

Ethical Decision-Making and Academic Integrity in ICT-Enabled Assessments

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ABSTRACT

Ethical decision making as students has been shown to be a key determinant of ethical decision making in professional life. Information and Communications Technologies (ICT) is also seen to affect how ethical decisions are made. With the increasing use of ICTs in higher education, it is imperative for higher institutions to understand what drives ethical decision making of their students. This study therefore examines the moral reasoning that drives ethical decision making in ICT enabled assessments in higher education. It uses Kohlberg's Theory of Moral Development as the guiding framework to explore the drivers of moral reasoning and the ethical use of ICT tools during assessments. The sample of the study was 133 undergraduate ICT students at the University of Education, Winneba. Data was collected using a cross-sectional survey and analysed using descriptive and inferential statistics. The results showed that a majority of students experience moderate to high pressure to use ICT tools dishonestly. The fear of failure, lack of confidence, and the desire to achieve high grades emerged as key motivators. A significant number of respondents recognised morality as important for academic and professional integrity, though they seemed inclined to prioritise academic success over ethical considerations. Peer influence was found to be moderate with direct pressure to act dishonestly being very low. The findings indicate that many students operate at the pre-conventional and conventional levels Kohlber's theory moral reasoning. There is very little evidence that students' ethical reasoning is principle driven. The study recommends that ethics training be improved and integrated into the curricula, academic integrity policies strengthened, student support systems provided, performance pressure reduced and a culture of integrity as a community value promoted. These interventions will be key to helping students achieve higher levels of moral development and maintain academic integrity in the digital age.

General Terms

Applied Computing, Information Systems

Keywords

Academic Integrity, ICT in Education, ICT-enabled assessment, Moral Reasoning, Kohlberg's Theory of Moral Development

1. INTRODUCTION

The use of Information and Communication Technology (ICT) tools in higher education raises several ethical questions relating to how to ensure responsible and effective use of technology. Educational institutions are increasingly adopting ICT tools to enhance learning experiences and outcomes however in doing so, they could inadvertently introduce opportunities for unethical behaviours that could affect academic integrity. One of the primary ethical concerns revolves around academic honesty.

Some studies suggest that unethical use of computers and the internet is increasing among young people, particularly with

regard to plagiarism, cheating and the misuse of information [1]. This situation makes it imperative for educators to develop ethical awareness and new ways of understanding and engaging with literacy in the context of new technologies, digital media, and evolving societal culture regarding the use of ICT tools in teaching effectively [2].

It has been argued that behaviours which people find professionally acceptable could be impacted by actions they have learnt and deemed as acceptable in school. The view is that when students embark on unethical behaviour in school, they are likely to carry this behaviour into their professional practice and engage in dishonest activities in other contexts [3]. This raises very important questions regarding the ethical behaviour of students and the training that academic institutions give to their students.

Student cheating is not new but rather a pervasive issue in educational institutions worldwide, including in Ghana. Various studies point to alarming statistics that indicate a significant prevalence of cheating among students. Studies quoted by Belanger et al. (2012) indicate that 38%-40% of surveyed college students admitted to plagiarising in 2003, while a Canadian study in 2006 shows that 58% of high school students, 18% of undergraduates and 9% of graduate students had admitted to cheating of a serious nature. Another study reports that 84.3% of Ghanaian students admitted to engaging in some form of cheating during examinations [4]. It explained that the behaviour is apparently driven by fear of failure and the pressures of academic achievement which leads students to seek dishonest means to cope [5]. Other factors identified as influencing cheating include self-efficacy and social motivations [6]. The academic environment and a culture where cheating is regarded as acceptable have also been highlighted as influential [7].

2. EFFECTS OF ICT TOOLS AND CYBERSPACE ON BEHAVIOUR

Cyberspace is considered a moderating factor on behaviour by providing what has been referred to as an online disinhibition effect [8]. The phenomenon reveals a different persona online as opposed to in-person interactions. Suler (2004) has suggested six factors that interact with each other to create this effect. Consequently it is expected that moral reasoning and ethical decision-making in ICT enabled assessments could be significantly different from traditional face to face assessments.

ICT platforms offer anonymity which is also thought to diminish social accountability that typically governs ethical behaviour. This anonymity encourages some individuals to engage in unethical behaviours which they would normally avoid in face-to-face interactions. Also, the ease of access to information through digital platforms can incline students to behaviours like plagiarism and other forms of academic dishonesty that deviate from traditional ethical standards [9]. Such dynamics can create an environment where unethical behaviours become normalised,

thereby complicating the ethical decision-making processes [10].

