Migration Letters

Volume: 21, No: S7 (2024), pp. 22-34

ISSN: 1741-8984 (Print) ISSN: 1741-8992 (Online)

www.migrationletters.com

The Effect Of Educational Misconduct On Ethical Decision-Making In A Professional Environment: An Investigation Of Engineering Students

Chen, Gaojie[1] , Wu, Wenchuan[2]

Abstract

Background: *The topic of academic misconduct has been investigated intensively across the world. When people embrace learning methodologies throughout their education, personal values are a field o[1]f study factor. These principles have a major impact on how people behave in their learning communities and, ultimately, how well they do academically, especially in college or university. This study aims to address the crucial issue of whether online assessment tools combined with a well-established teaching style via a Multi-Course Project-Based Learning (MPL) approach aid in achieving the successful completion of the SOs in a senior-level Electrical Engineering (EE) course.*

Aim: *The aim of this research is to investigate the relationship between moral conduct in professional settings and integrity in academia.*

Method: *This research investigated the link between moral decision-making and educational misconduct, with a concentration on the moderating role of ethical decision-making on this connection. It was conducted on the foundations of the social cognitive hypothesis and the theory of planned action. To verify the study's assumptions, a survey of 1271 students—744 female and 527 male—with a mean age of 15.39 years and a standard deviation of 0.78—from 41 senior students studying engineering in China was completed and assessed using hierarchical regression techniques by SPSS 26.*

Results: *The findings indicate that female students had less educational misconduct and a more favourable attitude towards making ethical decisions than did their male counterparts. Students who report engaging in dishonest behaviour outside of school also report perpetrating acts against their academic standing, while students who see academic infractions as less severe report engaging in academic misconduct more often outside of school.*

Conclusion: *When developing courses on ethics or college student regulations that focus more on education misconduct and other pertinent topics, scholars from education and administrators in education systems may use the study's results as a reliable source of knowledge.*

Keywords: *Academic, Educational Researchers, Ethical-Related, SPSS 26, China, Hierarchical Regression, Environments, Electrical Engineering, Academic Achievements, Teaching Strategy, Misconduct.*

I. INTRODUCTION

[1]Institution: International College, Krirk University, Thailand, 10220
[2]Institution: International College, Krirk University, Thailand, 10220

In order to create a society that is mindful of the planet, sustainable, and innovative, it is recommended that students actively participate in university courses and utilise technology and creativity. Employing the aforementioned strategies calls for a variety of skills, including collaborative decision-making and innovative problem-solving [1]. The present curriculum approaches must be modified, and a number of creative teaching methods must be put into place to help students become active observers and develop the Education for the Sustainable Development (ESD) abilities that are in high demand [1, 2]. Conclude that in order to promote sustainable development, prevent damage to scientists from experiencing normative dissonance, and prevent the public from losing faith in research, new foundations for confidence-building in science are required [2, 3].

Numerous disasters concerning unethical and illegal procedures in engineering have rocked the engineering profession; many of these incidents occurred in major, reputable engineering firms and government bodies [3, 4]. Reminding us of the need of ethical awareness and behaviour—as well as encouraging engineering students to learn and practise ethical behaviour—should not require a significant national structural collapse.

Since engineering ethics are an integral element of engineering thought, identity, and professional practice, developing ethical judgement abilities in the future engineers is a critical capability for engineering institutions [4 ,5]. Future engineers should possess a foundation in ethics and professionalism in addition to their technical understanding, abilities, and talents. Engineering schools have a responsibility to teach professional ethics, not only technical subjects for future engineers, as engineering students are expected to foster and promote enterprises and aid in the economic prosperity of society [6, 7]. The continuous advancement of technology and inventions has made technology supervision significantly more difficult, contentious, and destructive than it was in the past.

The development of ethical decision-making skills in engineering students is an essential component of preparing our future leaders and innovators in the field. How to best achieve this objective is the issue that engineering instructors find difficult to answer [7, 8]. The primary evolution of the pedagogical framework for engineering ethics education has been the use of case studies, codes of ethics, and introductions to moral philosophy.

Although we as educators have developed instructional strategies to teach engineering ethics, we still place a strong emphasis on moral judgement and ethical reasoning, giving little thought to the degree to which ethical awareness anticipates ethical action [8, 9]. According to the literature, the emphasis in engineering ethics courses has been on skill development rather than behaviour modification. We contend that pupils who possess the capacity for moral judgement are not inherently morally well-educated or inclined to act morally. Since ethical thinking has not been shown to consistently transfer into ethical action, [10], we contend that quantifying ethical reasoning is inadequate for teaching engineering ethics.

The first section of the study reviews the present status of ethics education in US undergraduate engineering curricula and discusses regularly used evaluation instruments, including Rest's Defining Issues Test (DIT) and Kohlberg's stages of moral reasoning. Next, we make the case that evaluating ethical thinking alone is not enough [11]. Rest's neural mechanisms of ethical awareness, moral assessment, moral inspiration, and ethical principles and implementation are the foundation of our framework.

