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INTERACTIVE LEARNING MANAGEMENT SYSTEM (LMS)-BASED AUTHENTIC EVALUATION OF MORAL DILEMMA NARRATIVES IN CIVIC EDUCATION

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Abstract

This study aims to design and develop a technology-based moral dilemma narrative evaluation system through a Learning Management System (LMS) platform within the context of Citizenship Education in higher education. The research employed a Research and Development (R&D) approach using the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model with the participation of 183 students. The findings indicate that integrating moral dilemma narratives into the LMS fosters students' cognitive, affective, and reflective engagement. Students were not only able to identify values and develop ethical reasoning, but also to engage in deeper reflection on moral experiences. The interactive design of the LMS provides an authentic and contextual medium for character assessment. As a result, this strategy enhances the quality of character evaluation and supports lecturers in systematically mapping learning outcomes and assessments. This study, therefore, recommends the broader implementation of moral dilemma narrative evaluation through an LMS as an innovative approach to strengthening students' character development with the support of technology.

Keywords: Civic education, Evaluation, Learning management system, Moral dilemma narrative, Technology.

1. Introduction

Civic Education (CE) in higher education carries a strategic mission of shaping students into citizens who are not only intellectually capable but also possess strong moral character, a well-developed sense of values, and social responsibility [1-4]. However, evaluation systems commonly used in CE courses at many universities remain dominated by cognitive approaches and objective assessment tools, such as multiple-choice tests or descriptive essays. Such strategies primarily measure conceptual knowledge and memorization, but fall short in capturing the affective and reflective dimensions that are essential for the internalization of civic value [5]. Consequently, students' learning outcomes are often confined to the cognitive domain, without necessarily fostering the moral maturity required to navigate ethical dilemmas in real-life social contexts. Assessing students' moral development, therefore, is vital to ensure comprehensive learning outcomes [6].

In today's increasingly complex world, filled with moral ambiguity and ethical challenges that are rarely clear, students are required to develop advanced moral reasoning skills rather than simply memorizing legal norms or constitutional principles. The challenge of navigating diverse and often contradictory information in the digital space highlights the need for a holistic approach to moral education. This approach should cultivate critical thinking skills for evaluating and filtering information while also fostering positive and inclusive moral values. It is equally important to strengthen digital literacy, encourage ethical attitudes in the use of technology, and develop social and emotional skills that enable students to face moral challenges in the digital era.

Furthermore, it is essential to implement approaches to moral education that respond to the evolving digital context, recognizing the powerful role of technology and digital media in shaping moral perceptions and behavior. Moral education in the digital era requires the development of digital applications and platforms that can convey moral values in ways that are engaging and interactive (Safaei, 2023). Addressing these challenges is therefore vital for creating effective educational strategies in higher education, particularly those related to values and morality, to strengthen students' moral foundations.

In everyday reality, students as digital and global citizens encounter various moral dilemmas: whether to remain silent or speak out against injustice, whether to yield to peer pressure or uphold their principles, and whether to choose pragmatism or maintain integrity. Confronting such realities requires moral and ethical awareness, the capacity to address and critically discuss moral issues, and both a practical and theoretical understanding of morality and ethical theories as frameworks for moral reasoning [7]. Hence, learning in higher education should not only enhance intellectual capacity but also foster morality, civic responsibility, and ethical decision-making [8].

Cross-disciplinary research demonstrates that individuals do not always make moral decisions rationally; rather, they are strongly influenced by emotional dimensions, social pressures, and pre-existing cognitive structures [9-11]. This highlights that the evaluation of values cannot be separated from the complex realities of human life. Within the field of education, assessments that emphasize moral reasoning and ethical decision-making are therefore essential. Ethical decision-making involves both the process and outcome of an individual's cognitive evaluation of adherence to norms and appropriate behavior, in which

individuals weigh and select from available options until the motivation to act emerges and is realized in concrete behavior [12].

Educational research also shows that a narrative-based approach to moral dilemmas holds significant potential as an authentic assessment tool. Many reports regarding educational research have been well-documented in Table 1. Moral dilemma narratives present short stories with conflicting values that stimulate both emotional and intellectual engagement, encouraging students to analyze, evaluate, and select actions based on accountable moral principles [13-15]. This form of evaluation is considered more authentic because it mirrors real-life situations and supports the development of students' ethical awareness [5]. Assessments based on moral dilemmas also strengthen moral cognition by guiding individuals through processes of constructing universal reasons for why a person should or should not act, grounded in moral considerations, reasoning, and decision-making.

Table 1. Summary of selected SDGs and their impacts related to biomass.

No.	Title	Reference
1	Awareness and utilization of artificial intelligence-based intelligent tutoring systems (ITS) in enhancing chemistry education through information and communication technology (ICT)	[16]
2	Perception and attitude of undergraduates toward online learning platforms in post-covid-19	[17]
3	Bibliometric analysis using VOSviewer with Publish or Perish of computational thinking and mathematical thinking in elementary school	[18]
4	Evaluation of robotics class in a private school in the Philippines	[19]
5	Problem based learning (PBL) learning model for increasing learning motivation in chemistry subject: Literature review with bibliometric analysis	[20]
6	Development, validity, and acceptability of android-based applications in ecology: A technology acceptance model (TAM) approach	[21]
7	Improving students' critical thinking through blended learning media learning game word wall	[22]
8	Structural equation modelling of factors influencing confidence in mathematics	[23]
9	Perceptions of senior high school science, technology, engineering, and mathematics (STEM) students toward STEM and non-STEM courses: A comparative qualitative study	[24]
10	The role of interactive pedagogy for educational reform	[25]
11	The role and strategy of religious values-based teaching materials in religious education: Systematic literature review	[26]
12	Advanced engineering schools as innovation hubs in post-industrial higher education: Institutional, pedagogical, and business model perspectives	[27]

Table 1 (Continue). Summary of selected SDGs and their impacts related to biomass.

No.	Title	Reference
13	Exploring global research trends on the integration of information technology in pragmatic studies: A bibliometric analysis	[28]
14	Evolution and advancements from neural network to deep learning	[29]
15	Accessibility and utilization of artificial intelligence (AI)-based intelligent tutoring systems (ITS) and information and communication technology (ICT) in enhancing biology education	[30]
16	Enhancing job satisfaction through human resource information systems and communication: A commitment-based approach to achieve Sustainable Development Goals (SDGs) in education-oriented organizations	[31]
17	The ethical and educational implications of greenwashing in corporate sustainability practices	[32]
18	Female having education in the world of technology wading obstacle facing religious and social barrier	[33]
19	Awareness of Internet of Things (IoT) applications for learning enrichment among undergraduate students	[34]
20	Bibliometric analysis using VOSviewer with Publish or Perish of CEFR-based comparison of English language teaching models for communication	[35]
21	The emergence of new technologies in metalwork/automobile industries: Issues, challenges and opportunities in emanating from for delivery of technical education on a pandemic era	[36]
22	The impact of project-based learning (PjBL) on students' motivation and learning outcomes: A literature review	[37]
23	Ensuring the effectiveness of education through interactive methods in the modern pedagogical process	[38]
24	Effectiveness of the phenomenon-based approach in enhancing senior high school students' mathematical achievement and problem-solving skills	[39]
25	An investigation of factors that motivate academics to conduct research and research productivity in Lao Public Universities	[40]
26	Preparing future geography teachers through problem-based learning technology: A short review	[41]
27	Perception of early childhood education lecturers on the use of virtual learning	[42]
28	The effectiveness of blended education in educational institutions	[43]
29	Effect of cross-over learning on pupils' academic performance in civic education	[44]

Table 1 (Continue). Summary of selected SDGs and their impacts related to biomass.

