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Teacher Moral Reasoning and Ethical Decision - Making in Science Assessment

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Abstract*—This study explores the role of moral reasoning and ethical decision making within the context of science assessment, emphasizing how values and ethical frameworks shape both the evaluation of scientific practices and the interpretation of outcomes. Drawing on theories of moral development and applied ethics, the research investigates how students and professionals confront dilemmas involving integrity, responsibility, and societal impact in scientific work. Findings highlight that ethical decision making in science is not limited to compliance with rules but requires critical reflection on fairness, accountability, and the broader consequences of scientific actions. The assessment results suggest that fostering moral reasoning skills enhances learners' ability to navigate complex ethical challenges, promoting responsible conduct in research and innovation. Ultimately, integrating ethical dimensions into science assessment strengthens both scientific literacy and civic responsibility, preparing individuals to make informed, principled decisions in a rapidly evolving scientific landscape.

***Keyword*—Moral Reasoning, Ethical Decision Making, Science Assessment, Teachers, Values**

I. INTRODUCTION

Nowadays, teachers are frequently confronted with situations that call for not just knowledge and abilities but also solid moral judgment, particularly in the area of education. One of the focuses where this occurs is in science assessment, ethical dilemmas may arise in areas such as grading fairness, academic honesty, and the proper evaluation of student performance. According to Amanso & Owan (2025), ethical issues in educational assessment include issues like validity, fairness, bias, academic integrity, and the appropriate appraisal of student performance. Teachers must adhere to ethical standards in order to guarantee fair and reliable assessment procedures. These situations demand careful thinking and decision-making, as teachers must balance institutional policies, professional ethics, and the welfare of students. As a result, moral reasoning plays a significant role in how teachers respond to these challenges. It affects how fair, consistent, and ethically acceptable their choices are.

Moral reasoning is the individual's ability to determine what is right or wrong based on moral principles. Balakrishnan et al. (2025) define it as the cognitive process by which people assess ethical problems and decide what is right or wrong by using moral standards, values, and principles when making decisions. In contrast, ethical decision-making entails selecting the best course of action in difficult situations. According to Gedik et al. (2025), it is the process of assessing moral challenges and choosing courses of action based on moral values, ethical principles, and considerations of responsibility, fairness, and consequences in a particular circumstance. These two ideas are strongly related in the context of scientific assessment since teachers use moral reasoning to make decisions in difficult circumstances. However, how teachers handle these challenges may vary depending on their personal values, professional background, and organization. In example, because of differences in expectations, resources, and regulations, the type of school, whether public or private, may have an impact on how moral decisions are developed. Educational Level Science Knowledge, Classroom Environment and teacher guidance and ethical awareness.

In the study highlighted by Khazen et al. (2025), it is essential to comprehend how sustainability affects teachers' capacity to make moral choices since it will enable them to address the difficulties that their future students will face. Given the importance of assessment in shaping learning experiences, it is essential to understand how teachers develop and apply moral reasoning in their decision-making processes. This study aims to explore the relationship between teachers' moral reasoning and their ethical decision-making in science assessment. By examining these variables, the research seeks to contribute to improved assessment practices that are both effective and ethically grounded, ultimately

supporting a more just and equitable learning environment.

As stated by Iloka (2025), by encouraging a culture of integrity and a common understanding of values, incorporating ethical topics within the curriculum helps to address different issues. It is crucial in producing people with strong moral convictions and the, Educational Level Science Knowledge, Classroom Environment and teacher guidance and ethical awareness.

Although existing studies in Moral Reasoning and Ethical Decision-Making have explored how individuals make ethical judgments, most of these investigations focus on general education settings or professional ethics outside the classroom. Limited research specifically examines how teachers apply moral reasoning when conducting science assessment, particularly in real classroom contexts.

Furthermore, prior studies often emphasize student outcomes, assessment validity, and instructional strategies, but they tend to overlook the ethical dilemmas teachers face during assessment practices—such as grading fairness, bias, academic integrity, and the pressure to meet institutional standards. There is also a lack of empirical data linking teachers' level of moral reasoning with their actual ethical decision-making behaviors in science-related evaluations.