This approach considers how students feel about acting morally, what societal norms encourage them to act morally, the means by which much control they believe they have over acting morally, and their responsibilities as professionals [12, 13]. The proposed model's variables—positive attitudes towards acting ethically, a sense that support to act ethically, a sense of occupational responsibility, and knowledge of the various spheres of behavioural psychology and how they correspond with promoting ethical behaviour—are

all measured and taught using Fink's course design approach, which is in line with this fresh approach [14, 15].

These factors are readily measured at the start of a course and reviewed as it progresses. Additionally, the approach enables the selection of certain learning activities and instructional materials that are closely related to every student result. Our model is intended to provide a succinct approach to teaching and examining ethics, as well as evaluating the elements that might indicate future moral behaviour.

1.1 Integrating Ethics Education into Undergraduate Engineering Programmes

Often, there is no one correct solution when it comes to ethics. Teaching professional ethics to students and inspiring them to take them seriously are not easy tasks. Numerous engineering curriculum do not mandate ethics as a mandatory subject. Graduates in engineering are still required to show that they have a solid ethical and professional foundation, nonetheless. Teaching ethics in engineering is still not given much attention in engineering education, despite the fact that ABET's Engineering Criteria 2007 demands engineering programmes to show that its graduates have a knowledge of ethical as well as professional responsibilities [16].

Empirical study provides evidence that engineering ethics instruction is ineffective. Previous studies, for instance, have not shown any improvement in the ethical decision-making skills of first-year vs senior-year students. This suggests that the undergraduate curriculum does not adequately prepare students to deal with ethical dilemmas in the workplace. A 2006 paper by Penn State University academics that described the results of ABET's EC2000 programme, which pushed for greater incorporation of ethical awareness inside engineering programmes, reinforced the significance of this idea [16, 17]. Engineering choices may be influenced by knowledge of social and global challenges, according to a research that contrasted then-current academic achievement in major accrediting categories. However, ethical concerns were identified as one area that needed improvement.

TDC is fully integrated because it builds a holistic framework of many disciplinary and interdisciplinary contributions, combining more disciplinary contributions from several disciplines to achieve a comprehensive degree of knowledge. When it comes to research issues and organisations that are defined by complex areas like sustainable development, global warming, and health care difficulties, [18, 19], TDC acknowledges and addresses scientific complexity and fights knowledge fragmentation.

Inter-subjectivity produces transdisciplinary knowledge because it is a research method that integrates people's practical reasoning with the complexity of social, organisational, and material environments [20]. TDR and practice must work together continuously throughout the whole duration of a project's implementation or research endeavour. Because TDC is action-oriented and bridges academic borders as well as theoretical advancement and professional practice, it is essential.

Transdisciplinary contributions address real-world issues and provide information that not only discusses but also helps to solve social issues. Transdisciplinary approaches have been used not just in scientific research but also in the practice of land-use planning, design, and urbanism, where stakeholders are included in the decision-making process [21, 22]. Because of its interdisciplinary character, which incorporates action-oriented techniques meant to modify the physical and natural surroundings together with natural and social sciences, architecture and urban planning are rich fields for transdisciplinary contributions.

Academic dishonesty refers to the practice of falsifying test answers or using someone else's research or papers for personal advantage. In academic circles, it also refers to any unethical actions that go against the code of conduct for research integrity, [23, 24], such

as cheating on an exam by using someone else's work as your own, buying research papers as your own, citing false sources, delinquency, receiving unapproved assistance, manipulating academic staff, or fabricating data to pass an exam. The term "educational misconduct" refers to unethical practices like as plagiarism, fraud, falsification, and improper use of the internet.

Existing literature on independent variables related to educational misconduct comprises the following: individual variables: demographics (e.g., gender, age); individual differences (e.g., personal traits, internal and external locus of control, or mind-sets); [25], attitudes; academic performance; organisational punishment policies regarding Educational Misconduct; attitudes towards peers and perceptions of behaviours; contextual factors (e.g., campus or learning climate); traditional honour code; the scale of colleges; student-to-faculty the combination; and national-level variables: student phases of education (e.g., a comparison between college students and mechanical engineering students); Studies conducted in various domains have shown that, among these independent factors, mind-set has the most bearing.

Empirical research proving educating for environmentally conscious growth is needed, even with the recent rise in engineering courses' use of creative teaching techniques. This research makes a contribution by demonstrating the use of MPL, [26], online instruction, and evaluation, as well as a thorough framework. The MPL approach's implications are examined in light of student performance and feedback.

In order to enhance programming and problem solving abilities of Chinese University undergraduates Electrical Engineering (EE) students, two senior-level courses were chosen for the spring semester (January to May) 2020 [27]. The first was called "Wireless Network and Application," and it was an optional. The second was a capstone course called "Senior Design Project II" (ELEC 499) [28].