Understanding the situational factors that affect ethical decision-making can reveal the dynamics between individual moral development and its influences. This requires an interrogation to develop ethical frameworks that can address the complexities introduced in this increasingly interconnected environment. Such frameworks should be able to accommodate the subtle realities of digital life that affect moral reasoning in cyberspace.

The advent of cyber security threats further complicates this landscape, as organisations are forced to develop ethical policies to safeguard both their clients and operational integrity [11]. Thus, the moral imperatives associated with managing digital threats become central to responsible decision-making frameworks.

3. ICT AND EDUCATIONAL ASSESSMENTS

Undoubtedly, the integration of ICT in educational assessment provides significant opportunities to improve efficiency and effectiveness in learning, teaching, and evaluation (Khalil et al., 2019; Sibanda & Maposa, 2013). Emerging trends like e-assessments and automated scoring enable the assessment of complex competencies (Khalil et al., 2019). ICT tools can also improve assessment integrity, with the introduction of tools like plagiarism detection software, proctoring solutions, secure browsers and biometric authentication. All these can help to reduce cheating and maintain academic standards. Computerised grading can also ensure consistency and fairness while minimising biases.

Though these tools can yield positive effects, they can also negatively impact the integrity and authenticity of assessments. ICT tools, including large language model-based artificial intelligence (AI) tools introduce risks of cheating and raise ethical concerns about validity, fairness and equity of assessment [12]. These risks could extend beyond academic integrity to include other concerns such as privacy breaches, cyberbullying, online harassment, increased inequality, misinformation, and violation of intellectual property rights. Despite these issues, the key overarching and urgent ethical concern that demands immediate attention is preserving academic integrity.

As discussed earlier, there are existing studies that recognise the prevalence of academic misconduct and identify contributing factors. However, there is limited understanding of the influences of students' moral reasoning and ethical decision making in ICT-enabled environments assessments. Without such understanding, interventions often concentrate solely on monitoring during examinations and punishment when infractions occur, rather than promoting ethical growth and principled decision-making.

This study contributes to an understanding of the contributory factors influencing moral reasoning and students' academic choices in ICT-enabled assessments. Tackling this issue is vital for developing educational interventions that discourage dishonest behaviour, develop higher levels of moral growth and strengthen integrity as a core community value in the digital age.

4. KOHLBERG'S THEORY OF MORAL DEVELOPMENT AND ASSESSMENTS

The work is guided by Lawrence Kohlberg's theory of moral development. Kohlberg systematises the moral reasoning of individuals into levels and stages. These levels and stages provide a framework for explaining what motivates individuals in making ethical decisions, such as those relating to cheating during assessment [3]. Beyond reporting prevalence, it will help understand why students make moral decision-making.

Kohlberg's theory suggests that moral reasoning is developed through six hierarchical stages, which are grouped in three levels with each level having two stages. The levels are pre-convention, convention and post-convention.

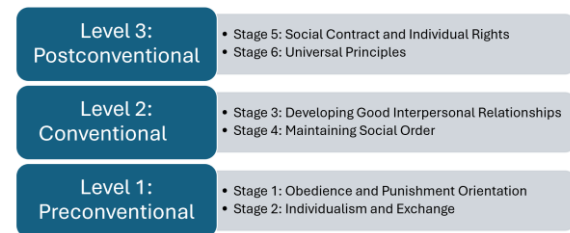


Figure 1: Kohlberg's Theory of Moral Development

The foundational level of moral reasoning is known as the pre-conventional Level. The first stage in this level is the obedience and punishment stage, whilst the second is the self-interest stage. In the preconvention level, actions are primarily motivated by external influences mainly consequences of actions and personal gains. Ethics at the level appear closely related to ethical egoism or consequentialism. At this level, students may engage in academic dishonesty driven mainly by a self-centred view of morality, defined by immediate consequences rather than broader ethical considerations.

The second level, the Conventional Level, is driven by social order. The first stage in this level is the interpersonal relationships stage, where actions are driven by social approval. In the second stage, the law and order stage, actions are motivated by maintaining social order and respect for authority.

The final level of Kohlberg's model is the post-conventional Level, which has two stages, namely the social contract stage and the universal ethical principles stage. In the social contract stage, there is an understanding that laws exist for the common good but can be modified for the sake of justice, whereas in the universal ethical principles stage, actions are based on principles such as justice, equality, and human rights.

