International Journal of Learning, Teaching and Educational Research
Vol. 21, No. 10, pp. 88-108, October 2022
https://doi.org/10.26803/ijlter.21.10.5
Received Mar 14, 2022; Revised Jul 22, 2022; Accepted Oct 15, 2022

Academic Dishonesty and the Fraud Diamond: A Study on Attitudes of UAE Undergraduate Business Students during the COVID-19 Pandemic

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Abstract. This paper examines academic dishonesty by business undergraduate students in the United Arab Emirates, using the lens of the fraud diamond theory, during the Covid-19 pandemic. The study used a survey of 305 students from the college of business in a major public university in the UAE, from August 2020 to November 2020 to investigate the extent of academic dishonesty. Results revealed H1 ($p<0.001$; p-value=0.73), H2 ($p<0.001$; p-value=0.52), H3 ($p<0.001$; p-value=0.76), and H4 ($p<0.001$; p-value=0.53) resulting in acceptance of all the hypotheses. The findings indicate that pressure to maintain a scholarship status and having achieved a previous academic award are positively and significantly related to the likelihood of committing academic dishonesty. Furthermore, the rationalization factors of the fraud diamond theory are significantly and positively related to the reported incidences of academic dishonesty. Similarly, the opportunity and capability factors of the fraud diamond theory significantly predict the incidence of cheating. As a result, the study recommends that administrators should implement academic dishonesty codes, reduce the opportunity to cheat, invest in new technology for reducing cheat.

Keywords: academic dishonesty; cheating; business students; fraud diamond theory; United Arab Emirates

1. Introduction

Academic dishonesty amongst the student body at the tertiary level of education is a constant problem for administrators globally (Chiang, et al, 2022; Noorbehbahani et al., 2022). This issue is more prevalent among students studying business (Hendy & Montargot, 2019; Khalid, et al., 2020). Technology

has impacted the rate of plagiarism as accessing data is much simpler and quicker. Although there are inherent benefits to the extensive use of technology in education, it enables more students to cheat. The Covid-19 pandemic highlighted the reliance educational organizations have on new forms of technology for learning to take place, without it teaching would have been impossible (Golden & Kohlbeck, 2020; König et al., 2020). Although numerous studies in the West have explored the theme of undergraduates cheating in an online context, few studies in the Arab World have researched this area (Hendy & Montargot, 2019; König et al., 2020; Parks-Leduc, et al., 2021). More so, there has been minimal research focusing in business students.

There is ample evidence that the high level of plagiarism in business majors is increasing which is cause for concern for faculty and administrators (Perkins et al., 2020). Cheating students think that operating in the business world requires unethical actions. At the same time, a high percentage of students admit to academic dishonesty in their course assessments (Chala, 2021; Hendy & Montargot, 2019). Believe that people in the business world act in an unethical manner; while, at the same time, a large number of students admit to having been involved in academic dishonesty, by cheating on exams and plagiarizing in term papers. Cheating has not only become a troubling phenomenon for many business undergraduate universities around the world but a very familiar and accepted part of the lives of many students (Ebaid, 2021).

The United Arab Emirates (UAE) is a country with a considerable number of institutions of higher learning. Many of these institutions are universities offering undergraduate and graduate degrees (Wilkins, 2020). These universities compete to attract students to their academic programs. Academic dishonesty is a serious problem for universities in the UAE (Khan et al., 2019). Of particular interest is the UAE business students who are involved in academic dishonesty and do not perceive their actions as problematic (Pacino, 2021).

Academic dishonesty remains a serious issue among university students and a burden for administrators (Chala, 2021; Hendy & Montargot, 2019). Students taking business-related courses have a high propensity to teach compared to their peers in other disciplines (Khalid et al., 2020; Parks-Leduc et al., 2021). Further, business students are likely to find cheating problematic. Thus, understanding the phenomenon of cheating among business undergraduate students is of critical importance (Hendy & Montargot, 2019). These are the students who will become future business leaders. In addition, the frequency of scandals in the business world places a burden on business schools to seek strategies to reinforce the importance of ethics. Unfortunately, the persistence of academically fraudulent behaviour such as cheating potentially diminishes the value of learning. Further, there is an emerging body of evidence indicating that academic dishonesty is increasing because of an increase in tuition, advancement in technology, and increase in online education (Chiang et al., 2022; Khalid et al., 2020; Williams & Oyesoji, 2019).

2. Literature Review

2.1 Academic Dishonesty and Business students

The practice of student cheating in higher education is an extensive problem (Djokovic et al., 2022). Academic dishonesty also referred to as academic fraud is the actions taken by students through devious means for personal gain (Djaelani et al., 2022). Most of the research conducted on academic dishonesty has focused on examining its prevalence than the relationship between student attitudes within the academic setting and the need for ethical behaviour in the real world (Abel et al. 2020; Hendy & Montargot, 2019; Parks-Leduc et al., 2021). Combined with the exponential growth in technology students now have more access to different tools to aid cheating (Djokovic et al, 2022). Plagiarism is among the most common forms of academic dishonesty practised by students (Perkins et al., 2020). For this review, plagiarism is defined as any deceitful or fraudulent attempt to evade rules, standards, practices, customs, mores, and norms to gain an unfair advantage or to protect someone who has done so. The scope of cheating includes possessing, communicating, using data and materials and study aids and devices which are not permitted by a lecturer in an academic task.