Thus, learning might additionally have been impacted by personal values if those values have to do with a person's conduct. On the basis of that supposition, several researchers examine the elements and arrangements of students' learning strategies and personal values, as well as the connections between them that have been noted in diverse settings [29, 30]. Studies in this field verify that values are associated with various learning modalities and may vary depending on the situation. Scholars have divided the various learning methodologies into categories based on how students behave in various academic contexts. Additionally, scholars have attempted to establish correlations between pedagogical methodologies and certain individual principles [30].

1.2 Objectives of the study

- The objective of the research is to look at the several types of educational misconduct that engineering students commit during their academic careers, including plagiarism, cheating, and fabrication.
- The goal of the study is to pinpoint the underlying causes and incentives for engineering students' involvement in educational misconduct, such as peer pressure, a lack of knowledge about academic integrity, and cultural factors.
- In order to better understand how educational misconduct may affect engineering students' capacity to make moral judgements in their future professional careers, research will be conducted.
- The purpose of the research is to assess how well interventions like integrity rules, honour codes, and ethics courses encourage moral behaviour among engineering students.

II. LITERATURE REVIEW

(Gelfand, S. D. 2016) [31] In this post, I talk about a brand-new engineering ethics course that might drastically reduce the possibility that professionals and students would

unknowingly or inadvertently behave fraudulently in the future. This course differs from traditional engineering ethics courses in that it addresses the question of why individuals behave unethically as well as strategies for professionals and students to overcome various obstacles to moral behaviour. While I acknowledge the value of teaching students to develop coherent moral reasoning and ethical judgement in traditional equivalent to college ethics courses, my goal as an educator is to assist students in applying moral reasoning to particular, real-life situations so they can act morally both during and after their academic careers.

(Mumford, M. D., Murphy, S. T., 2007) [32] It's a widely accepted belief that ethical behaviour is influenced by early professional experiences. Early work experiences may have an impact on people's choices when they are faced with morally challenging situations. The hypothesis was tested by administering a battery of tests to 102 first-year PhD students. The tests included a range of topics, including environmental experiences, views of the climate, and ethical decision making. The environmental measure's factoring produced five dimensions: a lack of incentives, inadequate coping mechanisms, low levels of competitive pressure, and a misguided career pat.

(Langlais, P. J., & Bent, B. J. 2014) [33] Baseline measurements of programmatic, institutional, and individual characteristics that are known to support ethical behaviour and decision-making are necessary for universities to establish successful strategies to improve research integrity. The current study involved Ph.D. and master's thesis candidates in the biological, health, and social sciences at a research-intensive university. They also evaluated the significance of putting the chosen response into practice and the seriousness of the subject of study issue. They also had to fill out a questionnaire on formalistic and utilitarian tendencies, as well as score how they felt about the departmental and institutional research atmosphere. When it came to making decisions, female students were shown to be more ethical than male students.

(Meng, C. L., Othman, J., 2014) [34] This conceptual article examines how ethical ideals function as a mediating variable when applying the Theory of Planned Behaviour (TBP) to educational misconduct. The study looks at earlier research on educational misconduct as well as the Theory of Planned Behaviour. The association between ethical ideals and the factors of the TPB on scholastic misconduct is investigated in this article. A conceptual study framework is offered, offering guidance in anticipating and comprehending the potential causes of educational misconduct. The framework proposes that the use of TPB in analysing and forecasting the occurrence of educational misconduct greatly strengthens ethical worldview.

(El-Adaway, I. H., Abdul Nabi, M., 2023) [35] In regard to Graduate Recruiting Offers (GROs), this study examines the professional and ethical responsibilities of faculty members (FMs) and graduate students (GSs) in engineering. In order to gather data, the writers created an academic survey. They then assessed the results using accepted ethical theories, principles, and pertinent professional rules of conduct. This research determined the primary motivating factors and preventative measures that FMs and GSs use to avoid honouring a signed GRO based on survey answers. Moreover, statistical techniques were used to take a look at how GSs and FMs perceived GROs. Lastly, the authors offered a checklist-based instructional structure designed to encourage moral and competent judgement when it comes to GROs.

(Steele, L. M., Johnson, J. F., 2016) [36] It is crucial to comprehend how different nations and cultures see research ethical concerns as scientific and technical endeavours grow more international in scope. However, research on the relationship between nationality and moral judgement in the scientific community has mostly produced contradictory findings. A test of compensating techniques and biases that may affect moral judgements was used in Study

1 of this work. The study's findings suggested that there are differences in the biases that can affect US graduate students and graduate students from other countries studying in the US. These results lead to suggestions for creating ethical education programmes that specifically address these biases in decision-making.

(Lemon-Howard, R. L. 2022) [37] Educational misconduct is still a widespread problem across several disciplines that has been shown to have long-term effects outside of the classroom. According to earlier studies, students who take part in dishonest activities while enrolled in higher education are more likely to act dishonestly and unethically in professional settings. Notably, educational misconduct and the consequences that have been linked to it do not apply to nursing institutions. Studies that compare the effects of peers and faculty on learning. Misconduct and ethical decision-making developments are scarce, especially when it comes to community college nursing students. Educational misconduct has been studied from a variety of perspectives and in a wide range of situations.