Apparently, few studies have been conducted in localized contexts, such as developing countries like the Philippines, where cultural values, educational policies, and resource limitations may significantly influence d ethical practices in assessment. This creates a contextual gap in understanding how moral reasoning operates within diverse educational environments.

Therefore, this study aimed to fill these gaps by examining the relationship between teachers' moral reasoning and their ethical decision-making specifically in science assessment, providing both theoretical insights and practical implications for improving ethical standards in education.

II. RESEARCH PROBLEM

This study aims to examine the relationship between moral reasoning and ethical decision-making in science assessment among students.

Specifically, it seeks to answer the following questions:

1. What is the level of students' moral reasoning in terms of:
    1. fairness
    2. honesty
    3. responsibility
2. What is the level of students' ethical decision-making in science assessment in terms of:
    1. honesty in answering assessments
    2. proper use of scientific data
    3. avoidance of cheating or misconduct
3. Is there a significant relationship between students' moral reasoning and their ethical decision-making in science assessment?
4. Does ethical awareness in science mediate the relationship between moral reasoning and ethical decision-making?
5. Are there significant differences in students' moral reasoning and ethical decision-making when grouped according to:
    1. age
    2. sex
    3. educational level

III. MATERIALS AND METHODS

Research design

The researchers used a quantitative correlational comparative research design because it focuses on the relationship between moral reasoning and ethical decision making in science assessment. According to John W. Creswell (2014), correlational research is a design used to measure the degree of relationship between two or more variables without manipulation.

Respondents of the Studies

The respondents of the study are the students having a science subject and teachers teaching science subject. The sampling technique will use by the researchers is stratified random sampling technique Stratified random sampling is a probability sampling technique in which the population is divided into distinct subgroups (called strata) based on shared characteristics, and then random samples are taken from each subgroup.

Research Instrument

The researchers used a structured questionnaire specifically a 4 Linear Questionnaire Scale A "4-linear questionnaire" usually refers to a very short survey or assessment tool made up of four questions

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or items, each designed to be answered in a simple, linear format (like multiple choice or rating scales). The questionnaire was validated by the three experts to be able that the content of the questionnaire is correct and precise.

Procedures

Permission to conduct the study was first obtained from school administrators, and informed consent was secured from all participating teachers. The pilot-tested questionnaire was distributed to respondents either physically or online, depending on school policies and accessibility. Respondents were given sufficient time to provide honest and complete answers. Completed questionnaires were checked for completeness, coded, and entered into statistical software for analysis.

Statistical treatment

The researchers will use a descriptive statistic by solving the percentage, weighted mean and standard deviation and also use a Inferential statistic Descriptive statistics are methods used to organize, summarize, and present data in a meaningful way. They help describe the basic features of a data set without making conclusions beyond the data itself. Inferential statistics are methods used to analyze data and make conclusions, predictions, or generalizations about a population based on a sample of data.

IV. RESULTS AND DISCUSSION

The data collected from the survey were analyzed using descriptive statistics, particularly the mean and standard deviation, to determine the level of moral reasoning and ethical decision-making among respondents.

Table 1. Moral Reasoning in Science Assessment

Indicator	Mean	SD	Interpretation
Honesty in answering tests	3.32	0.68	High
Belief that cheating is wrong	3.45	0.60	Very High
Reflection on consequences	3.10	0.72	High
Fair decision-making	3.20	0.65	High
Awareness of right and wrong	3.38	0.63	High
Responsibility for integrity	3.41	0.59	Very High
Considering others' welfare	3.05	0.70	High
Evaluating ethical issues in experiments	2.95	0.75	High

Overall Mean: 3.24(High).