Higher education institutions have policies and procedures to deal with incidences of cheating yet this does not deter students from it (Chiang et al., 2022). On the contrary, there continues to be an increase in the trend of academic dishonesty. Some methods of the common academic dishonesty practices by students include buying assessments, answer sheets for exams, using texts in examinations, taking pictures of assessment materials and facilitating distribution to students (Chala, 2021; Ebaid, 2021; Hendy & Montargot, 2019). A major point of concern is business students cheat more compared to students in different majors (Parks-Leduc et al., 2021). This view is further supported by research which suggests business students have lower ethics than other students in other fields of study (Hendy & Montargot, 2019).

Several studies find a connection between the theme of cheating at college and unethical practices at work (Chala, 2021). For instance, the inclination to cheat at work was firmly correlated with the frequency of cheating in college (Mulisa & Ebessa, 2021). Hence, there is a simultaneous relationship between unethical workplace practices and student academic dishonesty.

2.2 Implications for Business Colleges

There are several implications to the problem of academic dishonesty of students for business schools. The first implication regards ethical value (Susilowati et al. 2021). It is crucial university degree programs inculcate students in the hope that students will internalise ethical behaviours and be better prepared for future employment (Mulisa & Ebessa, 2021). Therefore, designing and delivering ethical courses is a priority to due to the significant number of business students who cheat on tests, quizzes, or assignments compared to other students (Arefeen et al., 2020; Penaluna & Ross, 2022). This high rate of cheating is not limited to undergraduates which raises questions about the effectiveness of ethics course design.

Another concern for business schools is the ramifications of fraud in general on a vast number of people in society because of cheating students (Mulisa & Ebessa, 2021). This is a concern further supporting the urgent need for ethical instruction for students before graduation. A demonstration of this issue is the relationship between the public and financial professionals (Druică et al., 2019). The public relies on accountants to manage a range of financial interests, submit taxes and protect individuals from legal mistakes and there is an expectation that financial professionals conduct themselves honestly in their dealings. These expectations are reinforced in the ethics rules and expectations for professionals in these fields. To highlight the far-reaching consequences of fraud, recent events such as the 2008 financial meltdown, which affected millions of people across the globe, coupled with numerous business scandals over the past decade, have upset the public's trust in both accounting and finance professionals (Ebaid, 2021). In turn, this has discredited the effectiveness of business college programs.

An additional reason for concern is the increasing body of evidence indicating that despite the inclusion of ethics courses, business students are inclined to plagiarize more than other students (Arefeen et al., 2020; Parks-Leduc et al., 2021). Business majors have a minimal level of ethics compared to other disciplines (Khalid et al., 2020). Cheating among business students is higher in comparison to students in the programs such as business, engineering, science, and humanities.

A final reason for concern is the damage to the reputation of educational institutions (Arefeen et al., 2020). If a business school experiences incidents of cheating it brings into question the quality of its programs. When students are relaxed about academic dishonesty and reasons for cheating this becomes a more challenging issue to address and raises questions concerning the tolerance of cheating by business cohorts when compared to other students (Ebaid, 2021; Hendy & Montargot, 2019). Overall the extent of academic dishonesty by all business students remains appalling.

2.3 Forms of Plagiarism

The majority of research conducted on academic dishonesty over the last three decades has concentrated on recognizing the common actions of students who cheat and creating solutions to address it. Parks-Leduc et al. (2021) found that business students cheat more often than non-business students, which confirms studies by Hendy and Montargot (2019) and Ebaid (2021). Similarly, Khalid et al. (2020) note that business students' perception of academic dishonesty is less rigid in comparison to students in other fields of study.

The perception of what constitutes "cheating" varies from one individual to another. However, the body of evidence has identified what types are more prevalent. Some of the most common forms of academic dishonesty that many institutions of learning are experiencing based on literature are highlighted as follows. The findings of Abel et al. (2020), Chiang et al. (2020) and Dendir and Maxwell (2020) identify several practices by students going against the academic honesty policies of universities including copying homework or assignments; facilitating copying of your assignments; collaboration on individual

assignments; collaboration on take-home exams; looking at or copying from another students exam. Djokovic et al. (2022), Purwatmiasih et al. (2021), and Valizadeh (2022) identify cheating practices among students to include: a student allowing someone else to copy their exam; sourcing exam details before the exams; informing a student about exam content; using research material by others and submitting it as your own; using programming devices in an assessment; copying a source without proper citation; copying from the web without correct citation. Further, the behaviour perceived by students as the most common forms of academic dishonesty are: using crib notes on exams; copying in an exam; and obtaining someone else's work from the internet and using it as their own (Dendir & Maxwell, 2020; Williams & Oyesoji, 2019).

The literature further explores the reasons behind cheating among students (Chala, 2021; Dendir & Maxwell, 2020). The most commonly cited reasons reported for cheating were fear of exams, a desire to increase GPA, and limited time for study. Conversely, the main reasons for not cheating were to avoid feelings of guilt, trepidation about being caught, self-respect, and religious beliefs. Another major area of cheating is on examinations in academic institutions. Cheating is when a student obtains or attempts to gain some advantage by being dishonest or deceptive. Consequently, plagiarism is the biggest concern for higher education institutions (Perkins et al., 2020). Many other researchers have also appraised the studies on cheating in college/university as they provide insight into the most common ways of cheating and motivations which in turn can inform better policy in this area (Allehaiby & Al-Bahlani, 2021; Dendir & Maxwell, 2020).