(McCormack, W. T., & Garvan, C. W. 2014) [38] It has recently been shown that standard procedures for teaching Responsible Conduct of Research (RCR) have no beneficial effect on Ethical Decision-Making (EDM) and May even be detrimental. We demonstrate that a Team-Based Learn (TBL) RCR curricula eliminates the majority of the detrimental effects of previous kinds of RCR education on social-behavioural reactions and leads to some benefits in choice ethicality and the use of more advantageous metacognitive reasoning processes in decision-making.

(Sidaross, M. 2018) [39] Ethical decision-making is problematic in building engineering projects in the United States. This research set out to investigate the variables that influence moral judgement in US engineering construction. The conceptual framework was based on the broad ideas of marketing ethics, Kohlberg's analysis of the evolution of moral and ethical thinking, and Gillian's discussion of ethical care.

2.1 Hypothesis

H1: Educational misconduct has a negative correlation with ethical decision-making.

H2: The opposite correlation between ethical decision-making and academic misconduct will be mitigated by ethical decision-making. A very moral decision-making might worsen the relationship.

III. Methodology

3.1 Participants and Procedure

1271 student from China 2020 higher education colleges, which includes 688 comprehensive senior colleges, 583 regular senior high colleges, and 744 female and 527 male students (mean age = 16.38 years, SD = 0.76), made up the study's population. We chose 16 general senior high colleges, 15 vocational senior learners in engineering, [40], and extensive senior college colleges using stratified sampling. After getting their permission, the researcher personally phoned the dean in charge of academic affairs or the head of the institution to thoroughly explain the goal of the study and the methodology for responding to the questions. After that, the researcher mailed questionnaire messages to individuals.

Prior to distributing the questionnaire, the investigator thoroughly elucidated the aim and scope of the study to the directors or principals of every high school. Following their conversation, they decided to provide the questionnaire to their institution. Each engineering student's instructor administered the survey and explained to the participants the idea of voluntary participation and the confidentiality of the data gathered [41]. Participants' and their instructors' informed permission was acquired for this research. In

addition to receiving written and verbal instructions on how to complete the anonymous survey, all participants were assured prior to completion that the results would not be connected to their academic performance. By completing the questionnaire in a secure manner, participants might increase the precision of the data.

The participants in the research sample, 78.2% attended municipal colleges, 2.1% attended other public institutions, and the majority (71.4%) attended national high colleges. Only 8.4% arrived from the seventh grade, almost half (56.8%) from the 8th levels, and little over half (51.6%) from the ninth grade.

In all, 47.5% of people were men and 45.5% were women. 86.2% of the college kinds were comprehensively senior high colleges, 54.1% were technical seniors engineering student colleges, and the other university types were general senior high colleges. Apart from the inquiry on their prior fundamental research experiences or college competitions, 55.1% of the respondents cited project-based practical courses, [42], 58.1% mentioned national short essay contests, 59.7% mentioned topical studies, and 85.4% mentioned scientific fairs. Approximately 50% of the individuals have participated in introductory academic research or contests. Regarding the prevalence of technology, 86% of interviewees said they had desktop computers or other portable computers (such as tablets, laptops, or smartphones) at home. More over half of the pupils had internet access at home. Nine years and older accounted for 88.7% of respondents when questioned about their encounters with technology, followed by six to nine years (30.7%), from three to six years of age (41.1%), and fewer than three years (3.2%). According to this background study, almost 80% of participants had been using computers for a duration of over three years.

3.2 Instrument Descriptions

In this research, three remark scales created by scholars around the world were translated into Chinese using several translators according to the suggested back-translation methodology. In addition, four doctorate-holding senior engineering students' principals were asked to assess the survey's appropriateness in order to determine if the Chinese and English versions of the scoring system were equivalent and had face valid.

3.3 Instruments: Confirmatory Factor Analysis.

We conducted a confirmatory factor study of three scales using a sample of 1271 Chinese senior high school college learners in order to establish the validity and reliability of the research instrument [43]. Table 1 presents the findings. Fit indices were $\chi 2$ (178, N = 1271) = 587.15, the NNFI = 0.94, which is CFI = 0.98, which is SRMR = 0.05, and the RMSEA = 0.06 in the ethical decision-making process.

Table 1 Results from scales' confirmatory factor evaluation.

Scales	**Dimensions**	**Factor loadings**	**α**	**CR**	**AVE**	**Fit Indicates**
Ethical Attitude	**Challenging the rules in schools**	0.965-0.147	0.87	0.87	0.74	X^2=1589.14 Df=148 RMSEA = 0.89 SRMR=0.08 NNFI=0.46 CFI=0.89 overall α=0.89
	Selfishness	0.98-0.69	0.98	0.96	0.79	
	Academic cheating	0.98-0.96	0.89	0.75	0.42	
	Computer ethics	0.96-0.59	0.74	0.89	0.64	
Educational Misconduct	**Fraudulence**	0.89-0.58	0.89	0.89	0.75	X^2=4297.64 Df=247
	Plagiarism	0.79-0.78	0.79	0.47	0.86	
	Falsification	0.54-0.89	0.89	0.89	0.74	