No.	Title	Reference
30	Effect of preparatory homework on pupils' academic performance in basic science	[45]
31	Emerging technologies for sustainable universities and colleges: A meta-synthesis	[46]
32	Development and validation of CalTech (calculator techniques) exercises manual	[47]
33	Utilization of dynamic visualization tools: Enhancing students' motivation and engagement in biology education	[48]
34	Physical adaptation of college students in high-altitude training: Empirical findings and curriculum development insights to support Sustainable Development Goals (SDGs)	[49]

Furthermore, both in global and local contexts, numerous studies highlight the urgency of instilling values through dilemma-based approaches. A large-scale study conducted in 42 countries revealed significant variations in moral decision-making influenced by cultural background, age, and education [50]. In Indonesia, cases such as abuse of power, agrarian conflicts, and the rise of online gambling among students illustrate that young people are confronted with real and complex ethical dilemmas.

Despite this, there remains a gap in research that evaluates student character using a digital and systematic moral dilemma narrative approach in the context of Indonesian higher education. Most prior studies have concentrated on narrative design or dilemma-based learning, yet few have integrated the development of an evaluation model that systematically addresses cognitive, affective, and reflective taxonomies through digital learning platforms. Moreover, only limited studies have sought to map students' moral learning outcomes using Bloom's Taxonomy indicators derived from their responses to moral dilemmas.

Therefore, this study aims to design and implement an authentic evaluation model based on moral dilemma narratives by leveraging digital technology as both a learning and assessment tool. To achieve this, the study adopts a Research and Development (R&D) approach using the ADDIE model. The novelty of this research lies in three main contributions: (i) the design and development of an authentic evaluation strategy for moral dilemma narratives through a Learning Management System (LMS), (ii) the implementation of the Authentic Moral Narrative Technology-Enhanced (AMN-Tech) strategy, and (iii) the development of a Civic Education evaluation instrument that assesses not only cognitive aspects but also affective and reflective dimensions.

2. Literature Review

In education, an LMS serves as a platform that supports the management, storage, and tracking of learning processes while providing a structured learning environment [51, 52]. An LMS can enhance accessibility, foster student engagement, and improve learning outcomes [53]. The core components of an LMS include: (i) a content management system for uploading materials such as documents, videos, and interactive resources like quizzes and assignments [54]; (ii) tracking features that monitor student progress and engagement levels [55]; (iii)

communication tools such as discussion forums and messaging systems to facilitate interaction between educators and students; and (iv) assessment capabilities that enable the creation of quizzes and assignments, along with automated grading systems that simplify evaluation and provide immediate feedback [53, 56, 57].

From a theoretical perspective, LMS applications align with constructivist learning theory, which emphasizes active, student-centered learning. The Technology Acceptance Model (TAM) also provides a useful framework, highlighting the influence of perceived usefulness and perceived ease of use on the acceptance and effective utilization of LMS by both educators and learners [57, 58]. Research further demonstrates that LMS has transformed conventional teaching methods by allowing students to learn at their own pace and within a more flexible learning environment [59, 60]. The pedagogical shift from traditional to technology-based systems has encouraged educational institutions to enhance the quality of learning, particularly in today's era of disruption [61, 62].

Moreover, recent studies suggest that LMS can make a significant contribution to educational quality when implemented and managed effectively. As illustrated in Fig. 1, an LMS functions as a hub for interaction among educational institutions, educators, students, parents, and the wider community, thereby fostering integrated communication and coordination that enhance overall educational effectiveness [63].

However, despite its many benefits, the integration of LMS also poses significant challenges for higher education institutions, particularly in addressing technological constraints and aligning them with appropriate pedagogical frameworks [64-66]. Effective LMS management requires not only a strong understanding of technological capabilities but also a solid grounding in the pedagogical theories that guide its use. This reflects the idea that successful LMS implementation involves more than simply adopting new technologies; it also requires educational strategies that promote student engagement and self-directed learning [67, 68].

LMS can substantially enhance educational practices by providing flexible learning environments and supporting efficient instructional management. However, its potential can only be fully realized when technological tools are effectively integrated with pedagogical strategies that foster meaningful and transformative learning experiences. This synthesis of technology and pedagogy is essential for advancing student development and achieving educational goals.

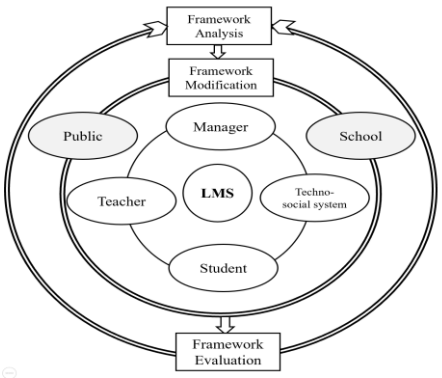

Fig. 1. Visualization of the learning management system concept.

2.1. Learning evaluation

Learning evaluation is the process of collecting and analyzing information to determine the extent to which learning objectives have been achieved (Sudjana, 2005). Through evaluation, educators can assess students' progress, identify their strengths and weaknesses, and make improvements or adjustments to the teaching process in order to optimize learning outcomes. One of the most widely used frameworks in learning evaluation is Bloom's Taxonomy, which provides key aspects that serve as measurement indicators. Bloom's Taxonomy consists of three domains: (i) the cognitive domain, which involves mental processes such as thinking and reasoning; (ii) the affective domain, which involves values, attitudes, and dispositions; and (iii) the psychomotor domain, which involves physical skills and actions [69].

First, the cognitive domain in learning evaluation consists of six hierarchical levels: knowledge, comprehension, application, analysis, synthesis, and evaluation. This domain measures students' ability to recall, understand, apply, analyze, synthesize, and evaluate information [70, 71]. Second, the affective domain relates to attitudes and values, with changes in this domain often occurring once a high level of cognitive mastery has been achieved. The affective domain encompasses five levels: receiving, responding, valuing, organizing, and characterizing by value [69]. Third, the psychomotor domain refers to the skills demonstrated in action after an individual has undergone a learning experience. Outcomes in this domain are reflected in the learner's ability to perform tasks and apply acquired skills in practice.

With the advancement of educational technology, Bloom's Taxonomy has been revised to better align with contemporary needs. The revision focused on the cognitive domain, emphasizing the use of operational verbs to describe learning processes. In this revised framework, the cognitive domain consists of two dimensions: the cognitive knowledge dimension and the cognitive process dimension [72]. The cognitive knowledge dimension is divided into four categories: factual knowledge, conceptual knowledge, procedural knowledge, and metacognitive knowledge. Meanwhile, as illustrated in Fig. 2, the cognitive process dimension consists of six levels: remembering, understanding, applying, analyzing, evaluating, and creating.

Previous research has emphasized the crucial role of learning evaluation; however, not all educators are able to implement it effectively due to several constraints. First, limited time, extensive teaching materials, and heavy administrative workloads often hinder the effective implementation of evaluation [73]. Second, some educators report lacking sufficient skills in applying effective evaluation methods, largely due to inadequate training and professional development opportunities [74].