2.4 Theoretical framework: Fraud diamond theory

To better understand tertiary students' motivations for cheating, research in the area of fraud theory is a useful model. The fraud triangle paradigm first used by Cressey (1953) explored the criminality of *250* convicted embezzlers who were interviewed to determine the motivations for their actions. This paradigm presents a method to analyse potential white-collar criminals, referred to as trust violators, who are rarely sociopathic, but rather act on financial motivations and justify these illegal behaviours cognitively. This ground-breaking study categorizes committers of fraud and explains their actions. Wolfe and Hermanson (2004) enhance Cressey's paradigm by further explaining the conditions that exist for fraud to occur. This is referred to as the fraud diamond theory. Unlike the fraud triangle paradigm by Cressey (1953) it is argued that although a non-shareable pressure exists along with the chance to commit fraud and a justification, fraud can only take place if the fourth element of capacity is present.

To explore Cressey's triangle fraud paradigm and diamond fraud theory, a consensus of key terms is required. Firstly, the definition of fraud within these constructs and what conditions exist for fraud to be committed as opposed to an error is necessary. Sujana et al. (2019) define fraud as the action taken intentionally, knowingly, and consciously to misuse everything owned jointly or the deliberate concealment of truth to gain an unfair advantage. This practice is different from a mistake which is absent a calculated motivation to be dishonest

for personal gain (Marfuah et al., 2022). Therefore, the main denominator in all fraud is the premeditation to cheat for self-serving purposes.

To explore students' academic dishonesty through the lens of fraud theory, Wolfe and Hermanson (2004), have expanded on Cressey's original paradigm, to include a fourth construct of capacity. Triangle fraud explains incidences of cheating in terms of rationalization, motivation, and opportunity, however, the diamond fraud theory includes this fourth element capability which identifies individuals who can execute fraud.it is argued that fraud can only be executed if a person has capability due to their access or position. Figure 1 below presents the complete construct of the fraud diamond theory.

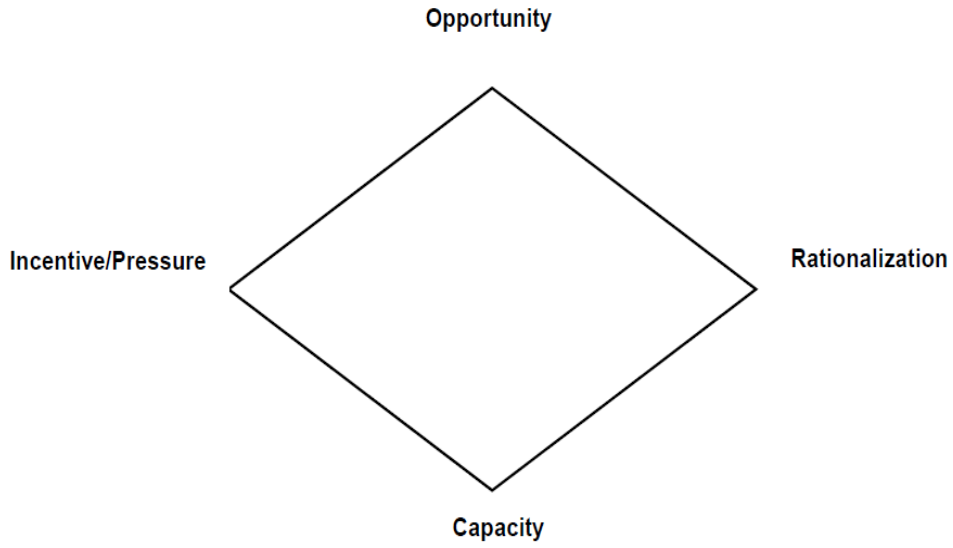

Figure 1: Elements of fraud diamond theory (Wolfe & Hermanson, 2004)

The effect of pressure on academic dishonesty

The first element of the fraud triangle is pressure, which is classified as an individual's desire to cheat either internalised or from external factors. Wolfe and Hermanson (2004) refer to the first element as incentive, whereby there is a desire or need to commit fraud. This kind of pressure leads an individual to commit unethical behaviour. Further, pressure is the motivation to carry out and hide the committed fraud (Umar et al., 2020). According to Utami and Purnamasari (2021), the pressure that students feel when committing academic fraud is the strong urge that exists in the students feeling from the self or the environment to maintain specific goals. Thes goals include maintaining a high GPA, sponsorship, or remaining within a given course. The anxiety that some students feel increases the pressure to commit academic fraud. Marfuah et al., (2022) explain that the high number of assignments, lack of study time, and difficult questions urge students to seek solutions to cope including committing fraud. The higher the pressure the students feel the more likely they commit fraud. Therefore, based on this description the first hypothesis of this study is:

H1: The propensity to cheat is positively correlated to pressure.

The effect of rationalization on academic dishonesty

Deceitful behaviour requires the presence of a rationalization before its execution. This construct in the fraud theory can be based on an attitude or moral value. Rationalization enables students to view plagiarism as being compatible with their personal beliefs. For example, acceptable practices may include, limited consequences for plagiarism, unclear parameters, and plagiarising other ideas when writing papers. Another element demonstrating rationalization is remaining consistent with an individual's code of ethics. This view is further supported in another study that revealed students justify cheating when they convince themself that fraudulent behaviour is worth the risk. Additionally, the students will rationalize fraudulent behaviour when faced with unfair situations, or if they believe it is acceptable (Smith et al., 2021). Thus, it is important to acknowledge that fraud committers often rationalize their behaviour as ethical before the fraud occurs. As a result, rationalization allows the deceiver to view their actions as legitimate. A person can cognitively bypass any concerns about engaging in unethical practices. Based on this description the second hypothesis of this study is:

H2: The propensity to cheat is negatively correlated with rationalization.