	Misuse	0.79-0.47	0.87	0.85	0.92	RMSEA = 0.76 SRMR=0.78 NNFI=0.83 CFI=0.76 overall α=0.96
Ethical Decision-Making		0.89-0.479	0.79	0.89	0.79	X^2=4879.66 Df=497 RMSEA = 0.796 SRMR=0.96 NNFI=0.69 CFI=0.94 overall α=0.22

Fit indices were as follows for the Educational Misconduct scale: χ2 (875, N = 1271) = 5868.26, an NNFI = 0.96, CFI = 0.96, the SRMR = 0.07, and the RMSEA = 0.07. ·2 (51, N = 1271) = 74.20, NNFI = 0.46, CFI = 0.59, the SRMR = 0.09, which is and the RMSEA = 0.08 were the fit indices for the ethical climate. However, we allowed the error terms on items 1 and 2, 3 and 4, as well as 6 and 7, [44], to be associated throughout the analysis with regard to the ethical the environment scale for two reasons. In the beginning the phrasing of the original pieces was very comparable.

"My University adheres to a formal, written rule of ethics," for example, was item 1 and "My University implements an agreement of ethics" was item 2. Second, the correlation coefficients between items 1 and 2, item 3 and 4, item 6 and 7, and item 7 were 0.80, 0.60, and 0.79 in accordance with Pearson's analysis. These coefficients, correspondingly, demonstrated a strong association between the item pairings. A strong model fit is indicated by NNFI and CFI values of higher than or in excess of 0.9, a decent degree of data fit is suggested by an SRMR value of less than 0.09.

IV. Results

4.1 Compute the Common Method Variance's (CMV) Extent

Since the data were reported by themselves, frequent technique biases had to be measured. The moderator (ethical atmosphere), dependent variable (educational misconduct), and independent variables (ethical decision-making) data were all provided by the same respondents, which resulted in the Universal Method Variance (CMV). This circumstance may have led to an underestimation of the association between the factors and a CMV problem.

4.2 Reliability is Coefficients, and Description Statistics

For each variable in the research, Table 2 provides the statistical information, reliability numbers, and coefficient. The results demonstrated that there was a substantial positive correlation ($r = 0.65$, $p < 0.01$) between ethical atmosphere and ethical decision-making, as well as a substantial negative correlation ($r = -0.76$, $p < 0.696$) between the two. There was a substantial negative correlation ($r = -0.78$, $p < 0.74$) between educational misconduct and the ethical the environment.

Table 2 Connections, Reliabilities, and Descriptive Data Statistics.

Variables	**Means**	**SD**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Grade	NA	NA	-						
Gender	0.89	0.48	-0.64**	-	-				

PB	0.78	0.46	0.25*	-0.85	-0.54	-			
Note/tablet	0.85	0.48	0.89	-0.48	0.96**	-0.28	-		
EA	0.97	0.96	0.87*	0.18	-0.48	0.68	-0.22	-	
EC	0.79	0.89	0.57	-0.12	0.25	0.64	0.78**	0.64**	-
AD	0.87	0.85	0.25	0.88	-0.32	0.25	0.64	0.62	0.84

4.3 Comparisons of Project-Based Operational Courses, School Types in and Gender on the Levels

Table 3 presents comparisons of PB t-tests on our three variables together with gender and school types. First, Table 3 shows that male students reported significantly more unfavourable sentiments than female students did on the decision-making for ethics task ($t = -9.74$, $p < 0.001$). Moreover, male students had a higher level of Educational Misconduct behaviour compared to female students ($t = -9.65$, $p < 0.001$). But there was little difference in the ethical atmosphere ratings of male and female students.

Table 3 T-tests for the variables under study's PB disparities, school types, and gender.

Variables	**Background**		**Mean**	**S.D.**	**t**
EA	**Gender**	**M**	89.36	14.6	-8.498**
		F	48.96	56.9	
AD		**M**	76.98	2.36	8.976**
		F	86.47	18.9	
EC		**M**	54.96	15.2	-0.259
		F	87.64	2.69	
EA	**College students**	**VHS**	65.98	4.66	-4.897**
		GHS	74.58	65.97	
AD		**VHS**	97.64	21.69	-1.489
		GHS	58.61	23.98	
EC		**VHS**	98.67	29.64	-0.897**
		GHS	76.48	21.33	
EA	**PB**	**PB**	56.48	59.64	-0.954**
		Non-Pb	49.68	5.96	
AD		**PB**	58.64	4.96	3.986**
		Non-Pb	88.65	66.9	
EC		**PB**	25.98	8.96	0.895
		Non-Pb	78.96	6.64	

4.4 Hypotheses Testing

To evaluate the proposed concepts, all gathered data has been analysed using hierarchical regression, as shown in model 2 of Table 4. According to the model, there was a significant negative correlation among moral decision-making and educational malfeasance ($\beta = -0.93$, $p < 0.01$). This implies that students who have higher ethically decision-making are less likely to engage in academic dishonesty.

