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Leveraging AI to Assess and Promote Dharma-Based Ethical Competencies in Educational Settings

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Abstract:
The rapid integration of Artificial Intelligence (AI) into educational systems has generated new opportunities for assessing and cultivating ethical competencies among learners. This study explores how AI can be leveraged to evaluate and promote dharma-based ethical competencies—such as compassion, truthfulness, self-discipline, non-harm, and right thinking—within contemporary educational settings. Using an exclusively secondary-data research design, the study synthesizes insights from existing literature on dharma ethics, moral psychology, AI-based assessment models, and global policy guidelines on ethical AI. A systematic thematic analysis of scholarly articles, policy frameworks, and philosophical texts reveals that AI tools—particularly natural language processing, learning analytics, and affective computing—hold significant potential for analyzing reflective writing, behavioral patterns, and ethical reasoning. Findings suggest that AI can support value-based education by offering personalized ethical feedback, facilitating reflective practices, and enabling continuous monitoring of ethical growth. However, risks related to cultural interpretation, algorithmic bias, and over-reliance on automated moral judgment necessitate careful design and human oversight. The study proposes a conceptual framework that integrates dharma principles with AI-driven assessment to enrich students' moral development. Implications extend to curriculum designers, policymakers, and educators seeking culturally rooted, ethically aligned AI applications in schools.

Keywords: Dharma-Based Ethics, Artificial Intelligence in Education, Ethical Competency Assessment, Value-Based Learning, Secondary Data Analysis.

1. Introduction

1.1 Background

The increasing integration of Artificial Intelligence (AI) in educational environments has transformed how learning is delivered, monitored, and personalized. AI-driven tools now support adaptive learning pathways, automated assessment, and learner analytics, enabling educators to understand student performance with greater depth and precision. Parallel to these technological advancements, there is growing global emphasis on developing ethical competencies, character education, and value-based learning to prepare students for complex social and moral challenges. Within this context, dharma-based ethics—rooted in Indian philosophical traditions—offer a holistic moral framework centered on compassion, duty, truthfulness, self-control, non-harm, and right action. These principles provide a culturally rich foundation for nurturing responsible and empathetic learners. Integrating such ethical frameworks with AI presents a promising yet underexplored frontier in education.

1.2 Problem Statement

Despite the expansion of AI in education, existing assessment systems remain predominantly focused on academic performance, often overlooking moral and ethical development. Furthermore, current AI tools are not fully optimized to recognize or nurture culturally specific ethical constructs such as those derived from dharma traditions. This gap highlights the need for conceptual models that align AI capabilities with value-based educational goals.

1.3 Purpose of the Study

The purpose of this study is to conceptualize how AI can be utilized to assess and promote dharma-based ethical competencies, relying exclusively on insights derived from secondary academic and philosophical sources.

1.4 Research Questions

1. How are dharma-based ethical competencies defined and conceptualized in existing literature?
2. How can current AI models be adapted to evaluate these competencies?
3. How can AI tools promote ethical growth rather than simply measure it?
4. What ethical risks or cultural challenges arise when applying AI to moral education?

1.5 Significance of the Study

This research integrates Indian philosophical wisdom with emerging AI technologies, offering a theoretical model that can guide educators, curriculum developers, and policymakers. It addresses a critical gap by proposing culturally grounded, ethics-based AI applications that strengthen value-oriented education systems.

2. Literature Review

2.1 Dharma-Based Ethical Frameworks

Dharma-based ethics draw from a rich heritage within Vedic, Buddhist, Jain, and Gandhian traditions, each emphasizing the cultivation of moral character and righteous conduct. Vedic literature identifies dharma as the foundation of social harmony and personal virtue, encompassing truthfulness (satya), non-harm (ahimsa), and duty (dharma-karma) (Radhakrishnan, 2020). Buddhist ethics emphasize the Noble Eightfold Path, which foregrounds right thought, right action, and compassion (karuna) as essential to moral development (Rahula, 2012). Jain philosophy deepens this ethical orientation by promoting extreme non-violence and self-discipline, viewing ahimsa and aparigraha as indispensable for spiritual and moral growth (Jaini, 2010). Gandhi's reinterpretation of dharma highlights truth, non-violence, and service (seva) as instruments for social transformation and personal integrity (Parel, 2016). Collectively, these traditions inform core ethical principles including Ahimsa, Satya, Daya, Dhriti, Samyak-Vichar, and Seva, which provide a culturally grounded foundation for moral education.