One critique of Kohlberg's Theory is its claim of universality. Some researchers have argued that there is a presence of cultural variability [13]. There have also been suggestions of variability among students with different achievement levels [14].

This notwithstanding, Kohlberg's model remains the most influential in moral reasoning. Since its development, several extensions to it have been developed. However, one consistent feature across these models is that ethical decision-making is a complex process influenced by the interaction of thought, emotion, and action, and affected by the individual, the specific situation, and the nature of the ethical issue itself [3].

It is argued that students' moral reasoning is normally influenced by their feelings about ethical conduct and the repercussions that accompany dishonest acts and that an inverse relation exists between emotional engagement with moral standards and the propensity for dishonest behaviour [15]. Students can determine their dishonesty based on perceived peer behaviours or institutional culture regarding academic integrity.

Studies on the role of reasoning in moral decisions suggest that students reach optimal moral development only when they can connect the four processes of assessing situations and context, choosing actions within norms, prioritising moral behaviour, and having the courage to act morally [3]. The general desire is for individuals to operate at the higher levels of Kohlberg's Theory of Moral Development. At these levels, decisions are based on principles like autonomous moral reasoning which are grounded

in universal ethical principles such as justice, fairness, and human rights. Incorporating ethics into curricula and providing guidelines regarding the use of ICT tools can help students reach higher levels of moral reasoning. This will emphasise academic integrity as a community value and help students understand the effects of their actions on peers and institutions. [16, 17].

On the contrary, moral disengagement enables individuals to rationalise dishonest behaviour despite an awareness of ethical standards. The capacity to morally disengage is often pronounced during moments of rationalisation and in situations where academic dishonesty is perceived as common [18, 19]. A study of medical students revealed that perceptions of a lax academic environment can embolden students to cheat, reflecting lower stages of moral reasoning that do not engage deeply with the implications of their choices [7, 20].

5. MATERIALS AND METHODS

The focus of this research was on undergraduate ICT students at the University of Education, Winneba. The study adopted a cross-sectional survey as it provided the most appropriate research design to capture a snapshot of the students attitudes, behaviours and experiences regarding ICT tools in assessment. A two stage purposive random sampling technique was used to select 150 respondents. The Level 300 ICT student cohort was purposively selected because, as third-year students on a four-year programme, they are considered advanced undergraduates with relevant experience and exposure to ICT tools in assessment. Their responses were therefore deemed valuable and representative of this study's focus. Subsequently, a random sampling technique was used to select 150 out of the total of 342 Level 300 students.

Data was gathered using a researcher developed questionnaire consisting of closed-ended questions measuring several key variables. The questionnaire was divided into five thematic sections namely demographics, nature of pressure to use ICTs unethically, peer influence, perception of morality and the role of the examination system in ethical use of ICT tools. Responses were analysed using descriptive statistics, including central tendency and variability measures, to provide an overview of the characteristics of the sample and the distribution of key variables.

6. DATA ANALYSIS

Table 1. Socio-Demographic Characteristics of Respondents

	Frequency	Percentage
Gender		
Male	114	87.0
Female	16	12.2
Prefer not to say	1	0.8
Age Group		
19–25 years	84	64.9
26–34 years	33	25.2
35 years and older	13	9.9

Table 1 presents the demographic characteristics of the respondents who took part in the survey. A majority were male making up 87.0% of all respondents while female respondents constituted 12.2%. A small percentage (0.8%) preferred not to

disclose their gender. A majority of respondents (64.9%) were between the ages of 19 and 25 years, followed by those aged 26–34 years (25.2%). A smaller proportion, 9.9% were 35 years and older.

6.1 Pressure to Use ICT Unethically

The findings, presented in Table 2 below, indicate that most respondents felt some level of pressure to utilise ICT tools to gain an advantage in assessments.

Table 2. Extent of Pressure to Use ICT Tools to Gain Undue Advantage in Assessments

Extent	Frequency	Percentage (%)
Extremely Pressured	24	18.3
Significantly Pressured	32	24.4
Moderately Pressured	43	32.8
Slightly Pressured	17	13.0
Not Pressured	15	11.5
Total	131	100

The findings, presented in Table 2, indicate that most respondents felt some level of pressure to utilise ICT tools to gain an undue advantage in assessments. Specifically, 32.8% (n = 43) reported being moderately pressured, while 24.4% (n = 32) and 18.3% (n = 24) indicated being significantly and extremely pressured, respectively. A smaller proportion experienced slight pressure (13.0%, n = 17), and only 11.5% (n = 15) reported feeling no pressure at all. These results suggest that the perceived pressure to engage with ICT tools in assessments is widespread, with the majority of students acknowledging at least moderate levels of pressure.