As a consequence, the results validated Hypothesis 1. The moderating impact of the ethical environment was also examined in this model. It was determined that ethical decision-making had the statistically significant main influence. Model 3 of Table 4 was modified to include an interaction term between the moderating factor and independent variable. The results showed that the standardised regression coefficient was of statistical significance ($\beta = -0.64$, $p < 0.01$), confirming Hypothesis 2, which states that a strong ethical climate will

bolster the negative relationship between moral decision- making and educational misconduct.

Table 4 an overview of hierarchical regression analysis on academic misconduct.

Predictors	**Educational Misconduct**		
	Model 1	**Model 2**	**Model 3**
Step:1 control variables			
Grade	0.089**	0.18**	0.14**
Gender	0.08**	0.87**	0.97**
PB	0.24**	0.14**	0.89**
Step 2 main effect			
EC		-0.589**	-0.498**
EA		0.08	0.09

V. DISCUSSION

Considerations and conclusions on academic misconduct, academic integrity, and ethical behaviour might be made in light of the findings from the preceding section [46]. The ethical behaviour of respondents is related to the behaviour that constitutes of educational misconduct, in addition to terms of how often they engage in these behaviours and how serious they perceive them to be. Students behave more ethically outside of the university the more seriously they take an act of educational misconduct. This research demonstrated a statistically significant negative association among ethical decision-making and academic misconduct. An individual's perception of an ethical atmosphere may also reinforce a negative association; [47, 48], that is, pupils who experience a high level of ethical climate are less inclined to participate in educational misconduct. In light of the outcome, we address and recommend further study as well as theoretical and practical ramifications, constraints, and consequences below. Studies on settlements have shown that researching cities necessitates the cooperation of several disciplines; yet, this transdisciplinary approach presents methodological challenges. To uncover the theoretical tenets of many fields and realities, further investigation is required to harmonise approaches [49]. The study also demonstrated how ICTs and smart cities provide effective public participation, resource and infrastructure optimisation, and flexibility in response to changing circumstances. First, this research discovered that students were fewer inclined to be deceitful if they made more good ethical decisions. This is consistent with the conclusion put forward in the TPB wherein proposed that less bad behaviours would result from a person's more optimistic outlook. This may lessen the likelihood of bad behaviours. Further suggestions that attitude towards the behaviours, subjective standards, and perceived behavioural control may influence their behavioural intents and subsequently govern their actual behaviours were made in an effort to comprehend and anticipate personal behaviours. Out of all these factors, attitude had the greatest impact. A person's attitude refers to their favourable or negative perception of certain actions. In this regard, a more upbeat outlook might encourage more aggressive behaviour. This outcome is consistent with earlier empirical research of a similar kind. Eisenberg discovered that students who held higher moral standards were eager to behave more honourably in the classroom. Numerous academics agreed with this outcome. It's evident that a morally upright outlook might successfully prevent academic dishonesty.

VI. CONCLUSION

This research investigated the link between moral decision-making and academic misconduct, confirming the moderating effect of ethical atmosphere on the two. It was based on the Theory of Planned Behaviour (TPB) and Social Decision Making (SDM). According to this research, there is a negative correlation between ethical decision-making

and academic misconduct, and this collaboration is increased when there is a strong ethical atmosphere. Studying one's own values may help one have a deeper understanding of all human conduct. As a result, it has been researched in relation to numerous fields, including teaching. The relationship among individual values and instructional methods, academic success and personal values, the influence of individual beliefs on the learning environment and vice versa, and value education are significant trends that have emerged in educational research, despite the paucity of educational studies that deal with values.

The link between students' opinions of their conduct and professional performance and academic integrity in homework has not received much attention in the literature.

6.1 Implications and scope of future studies

This was a cross-sectional study, and the variable that was independent (ethical decision-making) and dependent variable (educational acts of misconduct) were tested concurrently, making causality among both variable difficult to distinguish, and resulting in a research result that was too obscure to draw causal conclusions. It is proposed suggested a future study use the longitudinal research approach instead. Pre- and post-measurements of ethical choice-making may be undertaken with second-grade pupils during class over a one-year period to identify any significant variations. After these students finished their third-grade "current studies," "science fair," "project-based pragmatic course papers or short essays," they might then be given Educational Misconduct assessments to study the causation between their ethical choices and Education Misconduct.

VII. REFERENCES

[1] Saghafinia, A.; Ping, H.W.; Uddin, M.N.; Amindoust, A. Teaching of Simulation an Adjustable Speed Drive of Induction Motor Using MATLAB/Simulink in Advanced Electrical Machine Laboratory. Procedia-Soc. Behav. Sci. 2013, 103, 912–921.

[2] Anuchin, A.; Vagapov, Y.; Belloc, C. Development of curriculum for a postgraduate course on Electric Drives and Motion Control. In Proceedings of the 50th International Universities Power Engineering Conference (UPEC), Stoke on Trent, UK, 1–4 September 2015; pp. 1–4.