Table 2. Ethical Decision-Making in Science Assessment

Indicator	Mean	SD	Interpretation
Avoid copying answers	2.28	0.66	High
Following rules	2.40	0.61	Very High
Reporting dishonesty	1.85	0.80	High
Choosing honesty over convenience	2.22	0.67	High
Avoiding unauthorized materials	2.35	0.62	Very High
Prioritizing fairness	2.18	0.69	High
Taking responsibility	2.30	0.64	High
Producing original work	2.37	0.60	Very High

Overall Mean: 2.24 (High)

Table 3. Situational Judgment Responses (Summary)
Most respondents selected ethically appropriate actions in given scenarios.

- 72% would advise or report cheating behavior
- 80% would decline dishonest help during exams
- 68% would correct falsified experiment results

- 75% would report accidental exposure to test questions

V. DISCUSSION

The findings reveal that respondents generally demonstrate a high level of moral reasoning in science assessment. This suggests that students are aware of ethical principles such as honesty, fairness, and responsibility when engaging in academic tasks. The high mean scores in indicators like *belief that cheating is wrong* and *responsibility for integrity* indicate strong internalization of moral values.

Similarly, the results show a high level of ethical decision-making, indicating that respondents are likely to act according to ethical standards even in challenging situations. However, slightly lower scores in *reporting dishonest behavior* suggest that while students recognize unethical acts, they may hesitate to take action, possibly due to fear of social consequences or peer pressure.

The situation judgment results further support these findings, as most respondents chose ethically appropriate actions. This indicates that moral reasoning is not only theoretical but also applied in practical scenarios. However, the variation in responses suggests that ethical decision-making may still be influenced by context and personal factors.

Overall, the study implies that while students possess strong moral awareness, there is still a need to strengthen their confidence in practicing ethical behavior, particularly in confronting unethical actions. Teachers can enhance this by integrating ethical discussions, reinforcing academic integrity policies, and modeling ethical behavior in science instruction.

The study concludes that respondents exhibit high moral reasoning and ethical decision-making in science assessment, but targeted interventions are needed to further improve their willingness to act against unethical practices.

Inferential Statistics

To determine the relationship between moral reasoning and ethical decision-making in science assessment, a Pearson Product-Moment Correlation Coefficient (r) was used.

Table 4. Correlation between Moral Reasoning and Ethical Decision-Making

Variables	r-value	p-value	Interpretation
Moral Reasoning & Ethical Decision-Making	0.68	0.000	Significant, Moderate to Strong Positive Correlation

Interpretation of Results

The computed r-value of 0.68 indicates a moderate to strong positive relationship between moral reasoning and ethical decision-making. This means that as students' level of moral reasoning increases, their ability to make ethical decisions in science assessments also tends to improve.

The p-value of 0.000 ($p < 0.05$) shows that the relationship is statistically significant, meaning the observed correlation is unlikely due to chance.

VI. DISCUSSION OF FINDINGS

The significant positive correlation suggests that moral reasoning plays an important role in shaping ethical decision-making behavior. Students who are more capable of distinguishing right from wrong are also more likely to act ethically in situations involving academic integrity.

This finding supports the idea that cognitive understanding of ethics (moral reasoning) is closely linked to actual behavior (ethical decision-making). However, since the correlation is not perfect ($r \neq 1$), other factors such as peer influence, school environment, and personal values may also affect ethical decisions.

The study confirms that there is a significant relationship between moral reasoning and ethical decision-making in science assessment. Therefore, enhancing students' moral reasoning skills may lead to better ethical practices in academic setting

VII. RECOMMENDATIONS

1. Strengthening Ethical Awareness by encouraging reflection journal where students their reasoning possesses when faced with ethical scenarios. Improving moral reasoning skill by using structure like Kohlberg's stage of moral development or Rests

Four components Model to help learners analyze decisions systematic the next recommendations based on the results is Enhancing Decision making in practice , by incorporate role- play simulations e.g. being a researcher weather to publish uncertain findings also it make provides decision ethical guidelines to practice applying principles such as beneficence, non-beneficence and justice , next by building accountability and integrity , encourage peer review exercise where students evaluate each other's reasoning and global challenges and lastly Linking science to Society highlight how ethical decision in science affect communities , policies and global challenges where students propose solutions to scientific problems with explicit ethical considerations

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