Evaluation plays a crucial role in supporting learning outcomes. An effective evaluation should integrate the three domains of learning: cognitive, affective, and psychomotor. However, empirical studies indicate that many educators face challenges in carrying out evaluations, particularly due to limited time and insufficient knowledge in designing relevant evaluation instruments for students.

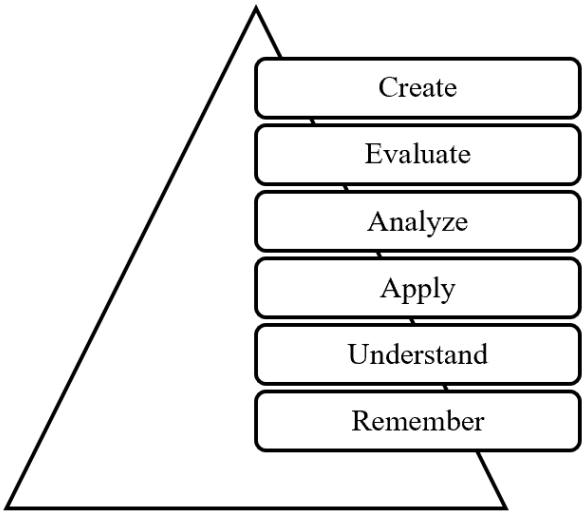

Fig. 2. Cognitive domain ability levels of Bloom's taxonomy.

2.2. Moral dilemma

A moral dilemma is a situation characterized by the presence of conflicting moral requirements. Such dilemmas often arise as a tension between utilitarian considerations, which emphasize maximizing the common good, and deontological principles, which uphold moral rules that prohibit harmful actions regardless of the outcomes [74-76]. In theory, moral dilemmas can be understood through various ethical frameworks, particularly utilitarianism and deontology. While utilitarianism promotes actions that enhance overall well-being, deontological ethics asserts that certain actions are categorically wrong, framing moral dilemmas in terms of obligations and rights [77].

The dual-process theory of moral judgment further explains that moral decision-making involves the interaction of both emotional and cognitive processes. This perspective highlights that individual characteristic such as empathy and emotional engagement can shape the reasoning applied to moral dilemmas [77, 78]. Neuroethical studies also reinforce this view, showing that brain regions responsible for emotional processing play a significant role in shaping how individuals resolve moral conflicts [9, 79].

Empirical studies provide valuable insights into how moral dilemmas influence decision-making across demographics and contexts. For instance, children often adopt a more utilitarian perspective than adults, suggesting that moral reasoning develops in tandem with emotional and cognitive growth [80]. Furthermore, research indicates that in advanced technological contexts, moral decision-making is shaped by both individual characteristics and prevailing social norms, underscoring the tension between personal moral beliefs and collective ethical standards [81].

A moral dilemma itself represents a challenging situation that serves as a lens for examining ethical decision-making. Both theoretical perspectives and empirical

findings reveal that our understanding of moral dilemmas continues to evolve. By confronting individuals with competing values, such dilemmas stimulate moral reasoning and guide the process of making ethical choices.

3. Method

This study employed the R&D method, adopting the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model. Detailed information regarding this method is explained elsewhere [82]. The research was carried out in two main phases. The first phase consisted of a needs analysis to identify the demand for a more contextual and meaningful character evaluation model, the design of moral dilemma narratives that reflected real value conflicts, and content validation conducted by experts in learning evaluation, instructional media, and civic education. The second phase involved integrating the narratives into a Moodle-based LMS, specifically SPADA UPI.

Students engaged with the narratives through the H5P Interactive Content feature in the LMS and responded to accompanying questions with written reflections. These responses were then analyzed and evaluated by the lecturer using a rubric based on cognitive and affective indicators from Bloom's Taxonomy. The study involved 183 students from three study programs at Universitas Pendidikan Indonesia (Civic Education, Indonesian Language Education, and Civil Engineering) all of whom were enrolled in the CE course as part of their General Education (GE) curriculum.

Data were collected using two main instruments: (i) an open-ended questionnaire to capture students' initial perceptions of value-related issues and moral dilemmas in daily life, and (ii) written reflections in the form of essay quiz responses within the LMS. The data were analyzed to identify reasoning patterns, determine levels of achievement in the cognitive and affective domains, and assess the coherence of responses. The content validity of the narratives and instruments was established through expert review [83].

4. Results and Discussion

This study presents the main findings obtained through the ADDIE model stages. The central objective was to design and implement moral dilemma narratives as an authentic assessment tool in CE at the university level. The findings highlight not only the effectiveness of these narratives in measuring students' cognitive understanding of civic concepts but also their potential in fostering affective and reflective engagement. The results further demonstrate that moral dilemma narratives encouraged students to critically analyze complex situations, consider diverse perspectives, and reflect on their personal values, thereby bridging cognitive knowledge with moral reasoning and ethical decision-making.

4.1. Results

4.1.1. Analysis stage

The analysis phase serves as the foundational stage in designing an authentic evaluation system based on moral dilemma narratives integrated into the LMS for CE. This phase primarily focuses on identifying real needs in the field, encompassing

both lecturers as facilitators of learning and students as learners who are expected to internalize Pancasila values in a reflective, critical, and contextual manner.

In-depth interviews with several lecturers teaching CE courses, as part of General Education (GE), revealed that evaluation practices remain largely conventional, relying primarily on objective tests such as multiple-choice questions and descriptive essays. These instruments are considered insufficient for capturing students' ethical reasoning, value judgments, and moral reflection in depth. Many lecturers admitted facing challenges in assessing students' affective and character development, mainly due to the lack of evaluation tools that enable students to critically and personally engage with values in concrete situations.

Analysis of syllabus documents from various study programs further reinforces these findings, as they often highlight learning outcomes in the affective domain, such as integrity, social responsibility, and moral courage. However, a significant gap emerges between the formulation of these objectives and the evaluation methods applied in practice. This discrepancy between the intended learning outcomes and the implemented assessment strategies highlights the urgent need for a new, authentic evaluation model that is better aligned with the value dynamics of the digital age.

The findings at this stage highlight the urgent need to develop an LMS equipped with a moral dilemma narrative feature as an instrument for evaluating student character. These results then formed the foundation for the design phase of LMS development, which integrates interactive digital components with moral dilemma-based character assessment.

4.1.2. Design stage

Based on the findings from the analysis stage, the design stage emphasized developing a moral dilemma narrative that was contextual, relevant, and aligned with the realities of contemporary student life. The purpose of this design was to produce an authentic assessment instrument capable of examining students' moral reasoning, value awareness, and sense of social responsibility within the framework of character education learning. Instructional design principles were integrated with a reflective and participatory values education approach, ensuring alignment with achievement indicators in both the cognitive and affective domains of Bloom's Taxonomy.

Five moral dilemma narratives were developed using a scenario-based approach, each presenting complex ethical situations involving conflicting values. The scenarios address issues closely connected to student life, including plagiarism in coursework, discrimination within campus organizations, conflicts between friendship loyalty and personal integrity, ethical challenges in social media use, and unfair workload distribution in group projects. These narratives are not merely descriptive but are intentionally designed to stimulate critical thinking, value analysis, and ethical reflection on dilemmas frequently encountered in everyday contexts.