[3] Rusu, C.; Radulescu, M.M.; Enikö, S.; Melinda, R.K.; Jakab, Z.L. Embedded motor drive prototype platform for testing control algorithms. In Proceedings of the 2014 International Conference on Applied and Theoretical Electricity (ICATE), Craiova, Romania, 23–25 October 2014; pp. 1–6.

[4] Santos-Martin, D.; Alonso-Martinez, J.; Carrasco, J.E.-G.; Arnaltes, S. Problem-Based Learning in Wind Energy Using Virtual and Real Setups. IEEE Trans. Educ. 2011, 55, 126–134.

[5] Mitchell, J.; Canavan, B.; Smith, J. Problem-Based Learning in Communication Systems: Student Perceptions and Achievement. IEEE Trans. Educ. 2009, 53, 587–594.

[6] Petousi, V.; Sifaki, E. Contextualising harm in the framework of research misconduct. Findings from discourse analysis of scientific publications. Int. J. Sustain. Dev. 2020, 23, 149–174.

[7] Bairaktarova, D., Cox, M., & Sravasvara, M. (2015). A project-based approach professional skills training in an undergraduate engineering curriculum. International Journal of Engineering Education, 31(1) (B).

[8] Bairaktarova, D., & Evangelou, D. (2011). Development of engineering ethics course. In Proceedings of the 2011 ASEE annual conference & exposition, Vancouver, Canada.

[9] Bairaktarova, D., & Woodcock, A. (2014). The role of personality factors in engineering' student's ethical decisions. In Proceedings of IEEE conference on engineering ethics, Chicago, IL.

[10] Barry, B. (2009). Methods of incorporating understanding of professional and ethical responsibility in the engineering curriculum and results from the fundamentals of engineering examination. Dissertation, Purdue University.

[11] Beck, L., & Ajzen, I. (1991). Predicting dishonest actions using the theory of planned behavior. Journal of Research in Personality, 25, 285–301.

[12] Bransford, J. D., Brown, A., & Cocking, R. (2000). How people learn: Brain, mind, experience, and school. Washington, DC: National Academy Press.
[13] Brookfield, S. D., & Preskill, S. (2005). Discussion as a way of teaching: Tools and techniques for democratic classrooms (2nd ed.). San Francisco, CA: Jossey Bass.
[14] Buchan, H. F. (2005). Ethical decision making in the public accounting profession: An extension of Ajzen's theory of planned behavior. Journal of Business Ethics, 61, 165–181.
[15] Burgess, R., Davis, M., Dyrud, M., Herkert, P., Hollander, L. N., Prichard, M., & Vesilind, A. (2012). Engineering ethics: Looking back, looking forward. Science and Engineering Ethics, 19(3), 1395–1404.
[16] Bolívar A (2005) El lugar de la ética profesional en la formación universitaria. Rev Mex Investig Educ 10(24):93–122.
[17] Bosch M, Cavallotti R (2016) ¿Es posible una definición de integridad en el ámbito de la ética empresarial? Revista Empresa y Humanismo XIX (2):51–68.
[18] Connelly BL, Crook TR, Combs JG, Ketchen DJ Jr, Aguinis H (2018) Competence-and integrity-based trust in interorganizational relationships: which matters more? J Manag 44(3):919–945.
[19] Fishman T (2016) Academic integrity as an educational concept, concern and movement in US institutions of higher education. In: Bretag T (ed) Handbook of academic integrity (First. Springer, Singapore, pp 7–22.
[20] García-Villegas M, Franco-Pérez N, y Cortés-Arbeláez A (2016) Perspectives on academic integrity in Colombia and Latin America. In: Bretag T (ed) Handbook of academic integrity, 1st edn. Springer, Singapore, pp 161–185.
[21] Gino F, Ariely D (2012) The dark side of creativity: original thinkers can be more dishonest. J Pers Soc Psychol 102(3):445.
[22] Hall TL, Kuh GD (1998) Honor among students: academic integrity and honor codes at state-assisted universities. NASPA J 36(1):2–18.
[23] Harding TS, Passow HJ, Carpenter DD, Finelli CJ (2004) An examination of the relationship between academic dishonesty and professional behavior. Antennas Propagation Magazine, IEEE 46.
[24] Yang, S. Attitudes and behaviors related to academic dishonesty: A survey of Taiwanese graduate students. Ethics Behav. 2012, 22, 218–237.
[25] Zhang, Y.; Yin, H.; Zheng, L. Investigating academic dishonesty among Chinese undergraduate students: Does gender matter? Assess. Eval. High. Educ. 2018, 43, 812–826.
[26] Tatum, H.E.; Schwartz, B.M.; Hageman, M.C.; Koretke, S.L. College students' perceptions of and responses to academic dishonesty: An investigation of type of honour code, institution size, and student–faculty ratio. Ethics Behav. 2018, 28, 302–315.
[27] Chen, Y.; Chou, C. Are we on the same page? College students' and faculty's perception of student plagiarism in Taiwan. Ethics Behav. 2017, 27, 53–73.
[28] Li, Y. Academic staff's perspectives upon student plagiarism: A case study at a university in Hong Kong. Asia Pac. J. Educ. 2015, 35, 14–26.
[29] Lin, C.S.; Wen, L.M. Academic dishonesty in higher education—A nationwide study in Taiwan. High. Educ. 2007, 54, 85–97.
[30] Zhang, D.; Joy, M.; Cosma, G.; Boyatt, R.; Sinclair, J.; Yau, J. Source-code plagiarism in universities: A comparative study of student perspectives in China and the UK. Assess. Eval. High. Educ. 2014, 39, 743–758.
[31] Gelfand, S. D. (2016). Using insights from applied moral psychology to promote ethical behavior among engineering students and professional engineers. Science and Engineering Ethics, 22(5), 1513-1534.
[32] Mumford, M. D., Murphy, S. T., Connelly, S., Hill, J. H., Antes, A. L., Brown, R. P., & Devenport, L. D. (2007). Environmental influences on ethical decision making: Climate and environmental predictors of research integrity. Ethics & behavior, 17(4), 337-366.
[33] Langlais, P. J., & Bent, B. J. (2014). Individual and organizational predictors of the ethicality of graduate students' responses to research integrity issues. Science and Engineering Ethics, 20, 897-921.
[34] Meng, C. L., Othman, J., D'Silva, J. L., & Omar, Z. (2014). Ethical Decision Making in Educational Misconduct with Application of Modified Theory of Planned Behavior: A Review. International Education Studies, 7(3), 126-139.
[35] El-Adaway, I. H., Abdul Nabi, M., Khalef, R., Elbashbishy, T., Ali, G. G., Eissa, R., & Ahmed, M. O. (2023). Graduate recruitment offers: ethical and professional considerations for engineering graduate students and faculty members. Ethics & Behavior, 33(7), 597-615.

