis indicated that for the tendency to copy from friends, the logistic model was statistically significant,  $\chi(8) = 18, p < .05$ . The model explained about 10% of variation in copying from each other with a classification accuracy of 58%. The results further indicated that students are 1.44 times likely to copy from others when they see other students copying.

Similarly, for the tendency to swap scripts during examination, the model was statistically significant,  $\chi(8) = 31.79, p < .000$ . The model also explained about 14% of variation in swapping of scripts during examination with a classification accuracy of 69%. The results show that the odds of swapping of scripts during examination was 1.953 times higher among form 3 students as compared to form 2 SHS students. Also, the tendency for students to swap scripts during examination is 1.738 times higher when teachers or invigilators encourage them to cheat.

### Discussion and Conclusion

The study found that the most common cheating mechanisms or examination malpractices among senior high students were copying from each other and swapping of scripts during examination. The findings of this study also revealed that students will most likely engage in examination malpractices when there is

lack of preparation, peer influence, lack of supervision, and when they are assisted by dishonest teachers or invigilators. This finding is consistent with the findings of (Makaula, 2018; Nyandwi, 2018; Ogunsanya, 2004; Suleman et al., 2015) that indicated that lack of adequate preparation for examinations by students caused them to engage in examination malpractices in Malawi, Nigeria, and Pakistan. This finding also supports that assertion that examination malpractice is a worldwide phenomenon that is affecting most educational systems in different countries and jurisdictions. This finding can be speculated as the reason why most students in some of the senior high schools in Ghana do not learn on regular basis and wait till examination time before they make an effort to learn which might possibly be too late for them to make adequate preparation towards the exam. Therefore, they become so desperate to the extent that they find ways and means to pass their examinations, hence engaging in the act of examination malpractices. Similar concerns were raised by Petters and Okon (2014) who concluded that students who do not study effectively are normally filled with fear of examination failure, and this causes them to engage in examination malpractices. Lack of preparation as a predictor of examination malpractices in Ghana, could also mean teachers' inability to complete the teaching of the assigned syllabi or program of studies. This is because, there is evidence to suggest that, when teachers are not able to complete the syllabi and the lessons on time, students are not equipped with the necessary knowledge and skills to prepare for the examination and this leads to students engaging in examination

malpractices (Kithuka, 2004; Onyechere, 2008).

One of the causes of examination malpractices as revealed by this study was peer influence or societal preference for certificates. This is because our society gives more credence to paper certificates than the considerations of whether knowledge and skills has been adequately acquired by an individual or not. Students realizing this importance attached to paper certificates by employers, higher educational institutions and members of the society are propelled to try as much as possible to attain high grades at all costs. This finding is in consonance with finding by Emaikwu (2012) and Petters and Okon (2014) who argued that most students see the acquisition of certificates as a 'do or die affair' which causes them to cheat in examination. Similar findings were reported by Yusuf et al. (2015) who indicated that the desire for students to pass at all course in examinations compelled them to engage in examination malpractices.

This study also revealed that students engage in cheating during examinations where teachers or invigilators aid or assist them in cheating. This type of cheating can only happen when there is lack of effective monitoring and supervision during examination. This finding agrees with that of Mutinda (2017) that revealed that students engage in examination malpractices when there is lack of supervision.

This study brought to bear, the prevalence of examination malpractices in some selected Senior High Schools within Accra. It also unearthed some methods students employed in cheating which included copying from friends and

swapping or changing of scripts. These identified examination malpractices are caused by lack of preparation, peer influence, lack of supervision, and when they are assisted by dishonest teachers or invigilators.

It is therefore recommended that school authorities should put in mechanism to promote effective teaching and learning in their schools to ensure that students are adequately prepared for examinations. This can be effectively done when teachers are made to complete their syllabi and lessons on time. When this is done, students will have ample to prepare for the examination.

It is also recommended that, management of high schools in Ghana need to strengthen the supervision and monitoring of examinations in their schools to curtail the tendency for students to copy from each other or swap scripts during examinations. Further, examination bodies and institutions enforce existing examinations laws and regulations to punish culprits of examinations to serve as deterrents to others.

The study also unearthed students' perceived causes of examination malpractices in Senior High Schools, and it is recommended that school authorities should take up public education and some cases counselling services for students and teachers on the effects and consequences of examinations on their lives and careers.

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