The effect of opportunity on academic dishonesty

The second element of diamond fraud theory is opportunity. A weak control offers the opportunity for committing fraud (Umar et al., 2020). This is because the perpetrators perceived that their actions will not be detected. Some students seek the opportunity to plagiarize when lecturers are lax about academic policy guidelines, or if the lecturer does not clarify the policy punishments for cheating during exams (Perkins et a., 2020). This view is supported by Wolfe (2004) who states that opportunity from lack of compliance in the system can be exploited by the right person. In other words, fraud is possible where the situation affords a chance for fraud to be carried out. When opportunity presents itself it is considered to have a key influence on a person's independent undertaking to be fraudulent (Wulansuci & Laily, 2022). In this context, opportunity refers to both environmental and individual characteristics that facilitate (or do not discourage) unethical behaviour. Further, a person's perception of an opportunity due to ineffective monitoring coupled with the power to execute the activity enables fraudulent activities to take place. The opportunity is a perception so it doesn't have to be tangible, an individual only requires faith to commit the deceitful action. Based on this description, the third hypothesis of this study is:

H3: Propensity to cheat is positively correlated with perceived opportunity.

The effect of capability on academic dishonesty

In light of the vast technological changes that have occurred since the original 1953 fraud triangle paradigm study was published, Wolfe and Hermanson (2004) added a fourth dimension to the traditional fraud triangle. Capability refers to the ability of the criminal to conceal the crime and includes both the technological capacity to commit fraud and get away with it, as well as the sophistication (intelligence and creativity) to recognize potential opportunities to commit fraud (Wolfe & Hermanson, 2004). Furthermore, capability encapsulates personality traits such as self-aggrandizement and narcissism, the charisma or persuasiveness to convince others to participate in or cover up the fraud. Wolfe and Hermanson

(2004), identified a person who commits fraud must possess essential characteristics and abilities to succeed in pulling off fraud (Wulansuci & Laily, 2022). These are referred to as recognized vital traits related to individuals' aptitude to undertake fraudulent activities. Based on this description, the final hypothesis of this study is:

H4: Propensity to cheat is negatively and positively correlated with capability.

2.5 Cheating motivators in the context of higher education

One main motivator for cheating is the availability of the opportunity. Although this is minimized in examination sessions because the students are physically proctored, this explanation is more applicable to situations where students are accessing online resources (Dendir & Maxwell, 2020). Therefore, faculty members need to implement a range of strategies to reduce cheating opportunities in online sessions (Chiang et al., 2022). Some examples of activities to reduce cheating in online sessions include: providing helpful resources on digital platforms, giving students more freedom to pace their learning and conducting focused discussions weekly to monitor their progress. Another motivator for cheating is the need to succeed at all costs. This largely emanates from the pressure to succeed. Some students experience immense pressure to achieve especially in an environment where there is a fierce competition which often leads to students cheating. Another explanation for the motivation for college students to cheat is the lack of effective punishment. When academic dishonesty is committed some instructors do not enforce consequences. Because of not making the students face consequences for their actions leads to the passing of mixed messages to the students by colleges and teachers (Chala, 2021). A common possible explanation for not taking up proper action to address cheating is the reluctance of faculty to accuse students of cheating. Faculty members struggle with determining whether there is enough evidence of cheating and have the institutional procedures have been met to tackle cheating. A final factor acting as a motivator for cheating is the moral code. The moral code explains the reason for students refraining from cheating while others cheat. Arefeen et al. (2020) found that the concept of moral reasoning was a significant variable and offered reasons for actions.

There is an exhaustive list of other reasons for students' cheating illustrated in literature such as time management issues, the difficulty of the subject, competition with others, anxiety, difficult exams, no deterrents, increasing grades, peer pressure, fear of failure, parental pressure, the lecturer does not care, high course load; and not understanding questions (Al Shbail et al., 2021; Zhang, 2019). Other factors that contribute to cheating are modelling of dishonest practices from society, ineffective teaching, lack of a positive learning environment and inferior facilities, education that is only focused on excellence above all else, lack of time management , absence of study habits, and technology (Chiang et al., 2022; Valizadeh, 2022; Patnayakuni et al., 2021).

Plagiarism during examinations is influenced by peers and leads every learner to know what should not be done (Perkins et al., 2020). More importantly, the effect on the learning process as any form of academic dishonesty in test situations undermines the purpose of understanding content, applying knowledge and

creating ideas which are important skills in learning (Dendir & Maxwell, 2020). Interestingly, students who didn't engage in forms of academic dishonesty were perceived to be effective learners who showed more respect for themselves than students who cheated.

2.6 Online learning

Online learning uses internet networks to facilitate various types of learning. Certain aspects make online learning popular such as the ease of access, connectivity to different devices (mobiles, notebooks and iPad) and its flexibility. Delivery of content is conducted using learning applications and social networks through the media of both print (module) and non-print (audio/video), computers/internet, radio, and television broadcasts (Purwatmiasih et al., 2021). As a tool for education, it is used in a distance learning system, where learning and teaching activities are not carried out face-to-face (Rohman et al., 2020). According to Tampubolon et al., (2021) the categories of online learning include:

- Controlled by other means.
- Controlled by the system.
- Used in real-time.
- Connect to a system in operation.
- Functional and ready to serve.

During online learning activities, students have the freedom to study at their convenience anywhere and anytime (Dendir & Maxwell, 2020). The traditional constraints of classrooms don't apply. Students engage with teachers and their class via video calls, live chat, or web-based meetings. While there are numerous advantages to online, there are challenges such as difficulty reading students' work, and providing access to accounting tools such as Excel and resources (accounting or auditing standards) that can facilitate more authentic test design (White, 2021). On the other hand, time is saved by not having to grade physical papers or enter marks from exam scripts into spreadsheets or Learning Management Systems (LMS). In general, online exams are more cost-effective, multiple questions are graded automatically which reduces marking time for teachers (Ebaid, 2021). The bonus for educational administrators of programs is that online assessments are quicker than paper-based exams and reduce the workload for the whole organization.