2.2 Ethical Competency Models in Education

Contemporary educational frameworks increasingly emphasize ethical competencies through Social and Emotional Learning (SEL), moral reasoning models, and virtue ethics pedagogy. SEL frameworks highlight self-awareness, empathy, and responsible decision-making as key components of holistic learner development (CASEL, 2020). Moral reasoning theories, such as those proposed by Kohlberg, focus on progressive stages of ethical judgment, emphasizing justice-oriented decision-making (Kohlberg, 1984). Virtue ethics approaches, inspired by Aristotelian philosophy, center on cultivating habitual moral behaviors and character strengths (Lapsley & Narvaez, 2014). These models provide structures for integrating ethical learning into curricula yet often lack grounding in non-Western ethical perspectives.

2.3 AI in Educational Assessment

Artificial Intelligence is increasingly utilized for educational assessment through Natural Language Processing (NLP), learning analytics, and affective computing. NLP enables the analysis of student reflections, emotional tone, and reasoning patterns (Lu et al., 2021). Learning analytics systems track behavioral trends, offering insights into engagement and decision-making (Ifenthaler & Yau, 2020). Affective computing tools detect emotional cues, supporting socio-emotional and ethical evaluations

(Picard, 2016). AI-driven platforms have also been developed to evaluate ethical reasoning and simulate moral dilemmas, demonstrating the potential for technology-assisted value-based education.

2.4 Identified Gaps in Existing Research

Despite advancements, research shows limited integration of culturally grounded ethical frameworks—particularly dharma-based models—into AI systems (Sharma & Kapoor, 2022). Most AI-driven ethical education tools rely on Western moral theories, creating a gap in culturally diverse ethical modeling. Furthermore, there is a lack of conceptual models that embed dharma principles into digital learning systems, indicating a need for intercultural ethical AI frameworks.

3. Conceptual Framework

3.1 Defining Dharma-Based Ethical Competencies

Dharma-based ethical competencies represent a set of moral qualities grounded in Indian philosophical traditions, emphasizing righteous conduct and harmonious living. These competencies include virtues such as ahimsa (non-harm), satya (truthfulness), daya (compassion), dhriti (self-discipline), samyak-vichar (right thinking), and seva (service). Together, they form a holistic framework for ethical maturity, guiding individuals to act with integrity, empathy, and responsibility. In educational contexts, these competencies are not merely theoretical ideals, but actionable qualities reflected in daily interactions, decision-making processes, and personal reflections. This study conceptualizes dharma-based ethics as measurable and promotable attributes that can be supported through AI-driven assessment and feedback systems.

3.2 Indicators for Assessment

To operationalize dharma-based ethical competencies for AI-supported analysis, the study identifies several observable indicators that reflect a learner's ethical orientation. These include patterns in behavior, such as cooperation, respect, and conflict resolution; language use, such as empathetic expression, honesty indicators, or avoidance of harmful speech; and reflective writing, which can reveal depth of moral reasoning, emotional awareness, and alignment with dharma principles. AI tools, particularly natural language processing, can systematically analyze these indicators across multiple forms of student output. Such indicators provide a grounded basis for interpreting ethical development in a nuanced and culturally informed manner.

3.3 Proposed AI Integration Model

The proposed conceptual model for AI integration consists of three interconnected components. Inputs include diverse forms of student interactions—written reflections, digital communication, classroom discourse, and behavioral logs. The AI layer comprises analytic tools such as sentiment analysis, ethical reasoning classifiers, and pattern recognition algorithms that interpret these inputs through the lens of dharma-based competencies. Finally, outputs include personalized feedback, visual dashboards, and longitudinal growth tracking, which guide learners toward deeper ethical awareness and help educators support value-based development. Together, this model bridge's traditional moral philosophy with modern AI-driven educational practices.

4. Methodology

4.1 Research Design

This study adopts a qualitative, conceptual research design based entirely on secondary data sources. The objective is to synthesize existing knowledge from academic literature, policy guidelines, and established AI frameworks to conceptualize how Artificial Intelligence can assess and promote dharma-based ethical competencies in educational settings. No primary data or human participant involvement is included.

4.2 Sources of Secondary Data

Secondary sources are grouped into four categories as shown in Table 1.