Figure 3 illustrates a narrative structure that is systematically arranged in four main components, namely: i) Initial Situation, which depicts the background of the incident realistically so that students feel emotionally and intellectually involved; ii) Value Conflict, which presents a conflict between two or more noble values, especially values rooted in Pancasila, such as honesty and solidarity, or justice and group loyalty; iii) Choice of Actions and Their Consequences, which presents two to three alternative actions accompanied by the moral, social, and personal

implications of each choice; and iv) Reflective Questions, which encourage students to explore the moral reasons for their decisions, weigh prioritized values, and evaluate the impact and responsibility of those choices. Reflective questions are designed to assess both higher-order cognitive processes (such as analysis, evaluation, and creation) as well as affective engagement (such as value acceptance, internalization, and commitment), in accordance with Bloom's taxonomy indicators. For example, students are asked to answer questions such as: "What value is most important to you in this situation?", "What are the moral risks of your choice?", or "How will you be accountable for your choice in public?".

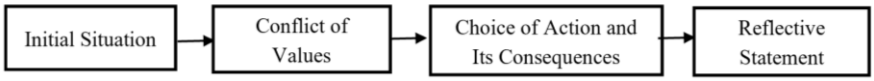

Fig. 3. Moral dilemma narrative design structure.

Each narrative is integrated into the LMS through the H5P interactive content feature. Figure 4 illustrates the flowchart for integrating moral dilemma narratives into the LMS in the context of CE learning. The process begins with logging in to the LMS. After successfully accessing the platform, the lecturer opens the CE course. The next step is to determine the appropriate lecture session in which the moral dilemma narrative will be inserted. This selection is adjusted to ensure alignment with learning outcomes and relevant topics. Once the topic is determined, the lecturer creates a new activity by selecting the "Add an Activity or Resource" feature. From the available options, the lecturer chooses H5P Interactive Content. The content type used is a combination of multiple choice and essay formats, which serve to present the moral dilemma narrative together with analytical and reflective questions. After all content is completed, the lecturer saves and publishes the activity, making it accessible to students.

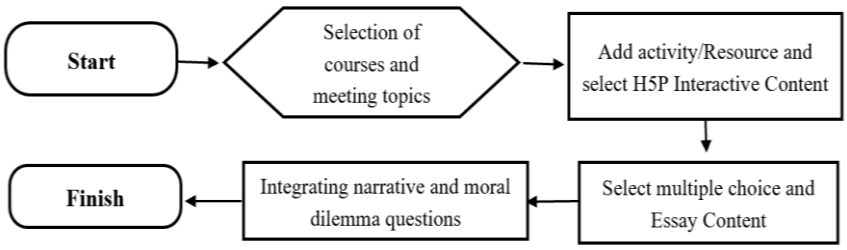

Fig. 4. Flowchart integrating moral dilemma narratives into LMS.

The integration of moral dilemma narratives into the LMS through the H5P feature, as illustrated in Fig. 4, demonstrates not only a systematic technical flow but also a pedagogical innovation that merges technology with student character development. This approach enables lecturers to embed contextual and interactive value-based evaluations that go beyond assessing cognitive understanding, fostering instead students' affective engagement and reflective thinking.

4.1.3. Development stage

The development phase emphasized refining the moral dilemma narratives to ensure content, pedagogical, and contextual validity, thereby making them appropriate as authentic evaluation instruments in technology-based civic education learning. The five narratives previously designed were subsequently validated by three groups of experts: (i) learning evaluation experts, (ii) learning media experts, and (iii) civic education experts.

The validation process covered five main aspects. First, content accuracy, referring to the alignment of the narrative context with students' realities. Second, story flow and logic, meaning the consistency of structure between the initial situation, value conflict, and action choices. Third, clarity of the value conflict, which assesses how effectively the dilemma encourages reflective thinking. Fourth, potential for moral engagement, reflected in the narrative's ability to stimulate empathy, responsibility, and ethical decision-making. Fifth, readability, which concerns the use of language and interactive learning media to ensure the narrative is accessible to students across different study programs.

Table 2 presents the validation instrument, which was developed as an assessment sheet using a 4-point Likert scale (1 = very poor, 4 = excellent), accompanied by an open-ended comment section for qualitative input from experts. The assessment results from four validators showed that all aspects achieved an average score above 3.5.

Qualitative input from the experts included suggestions for strengthening the description of the initial situation to make it more concrete and relatable to students' experiences, adding alternative actions with ambivalent consequences to enrich the depth of ethical analysis, and simplifying technical terms to ensure inclusivity for students from various academic backgrounds. Based on this input, the five narratives were revised and repackaged into a scenario-based reflection module, which consists of narratives, student reflection worksheets, and a user guide for the teaching faculty.

Table 2. Expert validation of authentic evaluation.

Rated aspect	Average Score
The suitability of the narrative context to the student's reality	3.75
Clarity of story flow and structure	3.68
Clarity of value conflicts	3.81
The potential of narrative in encouraging moral reflection	3.85
Readability, learning media	3.60

All aspects of the moral dilemma narrative obtained an average score above 3.5, indicating compliance with content, pedagogical, and contextual validity standards. The highest score was achieved in the narrative's potential to encourage moral reflection (3.85). In contrast, the readability and learning media aspects received the lowest score (3.60), which became a primary concern in the subsequent development process. These findings highlight the importance of strengthening interactive media in presenting the narrative, particularly given that the LMS platform provides the H5P interactive module feature capable of visualizing moral dilemma narratives. Based on these validation results, the narrative was further refined and packaged more interactively through the use of the H5P feature. Figure

5 illustrates several H5P interactive content features that enable the presentation of moral dilemma narratives in a more engaging and dynamic format.

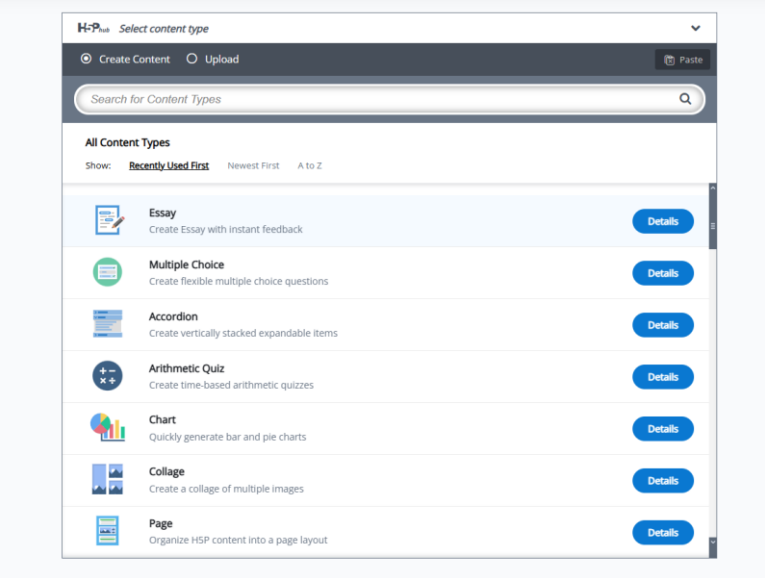

Fig. 5. H5P interactive content feature in LMS.

The flow for creating H5P interactive content is presented in Fig. 6. The process begins with logging into the LMS platform, after which the lecturer accesses the available CE course. Upon entering the main course page, the lecturer selects a meeting or topic that corresponds to the intended learning outcomes. The next step is to add a new activity by choosing the "Add an Activity or Resource" menu and then selecting the "Interactive Content (H5P)" module. At this stage, the lecturer is given the option to create two types of customizable evaluative content: Multiple Choice and Essay. For multiple-choice content, the lecturer selects the content type and assigns an evaluation title aligned with the designed moral dilemma narrative. Supporting media such as images or videos can be added to strengthen students' visual understanding of the dilemma.