3. Research Methods

3.1 Research design

A quantitative research design was used to investigate the research problem. Therefore, this encompassed the use of statistics to explore the research issue of academic dishonesty among students pursuing business-related undergraduate degrees. Therefore, this study entailed the use of statistical data to determine the main reasons behind students engaging in academic dishonesty.

3.2 Research Participants

The participants were undergraduate students selected from two prominent higher education institutions in the UAE. Potential participants were recruited for the study via their email listings using random sampling. This sampling technique

helped to reduce bias because it provided each potential participant with an equal opportunity for selection (Mohajan, 2021). The participants were informed about the volunteer nature of the study. A total of 305 students completed a survey designed to enable the collection of data from undergraduate students at the two higher education institutions.

3.3 Data Collection

A survey questionnaire was used as the best tool to collect data in terms of ease of distribution, and completion and stored for data analysis. This method of data collection allows for the gathering of data from a relatively large number of people in a short time (Einola & Alvesson, 2020). The questionnaire was prepared to capture the key variables of this study, propensity to cheat, motivation, rationalization, perceived opportunity, and capability. The questionnaire was tested for consistency before its distribution to the selected students. Accordingly, the Cronbach's Alpha of the questionnaire was set from 0.76 to 0.88. Data collection was from August 2020 to November 2020.

3.4 Data Analysis

Once collected data was uploaded to the latest available SPSS software and analysed using several statistical tests including correlational tests, comparison of means tests and regression tests. The ordinal logistic regression model was utilized to test the research hypotheses. Because of the quantitative nature of the study, there was the use of numerical format tables and figures to summarize collected data. Tables and figures in a quantitative study help to summarize data and aid in its presentation allowing for ease of understanding (Hameed, 2020). In further conducting the data analysis, the Univariate analyses entailing the use of chi-square tests for the categorical variables were applied and one-way ANOVA tests for the continuous ones.

3.5 Ethical Considerations

This was a primary study involving the use of human subjects. For this reason, there were several ethical issues considered. Informed consent was a major issue considered. Only, students that provided explicit permission by signing a consent form were included in this study. Consent was acquired after the participants received adequate information concerning the study and their role. Another ethical issue considered was confidentiality. The identity of the research participants was not revealed in this study. Therefore, this entailed the use of pseudonyms in place of the real names of the participants. An additional ethical issue considered in this study was beneficence. Accordingly, it was essential to ensure that no harm came to the students because of taking part in this study.

4. Results

4.1 The dependent variable and the ordinal logistic regression model

In all analyses, the dependent variable is the propensity to cheat as measured in the designed and distributed questionnaire on cheating behaviour section "*Have you ever engaged in academic dishonesty?*" The resulting distribution is shown in Table 1 below.

Table 1: The distribution of the dependent variables

¤		Frequency¤	Percent¤
¤	1:Never¤	222¤	72.8¤
	2:Rarely¤	25¤	8.2¤
	3:Frequently·or·very·frequently¤	30¤	9.8¤
	Total¤	277¤	90.8¤
¤	Missing·values¤	28¤	9.2¤
Total¤		305¤	100.0¤

This is a categorical variable and testing hypotheses using this variable and more than one independent variable entailed the application of the *ordinal logistic regression model*. This model is an extension of binary logistic regression. In this model, let Pj=P(Y ≤ j) denote the *cumulative* probability of the dependent variable Y *being at mst equal to j*, j =1,.., k-1 where k is the number of levels of Y. Of course, Pk=1, so the last level (the reference level) is left out. The *odds* of these cumulative probabilities are then:
$\frac{P_1}{1-P_1}, \frac{P_2}{1-P_2}, \ldots, \frac{P_{k-1}}{1-P_{k-1}}$. The results are given in the form of *logit functions*, which express the natural logarithms of these odds as linear functions of the independent variables X1,…,Xp:

$$ln\left(\frac{P_1}{1-P_1}\right) = b_{01} - \left(b_1X_1 + b_2X_2 + \cdots + b_pX_p\right)$$
$$ln\left(\frac{P_2}{1-P_2}\right) = b_{02} - \left(b_1X_1 + b_2X_2 + \cdots + b_pX_p\right)$$
…
$$ln\left(\frac{P_{k-1}}{1-P_{k-1}}\right) = b_{0,k-1} - \left(b_1X_1 + b_2X_2 + \cdots + b_pX_p\right)$$

In the above, *b*01, *b*02, …, *b*0,k-1 are the estimates of the intercepts ("thresholds"). The coefficients *b*1,*b*2,…,*b*p are the (beta) coefficients of the independent variables. These are the same in all equations (an assumption known as the *proportional odds* or *parallel lines assumption*). The minus sign on the right-hand side makes positive values in the beta coefficients indicating *higher odds of moving to the next higher ordered category for higher values of the independent variables*. In other words, larger beta coefficients indicate an association with larger values of the dependent variable. For example, in the case where *X*1 is a binary (0,1) variable, it can easily be shown that, by increasing *X*1 by one unit and keeping everything else constant, the odds of *Y* being at a higher level rather than being at the same or lower level increase by a factor of e^{b_1} . But e^{b_1} is larger than one only if *b*1 is positive.

4.2 Transformations and Univariate analysis

The following Table 2 summarizes the transformations of the variables and the results of the Univariate tests for association with the dependent variable Cheating. When the results of these tests indicate a statistically significant association, there is a comment (…) in the 4th column showing which direction of a variable is associated with a higher likelihood of cheating. The Univariate analyses were chi-square tests for the categorical variables and one-way ANOVA tests for the continuous ones.