Table 1: Categories of Secondary Data Sources

Source Type	Description	Examples
Peer-reviewed Journals	Research on AI, education, ethics	Scopus, Web of Science
Books & Classical Texts	Dharma philosophy and ethical teachings	Vedic texts, Buddhist & Jain literature
AI & Ethics Frameworks	Global policy and guidelines	UNESCO, OECD, NEP 2020
AI Models & Case Studies	Existing technologies applied to learning	NLP tools, learning analytics platforms

4.3 Data Collection Procedure

A systematic literature review was performed across JSTOR, Scopus, IEEE Xplore, and Google Scholar. Search terms included AI in education, ethical competencies, dharma ethics, value-based learning, and educational AI models.

- Inclusion Criteria: Publications from 2000–2025 related to AI, ethics, dharma, or educational development.
- Exclusion Criteria: Non-academic materials, blogs, unverified sources, or content irrelevant to ethics or AI.

The retrieved sources were catalogued and organized using a review matrix for further thematic coding.

4.4 Data Analysis Method

The study employs Thematic Content Analysis, involving three analytical layers:

Figure 1: Conceptual Diagram of Data Analysis Process

Literature Collection

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Theme Identification (AI methods, ethics, dharma principles)

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Comparative Analysis (Western vs. Dharma-based ethics)

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Conceptual Synthesis (AI-Dharma Ethical Model)

Key processes include:

- Coding recurring concepts such as ethical reasoning indicators, AI capabilities, and moral frameworks.
- Comparative analysis across philosophical traditions.
- Synthesis of insights to formulate a conceptual AI-ethics educational model.

4.5 Reliability and Validity

- Credibility: Only reputable and peer-reviewed sources were used.
- Triangulation: Data was validated across three domains—AI, ethics/philosophy, and education.
- Transparency: All inclusion/exclusion steps and coding procedures were documented to ensure replicability.

4.6 Ethical Considerations

Because this study uses only published secondary data, there are no human subjects involved. Ethical scholarship was ensured through:

- Proper citation and adherence to copyright regulations
- Respectful and unbiased interpretation of dharma traditions
- Cultural neutrality in comparing philosophical frameworks

5. Proposed Implementation Model

The proposed implementation model outlines how Artificial Intelligence (AI) can be integrated into educational settings to assess and promote dharma-based ethical competencies. It draws on insights from secondary literature on value-based education, AI learning analytics, and dharma ethics. The model focuses on two core components: AI-supported learning activities and assessment mechanisms, both designed to enhance ethical engagement and moral reasoning among students.

5.1 AI-Supported Learning Activities

Dharma-Based Narrative Reflection

Narrative pedagogy is a powerful tool for ethical development. AI can facilitate reflective practices by presenting students with stories rooted in dharma traditions—such as parables from the Panchatantra, episodes from the Mahabharata, or anecdotes from Buddhist and Jain teachings. Students are encouraged to respond through reflective writing, which AI tools then analyze to detect levels of empathy, moral reasoning, and alignment with dharma principles. This approach fosters deep introspection and enables learners to internalize ethical values through relatable narratives.

AI-Generated Ethical Dilemmas

AI systems can dynamically generate context-relevant ethical dilemmas that challenge students to think critically and make value-based decisions. These dilemmas may draw from real-life scenarios involving honesty, compassion, responsibility, or non-harm. By adjusting complexity based on learner responses, AI creates personalized moral challenges that stimulate ethical reasoning. This interactive component helps learners explore dharma-based concepts within contemporary contexts.

Personalized Feedback Using NLP

Natural Language Processing (NLP) techniques allow AI to analyze student responses—both written and verbal—providing immediate, personalized feedback. The system can highlight positive ethical cues, identify areas needing improvement, and offer guiding questions that encourage deeper reflection. For example, an AI tool may suggest considering perspectives of compassion ("daya") or self-discipline ("dhriti") when evaluating student reflections. Personalized feedback promotes continuous ethical growth.

5.2 Assessment Mechanisms

AI-Assisted Analysis of Reflective Journals

Reflective writing is a rich source of ethical data. AI tools can evaluate journal entries to identify moral themes, emotional depth, and coherence with dharma principles. Pattern recognition allows detection of growth over time, while sentiment analysis can reveal improvements in empathy, honesty, and emotional regulation.

Ethical Reasoning Metrics

Based on existing literature, ethical reasoning can be quantified using indicators such as clarity of thought, recognition of moral conflict, perspective-taking, and alignment with ethical principles. AI models can generate structured metrics that help educators understand how students approach ethical decision-making. These metrics are not meant to replace human evaluation but to complement it with consistent, data-driven insights.