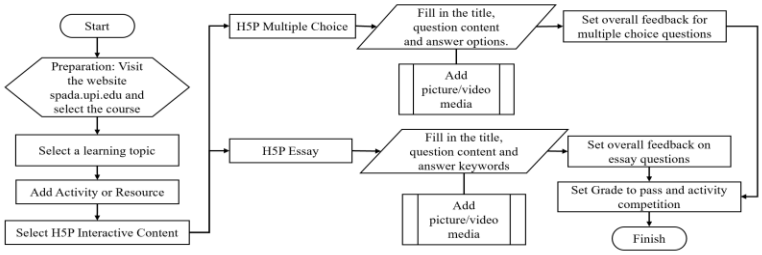

Fig. 6. Flowchart of lecturer creating interactive moral dilemma narrative in LMS.

These media files are uploaded via the media column and accompanied by descriptions in the Alternative Text column. The lecturer then writes the main question in the "Question" column and provides several answer options using the "Add Option" feature. Overall feedback is also prepared to enable students to reflect on their answers immediately. Finally, the lecturer determines the passing criteria (Grade to Pass) and configures the activity completion system (Activity Completion), which records completion status once students achieve the required grade.

Meanwhile, for essay content, lecturers select "Essay" from the H5P feature, then enter the evaluation title according to the chosen moral dilemma topic. Images or videos may be added at the beginning to enrich the visual context. The dilemma question is written in the "Task Description" column, while the ideal answer is placed in the "Sample Solution Text" column. Keywords from the ideal answer are listed in the "Keywords" column, enabling the LMS system to assist in assessing the alignment of student reflections. Once all fields are completed, the activity is saved and displayed.

4.1.4. Implementation stage

In the implementation phase, the moral dilemma narratives that had been validated in terms of content and pedagogy were fully integrated into the LMS. The design of the implementation emphasized the use of the Interactive Content feature available through the H5P plugin within the LMS. The narratives were delivered through multiple-choice and essay-based formats, which not only assessed students' understanding but also encouraged them to reflect on moral values in complex situations. Students were presented with scenarios involving value conflicts and asked to select alternative responses, each carrying different ethical implications.

Figure 7(a) presents the narrative "Between Hope and Deception", which illustrates the ethical dilemma of a new graduate torn between family pressure and personal integrity. Figure 7(b) presents the narrative "Voice for Vina and Eky", which highlights issues of justice and public participation in the realm of law enforcement. Utilizing H5P's interactive multiple-choice feature, these narratives function as authentic assessment tools for evaluating students' character development.

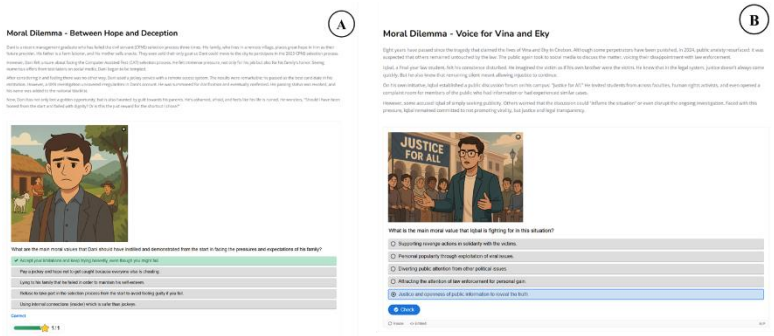

Fig. 7. Moral dilemma narrative using the H5P multiple choice feature in LMS: (a) A narrative of moral dilemma with the title 'between hope and deception' (b) A narrative of moral dilemma entitled 'voice for vina and eky'.

Figure 8 illustrates the implementation of a moral dilemma narrative using the H5P Essay feature within the LMS. This design integrates moral narratives with visual media, such as videos, to provide an initial stimulus that promotes empathy and critical thinking. After engaging with the video, students respond to essay questions that require them to evaluate ethical dilemmas and formulate well-reasoned moral decisions.

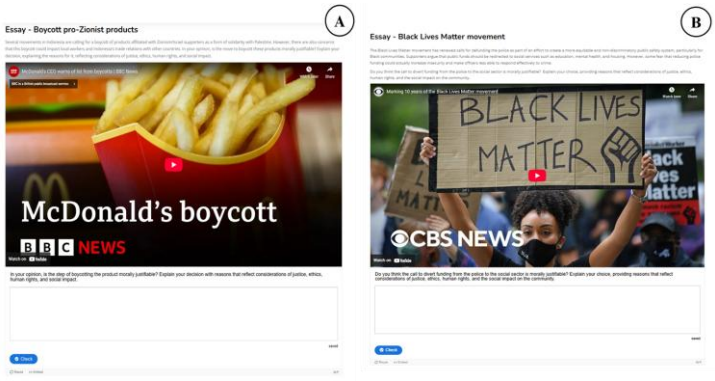

Fig. 8. Moral dilemma narrative using the H5P essay feature in LMS: (a) A narrative of moral dilemma with the title 'boycott pro-Zionist products' (b) A narrative of moral dilemma with the title 'black lives matter movement'.

After preparing the evaluation instruments, data were collected using two main methods. First, a multiple-choice questionnaire administered at the beginning of the course explored students' initial perceptions of civic values. Second, written reflections in the form of essays submitted through the LMS captured students' individual value reasoning processes, particularly in response to the presented moral dilemma narratives.

Table 3 indicates that 88.5% of students identified justice as the primary value in the first narrative. In the second narrative, which addressed discrimination within campus organizations, 82% of students recognized honesty as a key value. These results suggest that the developed narratives effectively fostered contextual understanding of values and promoted students' affective and reflective engagement with ethical issues. The evaluation tool functions not only as an instrument for assessing higher-order cognitive abilities but also as a means for internalizing Pancasila values in the context of students' everyday lives.

Table 3. Identification of core values by students based on moral dilemma narratives.

No	Core Values	Percentage of Students (%)
1	Justice	88.5
2	Honesty	82.0
3	Moral Courage	74.3
4	Social Responsibility	68.9
5	Empathy	65.6

Analysis of students' qualitative responses revealed strong engagement across three key aspects of moral development: moral knowledge, moral reasoning, and personal reflection. Regarding value comprehension, most students successfully identified the primary values at stake in each narrative. For instance, justice emerged prominently in the plagiarism scenario, while honesty and social responsibility were emphasized in the narrative addressing role conflicts within campus organizations. Several students also reported that the narratives prompted them to reconsider values they had previously taken for granted, such as empathy and moral courage.

In terms of moral reasoning, students exhibited a range of reflective responses that demonstrated values-based critical thinking regarding the issues presented in the narratives. In the narrative "Boycott Pro-Zionist Products", most students expressed support for the boycott as a form of solidarity with Palestine, highlighting the importance of global justice and human rights. At the same time, they considered the potential socio-economic impact on local workers, ensuring that their moral decisions were grounded in balanced ethical considerations. One student commented, "I support the boycott as long as it does not harm Indonesian workers. We can pressure large corporations without affecting ordinary people."