As shown in Table 3, which summarises responses to a multiple-response question where participants were asked to select all applicable reasons for feeling pressured, the most frequently cited factor was pressure to achieve high grades (49.6%, n = 65). This was followed by inadequate preparation or understanding of the material (34.4%, n = 45). Other notable factors included fear of failure (31.3%, n = 41) and the perception that others were using unethical methods to succeed (21.4%, n = 28). The least reported reason was lack of confidence in abilities (20.6%, n = 27). These findings suggest that while external influences such as peers contribute to the pressure, the dominant drivers are academic expectations and students' own level of preparedness.

Table 3. Reasons for Feeling Pressured to Use ICT Tools Unethically

Reason	Frequency	Percentage
Pressure to achieve high grades	65	49.6
Fear of failure	41	31.3
Lack of confidence in abilities	27	20.6
Others use unethical methods	28	21.4
Inadequate preparation/understanding	45	34.4

Respondents were asked to rank the reasons for feeling pressured, and the mean scores indicate relative importance, with lower means representing higher priority.

Table 4. Mean Ranking of Reasons for Feeling Pressured

Reason	Mean Rank (M)	Standard Deviation (SD)
Fear of failure	2.69	1.25
Lack of confidence in abilities	2.70	1.17
Pressure to achieve high grades	2.81	1.59
Others use unethical methods	3.29	1.21
Inadequate preparation/understanding	3.50	1.61

As shown in Table 4, fear of failure ($M = 2.69$, $SD = 1.25$) was the most influential factor, followed closely by lack of confidence in abilities ($M = 2.70$, $SD = 1.17$) and pressure to achieve high grades ($M = 2.81$, $SD = 1.59$). Comparatively, perceptions that others use unethical methods ($M = 3.29$, $SD = 1.21$) and inadequate preparation or understanding of the material ($M = 3.50$, $SD = 1.61$) were ranked lower, suggesting that they exert relatively less influence. These findings highlight that internal psychological drivers, particularly fear of failure and self-confidence issues, are more significant motivators than external or contextual pressures.

6.2 Peer Influence and Morality

As shown in Table 5, the majority of respondents emphasised that morality is crucial for building integrity and trustworthiness (61.1%, $n = 80$). Another 18.3% ($n = 24$) acknowledged morality as important but not always essential, while 16.0% ($n = 21$) felt that morality was relevant but often overshadowed by the need to achieve high grades. A few respondents considered morality only important in certain fields (3.8%, $n = 5$), and just one participant (0.8%) stated that it is not significant for success.

Table 4. Perceptions of the Role of Morality

Perception	Frequency	Percentage
Crucial for building integrity and trustworthiness	80	61.1
Important, but not always necessary for success	24	18.3
Relevant, but overshadowed by high grades	21	16.0
Not significant for success	1	0.8
Only important in certain fields	5	3.8
Total	131	100

This distribution indicates that, although most students recognise morality as a cornerstone of academic and professional integrity, a substantial minority prioritise grades and outcomes over ethical considerations.

Table 5. Extent of Peer Influence to Unethically Use ICT in Assessment

Extent of Influence	Frequency	Percentage
Significant influence	34	26.0
Moderate influence	44	33.6
Minimal influence	29	22.1
No influence	21	16.0

Pressure from peers to engage in unethical practices	3	2.3
Total	131	100

Table 6 summarises responses to a single-response item asking students to assess the extent of peer influence on their use of ICT tools unethically in academic contexts. The largest group of respondents reported that peers exerted a moderate influence (33.6%, $n = 44$), while 26.0% ($n = 34$) indicated significant influence. On the other hand, 22.1% ($n = 29$) considered peer influence minimal, and 16.0% ($n = 21$) said they experienced no influence at all. Only a very small number (2.3%, $n = 3$) explicitly acknowledged peer pressure to engage in unethical practices. These findings suggest that while peers do play a notable role in shaping ICT-related behaviour, outright pressure to adopt unethical practices is relatively uncommon.

6.3 Effects of the Examination System

Table 7 shows responses to a single-response question where students were asked how the current examination system influences their ethical or unethical use of ICT tools. The largest group of respondents said that the examination system encourages ethical use by emphasising fairness (42.7%, $n = 56$). However, a notable number felt that pressure from exams sometimes led to unethical use (19.8%, $n = 26$), and 18.3% ($n = 24$) admitted that the high-stakes nature of exams pushed them towards unethical behaviour. About 17.6% ($n = 23$) reported that the system had no effect on their decision-making, and only 1.5% ($n = 2$) linked unethical ICT use to flaws in the system.