Table 2: Univariate analysis

Index	Variable(s)	Transformations	Univariate results – associations with Cheating
Q1	Gender	Set one case ("prefer not to say") as missing	significant association (males □): $X^2(2,N=276)=13.32$, p=0.001
Q2	Age	Merged two sparsely populated levels (25-34, 35-44) into one	No association
Q3	Business major	Tested as is and also after recoding into two levels (Accounting and Other)	No association
Q4	Year in college	Reduced levels to two: 1st-3rd year and 4th year or more	Significant association (4th year or more □): $X^2(2,N=277)=6.00$, p=0.05
Q5	Current GPA	Reduced levels to three: 0.0-3.0, 3.1-4.0 and no GPA	No association
Q6	Sponsored student	No transformation	Significant association (yes □): $X^2(2,N=271)=13.55$, p=0.001
Q7	Academic awards	No transformation	Significant association (yes □): $X^2(2,N=270)=22.29$, p < 0.001
Q9	Difficulty of cheating	Reduced levels to two: Very low to low, High to very high	Significant association (very low to low □): $X^2(2,N=171)=7.51$, p = 0.023
Q10	Specific behaviours	Not used	
Q11	Attitudes towards academic dishonesty	Merged 'disagree' with 'strongly disagree'. Used factor analysis and extracted two factors	Means of one factor significantly different in levels of Cheating (higher values □): F(2,142)=3.44, p=0.035
Q12	Non-shareable pressure	Used factor analysis and extracted three factors	No association
Q13	Opportunity to cheat	Selected four statements and took the mean of the replies	Means significantly different in levels of Cheating (more opportunities □): F(2,143)=6.71, p = 0.002
Q14	Rationalization of cheating-A	Used factor analysis and extracted two factors	Means of both factors are significantly different in levels of Cheating: F(2,129)=11.96, p < 0.001 (lower values □) and F(2,129)=4.99, p =0.008 (lower values □)
Q15	Rationalization of cheating-B	Took the mean of the replies	Means significantly different in levels of Cheating (rationalization □): F(2,140)=10.54, p < 0.001
Q16	Peer Attitudes toward cheating	Took the mean of the replies	Means significantly different levels of Cheating (in favour of cheating □): F(2,140)=5.10, p = 0.007
Q17	Penalties	Took the mean of the replies	No association

4.3 Control variables and hypotheses

Gender and the grade point average (GPA) were used as control variables and incidentally, gender and GPA are also correlated. However, as was shown in the tests of the hypotheses, through the calculation of the appropriate diagnostics (GVIFs - generalized variance inflation factors), this correlation did not create multicollinearity problems. This means that the correlation did not affect the statistical significance of the independent variables.

Propensity to cheat is positively correlated with pressure (H1)

For the tests with the *(non-shareable pressure)* set, factor analysis was applied and extracted 3 factors explaining 65% of the total variance[1]. Although the model fit was good, there was no indication of the association of cheating with the pressure factors.

Concerning the three statements in *(peer attitudes towards cheating) set*, an association of the mean of the numeric levels of the replies was found to be significant in the Univariate analysis (see Table 2). The application of the ordinal logistic regression model with this variable as an independent variable (named Peers) and gender and GPA as control variables verified this association (Table 3). Of the cases entering the analysis were 141.

Table 3: Ordinal regression with the peer attitudes score as an independent variable

Parameter		B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
				Lower	Upper	Wald Chi-Square	df	Sig.
Threshold	[Cheating=1]	2.283	.9111	.497	4.069	6.277	1	.012
	[Cheating=2]	3.339	.9333	1.510	5.168	12.799	1	.000
Peers		.476	.1799	.123	.829	7.001	1	.008
[Gender=1]		-1.243	.4632	-2.150	-.335	7.197	1	.007
[Gender=2]		0	.	.	.	.	.	.
[GPA=1]		.813	.8160	-.786	2.412	.993	1	.319
[GPA=2]		.666	.9201	-1.137	2.470	.524	1	.469
[GPA=3]		0	.	.	.	.	.	.
Comparison with the baseline model: $X^2(4)= 21.89$ ($p < 0.001$).								
Consistency of observed data with the fitted model: Pearson's and deviance goodness of fit values 1.07 and 0.82, respectively.								
Test of parallel lines (H0: assumption holds): p-value = 0.73								

As it can be seen in the notes under Table 4, the model fit was good. As a result, we can accept the significant positive effect of the peer variable on cheating. Since higher levels of peers indicate favouring of cheating, this is translated into a significant positive effect on cheating of the peers' attitudes favouring cheating.

A most significant effect is also observed with the *sponsored student variable* (1=Yes, 2=No), presumably because sponsored students feel the pressure of justifying

[1] The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.86, a good value, and Bartlett's test of sphericity rejected the null hypothesis of no correlation at $p < 0.001$.

their sponsorship. The results in the following Table 4 show this as a significant negative effect *when going from 1=Yes to 2=No*. This analysis was based on 270 cases. Finally, an analysis with the *previous academic awards variable* (1=Yes, 2=No) yielded very similar results with 268 cases.