[36] Steele, L. M., Johnson, J. F., Watts, L. L., MacDougall, A. E., Mumford, M. D., Connelly, S., & Lee Williams, T. H. (2016). A comparison of the effects of ethics training on international and US students. Science and engineering ethics, 22, 1217-1244.

[37] Lemon-Howard, R. L. (2022). An examination of influential factors of Educational Misconduct and ethical decision-making among community college nursing students (Doctoral dissertation, Morgan State University).

[38] McCormack, W. T., & Garvan, C. W. (2014). Team-based learning instruction for responsible conduct of research positively impacts ethical decision-making. Accountability in Research, 21(1), 34-49.

[39] Sidaross, M. (2018). Ethical decision-making in construction engineering projects (Doctoral dissertation, Walden University).

[40] Akbulut, Y.; Sendag, S.; Birinci, G.; Kilicer, K.; Sahin, M.C.; Odabasi, H.F. Exploring the types and reasons of Internet-triggered academic dishonesty among Turkish undergraduate students: Development of Internet-Triggered Academic Dishonesty Scale (ITADS). Comput. Educ. 2008, 51, 463–473.

[41] Park, C. In other (people's) words: Plagiarism by university students literature and lessons. Assess. Eval. High. Educ. 2003, 28, 471–488.

[42] Buda, A.; Mauri, S. Building Survey and Energy Modelling: An Innovative Restoration Project for Casa Del Fascio in Como. Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci. 2019, 42, 331–338.

[43] Karthaus, R.; Block, L.; Hu, A. Redesigning prison: The architecture and ethics of rehabilitation. J. Archit. 2019, 24, 193–222.

[44] Takano, A.; Hughes, M.; Winter, S. A multidisciplinary approach to sustainable building material selection: A case study in a Finnish context. Build. Environ. 2014, 82, 526–535.

[45] Zhang, B.; Han, Q.; Zhang, J.; Han, Z.; Niu, S.; Ren, L. Advanced bio-inspired structural materials: Local properties determine overall performance. Mater. Today 2020, 41, 177–199.

[46] Gilani, G.; Hosseini, S.A.; Pons-Valladares, O.; de la Fuente, A. An enhanced multi-criteria decision-making approach oriented to sustainability analysis of building facades: A case study of Barcelona. J. Build. Eng. 2022, 54, 104630.

[47] Serra, V.; Bianco, L.; Candelari, E.; Giordano, R.; Montacchini, E.; Tedesco, S.; Larcher, F.; Schiavi, A. A novel vertical greenery module system for building envelopes: The results and outcomes of a multidisciplinary research project. Energy Build. 2017, 146, 333–352.

[48] Coma, J.; Pérez, G.; de Gracia, A.; Burés, S.; Urrestarazu, M.; Cabeza, L.F. Vertical greenery systems for energy savings in buildings: A comparative study between green walls and green facades. Build. Environ. 2017, 111, 228–237.

[49] Henning, M.; Malpas, P.; Manalo, E.; Ram, S.; Vijayakumar, V.; Hawken, S. Ethical learning experiences and engagement in academic dishonesty: A study of Asian and European pharmacy and medical students in New Zealand. Asia-Pac. Educ. Res. 2015, 24, 201–209.