Table 7. Perceived Effects of the Examination System on ICT Use

Perceived Effects	Frequency	Percentage
High stakes push me toward unethical use	24	18.3
Encourages ethical use by emphasising fairness	56	42.7
Pressure sometimes leads to unethical use	26	19.8
No impact on my decision-making	23	17.6
System flaws make unethical use seem necessary	2	1.5
Total	131	100

These findings suggest that although most students see the examination system as fostering fairness and ethical behaviour, a significant minority experience pressure that could lead to unethical conduct.

7. DISCUSSIONS

The study's data indicate that most students experience moderate to high pressure to use ICT tools unethically during assessments. This pressure mainly arises from fear of failure, lack of confidence, and the desire to achieve higher grades. Such motivations closely relate to Kohlberg's Pre-Conventional Level, where moral choices are influenced by self-interest and the fear of punishment rather than broader ethical principles.

The results also showed that 61.1% of students recognise the importance of morality, integrity and trustworthiness indicating that the respondents recognise social values. This view aligns with Kohlberg's third stage where moral reasoning is driven by social order. In spite of this view, a significant minority of 34.3% admit to prioritising academic success over ethical considerations, which seems to align with Kohlberg's second stage where self interest is the primary driver of moral reasoning. A considerable proportion of respondents (42.7%) agreed to the perception that the examination system in place promotes ethical use of ICT and emphasises fairness. This view appears to reflect a commitment to shared ethical norm.

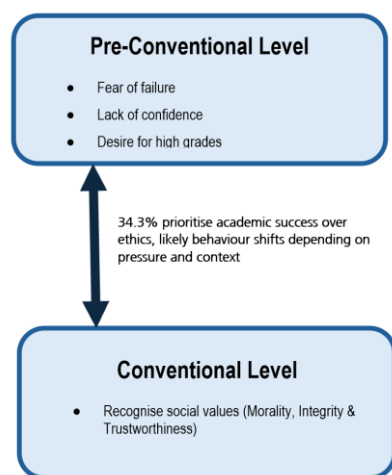


Figure 2: Drivers of Moral Reasoning in ICT Enabled Assessments

The results seem to show that a majority of respondents prioritise grades, though a significant proportion still identify with a shared ethical norm. This will suggest that some students behave inconsistently within this level, shifting between peer approval and rule compliance depending on the context. In other words, when academic success comes under risk, students might prioritise their own interests over rules or social approval, even if it involves breaking rules or letting others down.

The study uncovered very little evidence that students operate at the post conventional level, where moral reasoning is grounded in universal ethical principles like justice and fairness. Although many valued morality, only a few connected ethics explicitly to principles beyond institutional rules or social reputation. This suggests many students have yet to internalise higher-level moral reasoning that transcends self-interest or situational convenience.

Peer influence on ICT use was significant for many students, yet direct peer pressure to act unethically was not high. This pattern fits with Kohlberg's model, where Stage 3 individuals are sensitive to peer views, whereas those at higher levels prioritise personal ethical convictions regardless of peer behaviour. The internalised pressure students felt, despite minimal explicit peer pressure, implies that many remain in transitional phases between Pre-Conventional and Conventional reasoning.

Overall, the research suggests that although students understand the value of morality, their ethical decision-making often reflects lower levels of moral reasoning dominated by fear and self-interest rather than principled ethics based on universal values.

8. RECOMMENDATIONS AND CONCLUSIONS

The study recommends key strategies to improve academic

integrity and advance students' moral reasoning in ICT-enabled assessments. Higher educational institutions should implement strategies that can help students internalise ethical values. First, ethics education should be integrated deliberately within the ICT curriculum. Such training in ethics from within the ICT curriculum will introduce the students to the universal principles guiding ethical decision making. This will help them to be able to evaluate every situation based on these principles before making a decision.

Higher educational institutions must also consistently enforce academic integrity policies to reinforce the importance of ethics. In addition to enforcing policies, support systems such as mentoring and counselling should be strengthened to deal with the various pressures that drive unethical ICT use.

Institutions should cultivate a culture where ethical values are embraced as a shared value by both students and staff. Such a culture can normalise ethical behaviour and create positive peer influences.

Combining robust institutional frameworks, ethics education and support systems can better prepare students to apply principled moral reasoning in their academic work and professional life in the future.

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