Table 4: Ordinal regression with the sponsorship as an independent variable

Parameter		B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
				Lower	Upper	Wald Chi-Square	df	Sig.
Threshold	[Cheating=1]	.072	.7704	-1.438	1.582	.009	1	.926
	[Cheating=2]	.868	.7752	-.652	2.387	1.252	1	.263
[Sponsored=1]		-1.651	.4419	-2.518	-.785	13.962	1	.000
[Sponsored=2]		0	.	.	.	.	.	.
[Gender=1]		-1.261	.3788	-2.004	-.519	11.090	1	.001
[Gender=2]		0	.	.	.	.	.	.
[GPA=1]		.618	.6573	-.670	1.906	.884	1	.347
[GPA=2]		.638	.7585	-.849	2.124	.707	1	.400
[GPA=3]		0	.	.	.	.	.	.
Comparison with the baseline model: $X^2(4) = 26.08$ ($p < 0.001$).								
Consistency of observed data with the fitted model: Pearson's and deviance goodness of fit values 1.29 and 1.56, respectively.								
Test of parallel lines (H0: assumption holds): p-value = 0.52								

The propensity to cheat is positively correlated with rationalization (H2)

To reduce dimensionality in the *first set of 10 statements (Q14)* we applied factor analysis with these variables. We extracted two factors, RATA_FAC1, and RATA_FAC2, which explained 73% of the total variance[2]. Next, we tried an ordinal logistic regression model with Cheating as the dependent variable, the two-factor variables as the independent ones and gender, and GPA as control variables (131 cases). This model, shown in Table 5, had a good fit and showed the significant negative effect of the two-factor variables, RATA_FAC1 and RATA_FAC2 on cheating. This means a significant *positive* effect of rationalization on cheating, in line with hypothesis H2.

Table 5: Ordinal regression with rationalization factors as independent variables

Parameter		B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
				Lower	Upper	Wald Chi-Square	df	Sig.
Threshold	[Cheating=1]	1.244	.8495	-.421	2.909	2.144	1	.143
	[Cheating=2]	2.375	.8708	.669	4.082	7.440	1	.006
RATA_FAC1		-.734	.2122	-1.150	-.318	11.969	1	.001
RATA_FAC2		-.564	.2006	-.957	-.170	7.890	1	.005
[Gender=1]		-1.282	.5251	-2.311	-.252	5.957	1	.015
[Gender=2]		0	.	.	.	.	.	.
[GPA=1]		.786	.8514	-.883	2.455	.852	1	.356
[GPA=2]		1.073	.9608	-.810	2.956	1.248	1	.264
[GPA=3]		0	.	.	.	.	.	.
Comparison with the baseline model: $X^2(5)= 34.39$ ($p < 0.001$).								
Consistency of observed data with the fitted model: Pearson's and deviance goodness of fit values 0.93 and 0.83 respectively.								
Test of parallel lines (H0: assumption holds): p-value = 0.61								

The propensity to cheat is positively correlated with perceived opportunity (H3)

For this hypothesis, we first used the set of six statements in Q13 ("Opportunity to Cheat"). These were replied on the scale "Strongly agree", "Agree", "Disagree"," Strongly disagree", coded to 1-4, with higher levels indicating more opportunities to cheat. The perceived chance of being caught and the severity of penalties from four statements in Q17 "Penalties" ("Very High", "High", "Low", "Very Low", with higher levels indicating larger perceived risk) can also be examined as part of this hypothesis. See Table 6.

Table 6: Ordinal regression with opportunity score as an independent variable

Parameter		B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
				Lower	Upper	Wald Chi-Square	df	Sig.
Threshold	[Cheating=1]	-1.148	1.0562	-3.218	.922	1.182	1	.277
	[Cheating=2]	-.182	1.0537	-2.247	1.884	.030	1	.863
Opport		-.974	.2819	-1.526	-.421	11.937	1	.001
[Gender=1]		-1.322	.4656	-2.235	-.410	8.066	1	.005
[Gender=2]		0	.	.	.	.	.	.
[GPA=1]		1.158	.8198	-.449	2.764	1.994	1	.158
[GPA=2]		1.127	.9265	-.689	2.942	1.478	1	.224
[GPA=3]		0	.	.	.	.	.	.
Comparison with the baseline model: $X^2(4)= 27.67$ ($p < 0.001$).								
Consistency of observed data with the fitted model: Pearson's and deviance goodness of fit values 0.89 and 0.68, respectively.								
Test of parallel lines (H0: assumption holds): p-value = 0.76								

Based on Table 6 above, the composite opportunity score undermines cheating. Given that larger values correspond to more opportunities, we conclude that perceived opportunity is positively correlated with cheating, in line with the Univariate analysis results, verifying hypothesis H3.

The propensity to cheat is positively correlated with capability (H4).

One aspect of capability is the trust in new technological methods to cheat. The results of the ordinal logistic regression are shown in Table 8 below. Lower values in this statement indicate agreement, therefore the significant negative effect of opportunity 6 coded as (rOpport6) on cheating is translated into a significant positive effect of trust in the new technological methods of cheating, Table 7. The conclusion is therefore that knowledge of weaknesses in the environment which can be exploited is positively correlated with the propensity to cheat.

Table 7: Ordinal regression with the technology question (Q13.f) as an independent variable

Parameter		B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
				Lower	Upper	Wald Chi-Square	df	Sig.
Threshold	[Cheating=1]	1.462	.4609	.558	2.365	10.057	1	.002
	[Cheating=2]	2.457	.4914	1.494	3.420	25.000	1	.000
[rOpport6=2.00]		-.849	.3812	-1.596	-.102	4.956	1	.026
[rOpport6=1.00]		0	.	.	.	.	.	.
[Gender=2]		1.502	.4684	.583	2.420	10.275	1	.001
[Gender=1]		0	.	.	.	.	.	.
[CollegeYear=2]		.718	.4108	-.087	1.523	3.057	1	.080
[CollegeYear=1]		0	.	.	.	.	.	.
(Scale)		1						
Comparison with the baseline model: $X^2(3)= 23.70$ ($p < 0.001$).								
Consistency of observed data with the fitted model: Pearson's and deviance goodness of fit values 0.69 and 0.83, respectively.								
Test of parallel lines (H0: assumption holds): p-value = 0.53								