Longitudinal Tracking Dashboards

AI-powered dashboards can visualize students' ethical development across weeks or semesters. Growth curves, thematic heatmaps, and reflection scores allow educators to track changes in dharma-based competencies. These dashboards support targeted interventions and personalized value-based instruction, enhancing overall moral education.

6. Anticipated Results

6.1 Ethical Awareness Improvement

Secondary literature suggests that AI-supported reflective practices significantly enhance students' moral awareness. As students engage with dharma-based stories, dilemmas, and personalized feedback, they

become more mindful of their actions and more adept at identifying ethical dimensions in daily life. Increased self-awareness promotes internalization of values such as compassion and truthfulness.

6.2 Enhanced Teaching Support

AI-generated analytics provide teachers with deeper insight into each learner's ethical development. Instead of relying solely on subjective impressions, educators gain structured data about moral reasoning patterns, reflective depth, and behavioral indicators. This enables more informed instructional planning and individualized ethical mentoring.

6.3 Reduction in Behavioral Issues

Studies show that value-based AI interventions can positively shape student conduct. When learners receive timely, personalized ethical feedback, they tend to develop stronger emotional regulation and conflict-resolution skills. This leads to fewer behavioral issues, enhanced peer relationships, and a more harmonious learning environment aligned with dharma principles.

7. Discussion

7.1 Interpretation of Findings

Analysis of secondary literature reveals that AI has significant potential to complement and enhance traditional ethical education. While moral development has historically been cultivated through teacher guidance, storytelling, and reflective practice, AI introduces an added layer of personalization, consistency, and analytical depth. AI can systematically analyze student reflections, detect ethical themes, and provide immediate feedback—functions that are challenging for educators to perform continuously due to time and resource constraints. By integrating dharma-based principles such as compassion, truthfulness, non-harm, and self-discipline, AI models gain access to a culturally rich moral framework that aligns well with value-based education goals. Dharma is inherently action-oriented, making it suitable for operationalization within AI systems that track behaviors, decision-making patterns, and reasoning processes.

7.2 Challenges and Limitations

Despite its potential, integrating AI with dharma-based ethical education presents several challenges. One concern involves the possibility of AI misinterpreting cultural nuances embedded in language, gestures, or ethical dilemmas. Dharma concepts often rely on contextual interpretation, and rigid AI models may oversimplify or misclassify subtle moral reasoning. Another limitation lies in the risk of over-standardizing moral values, whereby dynamic human ethics are reduced to fixed algorithms, potentially diminishing their cultural richness and adaptability. Additionally, the implementation of ethical AI requires robust guardrails, including transparency in data use, prevention of algorithmic bias, and continuous human oversight. Without these safeguards, AI-driven moral assessments may inadvertently reinforce stereotypes or provide unbalanced evaluations of students' ethical growth.

7.3 Implications for Global Education

The insights derived from this study present meaningful implications for global educational systems. A Dharma-AI framework, while rooted in Indian ethical philosophy, offers universally relevant principles such as empathy, honesty, and responsible action. These values can support multicultural ethics programs, providing a foundation adaptable across diverse cultural contexts. Moreover, AI-enabled ethical education represents a new frontier for value-centric learning technologies, promoting character development alongside academic achievement. Educational institutions worldwide may benefit from integrating culturally grounded ethical frameworks into AI models, helping cultivate morally resilient learners equipped for global citizenship.

8. Conclusion

8.1 Summary

This study demonstrates that AI, when grounded in dharma principles, can play a transformative role in promoting ethical competencies within educational settings. By using secondary data to conceptualize an

AI-driven model, the research highlights how technology can enrich traditional moral education through personalized feedback, reflective guidance, and continuous monitoring of ethical growth.

8.2 Recommendations

Effective implementation of this model requires collaboration among educators, technologists, philosophers, and policymakers. AI systems must be culturally aligned, ensuring that dharma-based ethical constructs are interpreted authentically and respectfully. Integrating dharma ethics into digital curriculum design can further strengthen value-based education and help shape learners' moral character.

8.3 Future Research

Future studies should empirically test the proposed conceptual model across different educational levels and cultural contexts. Longitudinal research is needed to examine long-term ethical development supported by AI interventions. Cross-cultural validation will help refine the model, ensuring global applicability and ethical relevance.

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