In the "Black Lives Matter Movement" narrative, students reflected on the values of equality and courage in confronting racial discrimination. They recognized parallels between injustices in the United States and issues of intolerance in Indonesia. Several students emphasized the significance of peaceful protests and civic participation in promoting a more just legal system. One respondent noted, "The Black Lives Matter Movement reminds me that silence in the face of injustice is also a crime. We must have the courage to speak out."

These reflections indicate that LMS-based moral dilemma narratives function not only as tools for assessing normative knowledge but also as safe spaces for students to explore and articulate their moral judgments contextually. The narratives encourage students to evaluate global issues through the lens of civic values, thereby reinforcing moral awareness, social empathy, and mature ethical decision-making skills. These findings offer a strong basis for assessing the effectiveness of narratives as instruments for character evaluation in higher education.

4.1.5. Evaluation stage

The evaluation phase focused on analyzing student response patterns to moral dilemma narratives delivered through the LMS. This phase aimed to assess the depth of students' moral reasoning in relation to learning outcomes within the cognitive and affective domains as defined by Bloom's Taxonomy. Assessments were based on students' reflective responses submitted via the online multiple-choice and essay quiz features, considering their understanding of values, the strength of ethical arguments, attention to moral consequences, and expressions of attitudes and commitment to civic principles.

Analysis of 183 student responses revealed three main patterns of moral reasoning. First, the descriptive-normative category, characterized by responses that merely state values or norms declaratively, without in-depth argumentation or contextual connection to the dilemma. This pattern typically corresponds to levels C2 (understanding) and A2 (responding). Second, the analytical-reflective category, in which students connect values to specific actions, consider the reasons

and moral consequences of their choices, and present their analysis logically and argumentatively. This pattern aligns with levels C4–C5 (analyzing–evaluating) and A3–A4 (valuing–organizing). Third, the transformative category, representing responses that demonstrate deep reflection not only on moral choices but also on self-change and social commitment, reflecting the highest achievement at levels C6 (creating) and A5 (characterizing by values).

A total of 67% of students exhibited an analytical-reflective pattern, demonstrating the ability for critical and contextual ethical thinking. About 18% displayed a transformative pattern, with reflections leading to self-awareness and a commitment to attitudinal change or greater social contribution. Meanwhile, approximately 15% remained in the descriptive-normative category, providing general responses that lacked logical and ethical elaboration.

These findings suggest that technology-based moral dilemma narratives function effectively as authentic assessment instruments, measuring learning achievement in both cognitive and affective domains. In addition, they act as reflective tools that encourage students to engage personally and contextually in interpreting Pancasila values.

4.2. Discussion

The findings of this study highlight the need to develop authentic evaluation instruments that extend beyond cognitive mastery to capture the depth of students' value reasoning, moral responsibility, and ethical reflection within technology-based CE learning in higher education. To explore these findings in detail, the discussion is organized around three main domains of moral development: moral knowledge, moral reasoning, and moral reflection. Each domain is analyzed with reference to field data and connected to theoretical frameworks and relevant prior research in moral and civic education.

4.2.1. Moral knowledge: Value awareness as the basis for reflective citizenship

Quantitative findings from the implementation phase indicate that students were highly capable of recognizing and articulating the core values embedded in the moral dilemma narratives. Justice was identified by 88.5% of respondents, followed by honesty at 82.0%, moral courage at 74.3%, social responsibility at 68.9%, and empathy at 65.6%. These results suggest that the narratives effectively stimulate value awareness within the concrete context of students' daily lives. Qualitative responses further supported this, with students reflecting, "The narrative made me realize that empathy is not only about understanding, but also about having the courage to support the vulnerable," and "I realized that in cases of plagiarism, justice is not only about sanctions but requires a holistic interpretation."

These findings reinforce the first dimension of character education theory, namely moral knowledge as the foundational element for character development. Awareness of values serves as the starting point for deeper internalization, and effective Civic Education relies on the explicit and integrated introduction of moral values into the learning process [84]. Moral development is facilitated through a constructivist approach, which encourages students to critically examine moral decisions based on their own ethical reasoning. This approach demonstrates that, beyond enhancing moral reasoning, the development of moral cognitive processing

skills enables students to exercise internal self-regulation rather than relying on external control from authority figures. Consequently, students' critical thinking from a moral perspective becomes increasingly mature [85, 86].

Integrating values into students' social contexts fosters more meaningful learning, as the values are grounded not merely in abstraction but in the concrete experiences of everyday life [5]. Moral narratives play a pivotal role in activating these values by simultaneously eliciting emotional responses and engaging cognitive processes [13]. This activation is particularly potent when narratives present dilemmas that highlight the tension between normative principles and potential consequences, prompting students to engage in deeper moral evaluation [13]. Consequently, narratives in Civic Education hold significant potential for cultivating moral sensitivity and promoting ethical decision-making that is both reflective and contextually informed [5, 13].

From a cognitive psychology perspective, students' engagement in recognizing values also involves activation of prefrontal brain regions associated with ethical decision-making (Greene, 2001; Greene, 2004). These findings indicate that exposure to realistic dilemma contexts prompts students to engage reflective neural processes when weighing moral choices, rather than responding automatically. This perspective aligns with neuroscience approaches to moral judgment, which emphasize that the comprehension of ethical values emerges from the integration of affective and cognitive systems within the brain [10, 14].

Value knowledge also serves as a foundational component in fostering prosocial attitudes and empathy during adolescent moral development (Van der Graaff, 2018). Neglect of values occurs when individuals fail to comprehend or rationally justify moral principles (Bandura, 1991). Strengthening value understanding is therefore crucial in preventing immoral behavior, including within the context of college life.

In Civic Education, value awareness is central to the formation of reflective citizens who not only comply with the law but also possess the ethical capacity to act (Westheimer, 2004; Abowitz, 2006; Estellés, 2021). Values such as justice, honesty, and social responsibility, which emerge from these narratives, are essential for shaping young citizens capable of critical thinking, social awareness, and ethical behavior in a pluralistic society. Students' ability to identify core values from narrative scenarios demonstrates that moral dilemma narratives function not only as an assessment tool but also as a contextual and relevant pedagogical strategy for enhancing moral knowledge in 21st-century digital citizenship education.

4.2.2. Moral reasoning: Ethical reasoning as a process of critical citizenship

Moral reasoning is a crucial dimension in developing reflective and responsible citizenship skills. Qualitative analysis of student reflections indicates that most participants were able not only to recognize the values at stake in the narratives but also to articulate the ethical reasoning behind their moral choices. For instance, several students explained that they chose not to cover up a friend's plagiarism because "justice cannot be compromised for the sake of personal solidarity" or "if I allow it, I would be complicit in injustice." These statements reflect principle-based normative reasoning, rather than merely emotional or consequentialist reactions.

This type of reasoning illustrates the development of deliberative capacities consistent with post-conventional moral reasoning. In a more recent context, the dissociation process approach suggests that, when faced with moral dilemmas, individuals tend to adopt either a deontological perspective, based on moral principles, or a utilitarian perspective, based on consequences.

Most students in this study exhibited a deontological tendency, refusing to perform actions they considered morally wrong, even if such actions could produce beneficial outcomes [87]. Neuropsychologically, values-based moral reasoning engages areas of the prefrontal cortex associated with complex decision-making and impulse control [11, 76]. Although not measured biologically in this study, students' responses demonstrated in-depth ethical reflection, indicating that the narratives stimulated high-level cognitive processing in weighing diverse moral considerations [88]. Therefore, moral consideration should be continuously cultivated in civic education, as it guides individual behavior toward the development of responsible and reflective citizenship.