5. Discussion

The findings of this study indicate that academic dishonesty is a prevalent problem among business students. One of the factors that facilitate this dishonesty is the pressure that the students feel emanating from several reasons. For instance, this study found that peer attitudes were pressure factors for students to engage in cheating. This indicates that students tend to influence each other to engage in cheating behaviour in their academics because their peers find it acceptable or are also engaging in this practice. Further, the state of being a sponsored student is yet another source of pressure for students to engage in cheating. This is a situation emerging from the fact that sponsored students feel the pressure of justifying their sponsorship. Consequently, these students will do anything to prove they deserved their sponsorship by maintaining high grades including cheating. These findings are in tandem with those of Purwatmiasih et al (2021) who show that pressure is a motivation directing perpetrators to undertake

unethical behaviour. This is something that may have taken place in the personal life of the individual motivating them to commit fraud. Additionally, these findings are similar to those of Juliardi et al. (2021) which indicate, that academic cheating emanates from the family environment or that which the students interact with the most. Thus, some of the reasons for students cheating are pressure from parents, attaining a good grade, and requirements for getting scholarships.

The findings of this study indicated that students will cheat as long as there is some rationalization behind their actions. This means that students will cheat as long as they can convince themselves that what they are doing is okay. Rationalization is what will make even those who do not want to commit fraud become tempted to do so. This means that students who commit academic dishonesty will seek rationalization by providing several reasons for their actions. These findings align with those of Purwatmiasih et al (2021) who explain, that students use a myriad of reasons to justify cheating.

As per the findings made, students will engage in academic dishonesty as long as there is an opportunity. Opportunity, in this case, represents the system weaknesses that become exploited to commit fraud. In most instances, the fraudster will know the possibility of fraud. Therefore, students that commit academic dishonesty always have insight concerning the possibility of doing so. These findings show similarity with those of Juliardi et al. (2021) who opine, that the existence of situations and the lack of strict sanctions will encourage students to cheat. Additionally, these findings align with those of Purwatmiasih et al (2021) who note that many students identified the opportunity to commit academic dishonesty during the COVID-19 pandemic because of the online assessment.

This study also found that students will cheat because of their capability. Business students are using their power and capacity to commit academic dishonesty. While opportunity opens the door for committing fraud, and rationalization provides the attraction to do, the capability is what will enable people to realize that there is a door in the first place. Thus, the capability is a major issue that institutions of higher learning face enabled by the emergence of new technological methods of teaching and learning. Therefore, students are using their capability as tech-savvy to commit academic dishonesty. Similar findings are made by Purwatmiasih et al (2021) who find, capability impacts the possibility of students committing academic fraud. The findings of Juliardi et al. (2021) align with this and indicate, that those who commit fraud tend to perceive their actions as right as long as they do not cause harm to others.

6. Conclusion

In this study, the findings indicated a strong positive association between sponsorship and previous academic awards with academic dishonesty. Presumably, the pressure to stay in the top position in class and keep receiving benefits associated with sponsorships led to students cheating. Rationalization was also shown to have a significant positive effect on cheating. This association

was demonstrated using two sets of relevant questions. This statistically tested the significant positive effect of rationalization on cheating.

There is sufficient evidence from this investigation of more opportunities to cheat being associated with a higher propensity of cheating. Hence, reducing the opportunity to cheat, or weaknesses with internal controls is key to preventing fraud in business colleges. Finally, in capacity/ capability, trust in the new technological methods facilitates cheating. More generally, perceived weaknesses in the prevention of cheating were found to have a significant positive effect. This is an important component of the Fraud Diamond Theory (Figure 1). This is especially with the advancement in technological capability available to academics and students alike. Furthermore, an increasing number of higher education institutions are relying on online platforms not only to deliver lessons but also to conduct exams. These platforms just like any other online platform are receptive to hacking and misuse.

6.1 Recommendations

The findings of this study lead to the following recommendations regarding the mechanisms through which administrators and educators can reduce incidences of academic dishonesty among business students in institutions of higher learning. First, departments can implement academic dishonesty codes and set clear guidelines regarding the consequences of cheating. This can include the establishment of a zero-tolerance policy for academic dishonesty.

Second, faculty and administration should take steps to reduce the opportunity to cheat. This includes using standardized sets of rules for exams across departments. Other opportunities are using more aggressive proctoring of exams, lockdown browsers, and verification of student identification.

Third, regarding the capability factor, the administration should invest in new technological methods to reduce the incidence of cheating. Faculty should be trained to use controls during online exams, including screen sharing and lockdown browser systems to detect cheating. This practice may include the use of plagiarism detection software such as TurnItIn.

6.2 Limitations and future research

As for the limitations of this study, one of them was the sample size. This study used only 305 participants which are relatively small to represent business students at the undergraduate level prone to academic dishonesty. Therefore, future research should involve the use of a larger sample size that will offer more coverage and generalizability. However, this was not possible for the present study because of the amount of time and resources needed for using a larger sample size. An additional limitation of this study regarded the language used to formulate the survey questionnaire questions. The questionnaire was formulated in English to be used by non-native speakers. There is the possibility that some of the respondents may not correctly interpret the questions which can bring about bias. This is despite the great efforts in designing the questionnaire, piloting it and then providing direct contact details for those who may need help in filling it. Accordingly, the results should be read and interpreted with care by the readers,

taking into account these limitations. Further, future research should involve the availability of the questionnaires in the native language of the research participants.

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