The reflective process in moral reasoning enables individuals to evaluate multiple perspectives before reaching a decision [10]. Many students in this study rejected immediate or simplistic answers, demonstrating consideration of social impacts, principles of justice, and alignment with Pancasila values. Analytical and reflective thinking contribute to more nuanced and coherent resolutions of moral dilemmas [89, 90]. Within the context of Civic Education, the ability to engage in ethical reasoning is highly relevant. Civic reasoning emphasizes not only understanding values but also critically assessing them within real socio-political contexts [5]. Education should therefore be not merely normative but also critical and transformative, fostering citizens who can think ethically when confronted with social realities [91].

Quantitatively, students' ethical reasoning ability is reflected in their tendency to base moral decisions on consistent ethical arguments. In written reflections, 78.4% of respondents justified their actions based on Pancasila values, 66.9% referred to religious norms or general ethical principles, and only 21.5% relied on pragmatic or consequentialist considerations. These data indicate a predominance of principle-based (deontological) reasoning among students, demonstrating that technology-based moral dilemma narratives effectively foster deep cognitive and normative engagement. Consequently, the moral reasoning dimension in this study shows that moral narratives not only activate value awareness but also serve as a medium to develop students' capacity for ethical thinking, preparing them as future citizens who are critical, principled, and reflective in addressing the complex social dilemmas of the digital citizenship era.

4.2.3. Moral reflection: Ethical reflection as a pillar of civic awareness

Findings from the implementation phase showed that students were not only able to identify values and engage in moral reasoning but also participated in in-depth personal reflection. Through moral dilemma narratives delivered digitally via the LMS platform, students connected emerging issues to real-life experiences, such as conflicts within organizations, peer pressure, and dilemmas in everyday digital interactions. This reflective process encouraged students to evaluate past actions and consider alternative, more ethical responses in the future. One student wrote, "I once let my teammates lie to my lecturers, and I kept quiet. After reading this narrative, I regretted it and realized that keeping quiet was also part of injustice."

This kind of reflection forms an important foundation for responsible citizenship, as it demonstrates the ability to assess personal experiences through the lens of virtue and social responsibility. The digital moral dilemma narratives function not only as a tool to measure knowledge and reasoning but also as a medium for shaping students' moral selves. These findings support previous research showing that engagement in moral reflection enhances an individual's ability to make ethical decisions.

Reflection fosters the capacity to critically evaluate situations and make choices aligned with deeply held moral values. Furthermore, it promotes empathy and interpersonal understanding, which are essential in a multicultural society. Moral reflection also contributes to the development of students' social and emotional skills, which are increasingly crucial in modern educational contexts [92]. The development of moral dilemma narratives as an alternative assessment in citizenship education in this study effectively fosters moral reflection, thereby enhancing social sensitivity, empathy, and ethical decision-making.

Theoretically, the dimension of moral reflection is closely related to the concepts of moral injury and moral repair, referring to the psychological state that occurs when an individual realizes they have failed to act in accordance with their moral values [93]. This awareness often serves as a critical turning point in character development, emphasizing the importance of moral agency and self-reflection mechanisms in encouraging individuals to take responsibility for their moral actions amid increasingly complex social contexts [94].

Moral neuroscience has shown that reflective engagement in moral dilemmas activates brain areas associated with empathy, risk assessment, and self-control [9, 14, 76]. This indicates that when students engage seriously in reflecting on moral dilemmas, they activate not only cognitive processes but also affective and social dimensions. These findings confirm that moral reflection is a multidimensional process, integrating knowledge, emotions, and social experiences into a cohesive framework.

In the context of technology-based citizenship education, moral reflection is highly relevant to a critical pedagogical approach [91]. Humanizing education requires creating space for students to situate themselves within broader social and political contexts. When moral dilemma narratives are employed as a learning strategy, students are encouraged not only to understand values as normative texts but also to embody them as personal experiences that shape ethical awareness and social commitment. The integration of digital technology in developing moral dilemma narratives enhances the effectiveness of moral learning.

Recent studies indicate that digital environments serve as productive alternative spaces for moral reflection, enabling engagement with diverse content and cross-cultural discussions [95]. Additionally, strategic use of social media in moral education has been shown to increase student participation in ethical debates and strengthen awareness of social values. Digital platforms also facilitate collaborative learning and in-depth reflective dialogue, particularly when actively guided by instructors. Therefore, technology-based moral dilemma narratives function not only as instructional tools but also as transformative media for cultivating reflective, responsible, and morally resilient young citizens equipped to navigate the complexities of the twenty-first century.

4.2.4. Moral dilemma narrative as an authentic evaluation instrument

In the context of CE learning in higher education, moral dilemma narratives are designed as authentic assessment instruments aimed at strengthening character and higher-order thinking skills (HOTS). This approach assesses not only students' cognitive abilities but also their affective and reflective dimensions, which are essential for cultivating both intelligent and morally responsible citizens [84, 96].

The stories developed in this study present real and relevant value conflicts, such as plagiarism, peer pressure, discrimination, and dual roles within organizations. Each narrative is designed to evoke moral ambiguity, prompting students to analyze, evaluate, and reflect on values and actions aligned with the principles of Pancasila. This process enables students not only to recognize values but also to make decisions grounded in responsible moral reasoning.

To support a holistic evaluation, the indicators employed refer to the theory of moral knowing, systematically structured to encompass higher-order thinking skills (HOTS) at levels C4–C6 [84]. This evaluation also incorporates in-depth affective and cognitive approaches, emphasizing the importance of contextual experiences and personal agency in students' moral development [97-99]. Within this framework, Bloom's Taxonomy was expanded by integrating the cognitive and affective domains to reflect students' comprehensive engagement in both analytical thinking and empathetic, reflective responses.

Table 4 presents six evaluation indicators designed to measure student engagement through moral dilemma narratives. The first indicator is Moral Awareness, situated at the C4 (analyzing) level in the cognitive domain. At this stage, students are expected to identify moral issues in an event and explicitly articulate the associated values. Moral awareness serves as a crucial foundation for reasoning and acting morally [84, 100]

The second indicator is Knowledge of Moral Values, also at the C4 level. Students are asked to analyze the human values involved in current contextual issues, enabling them to understand the significance of values in social life. Knowledge of moral values functions as a guide for distinguishing between right and wrong and reinforces one's moral orientation. This aligns with previous research showing that contextual values-based learning can enhance students' understanding of values and their application as a basis for ethical decision-making [101].

The third indicator is Understanding Others' Perspectives, encompassing both the cognitive and affective domains (C4 and A3). This indicator requires students to explore the feelings, thoughts, and moral positions of others in complex situations, reflecting empathetic engagement and perspective-taking. Understanding others' perspectives is essential for interpersonal relationships and prosocial behavior, enabling students to accept diverse viewpoints and broaden tolerance in decision-making [102, 103].

The fourth indicator, Moral Reasoning, at level C5 (evaluating), requires students to assess the moral basis of an action and distinguish valid moral reasons from invalid ones. Students are challenged to apply evaluative thinking skills within an ethical context. This aligns with previous research highlighting moral

reasoning as a critical step in cognitive processes that influence ethical behavior and decision-making [104, 105].

The fifth indicator is Moral Decision Making, at the highest level in the cognitive domain, C6 (creating). At this stage, students are expected to design appropriate moral decisions in situations of value conflict and independently reconstruct ethical considerations. Moral decision-making emphasizes both intuitive and rational moral judgment. This aligns with previous research showing that meaningful moral choices require careful calculation and consideration of significant consequences. The sixth indicator, Self-Knowledge (Moral Reflection), is rooted in the affective domain, specifically levels A4–A5, which involve the organization and internalization of values.

Students are asked to evaluate and reflect on their personal moral development through the dilemma experiences presented in the narrative. As previous research indicates, this reflective process guides students in receiving feedback, reinforcing positive affective behavior, and fostering empathy, social responsibility, and cultural sensitivity [106-108]. Overall, these six indicators demonstrate that moral dilemma narratives not only activate students' logical thinking but also encourage exploration of affective and reflective dimensions, serving as the foundation for the formation of a holistic moral identity.

A narrative-based approach to moral dilemmas is contextual and effective in bringing civic values to life [5]. Such dilemmas simultaneously engage students emotionally and cognitively [13]. Learning that incorporates moral reflection not only enhances value understanding but also fosters the internalization of civic identity in the digital age. By actively engaging in this narrative and reflective learning process, students develop moral knowledge in a complex and contextualized manner. This approach bridges the gap between character education and meaningful evaluation practices in higher education [109-111].

Consequently, the use of moral dilemma narratives as an evaluation instrument grounded in Bloom's taxonomy not only enhances students' cognitive abilities—analysis, evaluation, and creation—but also strengthens the affective dimension through empathy, social responsibility, and self-reflection. This positions narrative as a powerful tool for developing students into capable, critical, and ethical citizens equipped to face contemporary social challenges.

Table 4. Cognitive–affective evaluation indicators in moral dilemma narratives.

Indicator	Bloom's Realm	Level	Description of Student Competencies
Moral Awareness	Cognitive	C4 (Analyze)	Students are able to identify moral issues in an event and make explicit the values involved.
Knowledge of Moral Values	Cognitive	C4 (Analyze)	Students can analyze the human values involved in actual contextual issues.

Understanding Other People's Points of View	Cognitive–Affective	C4 / A3 (Responding to)	Students can extrapolate the feelings, thoughts, and positions of others in complex moral situations.
Moral Reasoning	Cognitive	C5 (Evaluate)	Students can evaluate the reasons for moral actions and distinguish between good and bad moral reasons.
Moral Decision Making	Cognitive	C6 (Create)	Students are able to make ethical decisions in value conflicts and reconstruct their value considerations.
Self-Knowledge (Moral Reflection)	Cognitive	A4–A5 (Organizing – Internalizing Values)	Students can evaluate their personal moral development through reflection on dilemma experiences.

4.2.5. Authentic moral narrative–technology enhanced (AMN-Tech) learning strategy

Based on the findings and discussion of the implementation of a technology-based authentic evaluation design for moral dilemmas, an evaluation strategy called Authentic Moral Narrative–Technology Enhanced (AMN-Tech) was developed. This strategy innovates the classic narrative approach by leveraging technology to strengthen reflective, participatory, and values-based learning. AMN-Tech integrates the ADDIE instructional design framework with the three dimensions of moral development: moral knowledge, moral reasoning, and moral reflection, and utilizes a digital learning platform as a space for evaluating and fostering students' civic character.

The main objective of this strategy is to address the challenges of authentic evaluation, which has historically focused heavily on cognitive aspects while neglecting the affective and reflective dimensions of character education. Supported by an LMS, moral dilemma narratives function not only as contextual stories but also as catalysts for dialogue, reflection, and collaborative, documented ethical decision-making. The strategic steps in the AMN-Tech approach are guided by principles of transformative pedagogy and digital literacy, emphasizing experience-based learning, collaboration, and continuous reflection. Each stage strengthens higher-order thinking skills and character while providing innovative opportunities for students to explore values in both real-life and digital contexts.

Figure 9 explains the five main strategic steps in implementing AMN-Tech. The first step is Dilemma Context Analysis, which begins with identifying and analyzing moral issues relevant to students' lives, including ethical dynamics in academic environments, student organizations, and digital spaces. The goal is to design a narrative that is contextual, current, and able to reflect the real value conflicts students face daily. The second step is Interactive Digital Narrative Design, compiled in an engaging digital format and published through an online

learning platform. This design acts as a catalyst for critical thinking, value exploration, and affective engagement through a digital media-based approach. The third step is Development of an Authentic Digital Evaluation Tool, which holistically measures students' moral understanding, reasoning, and reflection. This evaluation includes written reflections, online discussions, value journals, and oral expressions in audio or video format. The fourth step is Implementation of Digital Reflective Learning, using multiple-choice and essay questions combined with visualizations to illustrate the moral dilemma narrative. The fifth step is Collective Evaluation and Curricular Feedback, emphasizing qualitative evaluation of learning outcomes and collective reflection. This process assesses individual and group moral development while strengthening students' awareness of values and moral integrity.

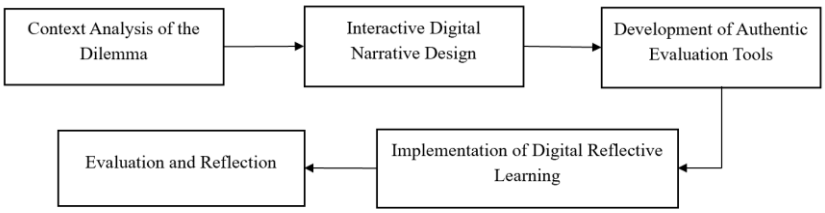

Fig. 9. AMN-Tech learning strategy steps.

The five strategic steps in AMN-Tech—contextual analysis of dilemmas, digital narrative design, development of authentic evaluation tools, implementation of digital reflective learning, and evaluation and reflection—constitute a highly effective learning framework for fostering reflective citizenship in the digital age. Each stage is grounded in transformative pedagogical principles and moral learning theory [84, 94], while being integrated with LMS-based educational technology to engage all students in a flexible, accessible, and well-documented learning process.

The strength of this strategy lies in its ability to bring values to life through contextualized moral experiences [5] and foster student engagement across the three main domains of moral development: cognitive, affective, and reflective [13]. The HOTS-based evaluation process (C4–C6), combined with interactive digital formats, enables students not only to understand values declaratively but also to develop authentic ethical reasoning and cultivate deep moral awareness.

With its systematic syntax and support from digital learning technology, AMN-Tech proves adaptable to diverse student contexts and higher education institutions, functioning effectively both synchronously and asynchronously. This strategy meets the urgent need for an authentic, contextual, and transformative evaluation approach that not only measures academic achievement but also cultivates moral maturity and civic awareness.

5. Conclusions

Authentic evaluation of moral dilemma narratives through an LMS has proven effective in Civic Education learning in higher education. This strategy promotes holistic engagement across cognitive, affective, and reflective domains, enabling students to identify values, reason ethically, and reflect on moral experiences. The

interactive LMS facilitates easy access, assessment, and interpretation of each moral dilemma narrative. The systematically developed design addresses fundamental limitations in traditional character evaluation, which often remains normative and fails to capture the depth of students' moral reasoning. Therefore, integrating moral dilemma narrative–based evaluation into an LMS provides a viable alternative for character assessment, enhancing students' moral knowledge, moral reasoning, and moral reflection in decision-making.

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