HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

DEVELOPING TEACHERS' PROFESSIONAL-DEONTOLOGICAL COMPETENCE IN THE AGE OF ARTIFICIAL INTELLIGENCE: ETHICAL RESPONSIBILITY, PEDAGOGICAL JUDGMENT, AND PROFESSIONAL AGENCY

Babadjanova Gulchehra Baxtiyarovna
Alfraganus University
Department of Medicine
Senior LecturerTashkent, Uzbekistan.
doi:https://doi.org/10.5281/zenodo.23594860

Abstract: The rapid integration of artificial intelligence (AI), digital learning environments, and data-driven educational technologies is transforming the professional responsibilities of teachers and creating new demands for ethical and pedagogical decision-making. This paper examines the theoretical foundations of developing teachers' professional-deontological competence in the context of digital transformation. The study aims to conceptualize professional-deontological competence as an integrated capacity encompassing ethical knowledge, professional responsibility, pedagogical judgment, digital ethics, and reflective practice. A conceptual and analytical approach is employed to examine relevant philosophical perspectives, contemporary teacher competency frameworks, and emerging challenges associated with AI-supported education. The analysis identifies five interrelated dimensions of professional-deontological competence: ethical and normative awareness, value-based professional commitment, responsible pedagogical decision-making, digital and AI ethics, and reflective professional development. The paper argues that effective teacher education should move beyond the transmission of professional codes toward the systematic integration of ethical reasoning into authentic pedagogical situations. It proposes a conceptual framework combining case-based learning, ethical dilemma analysis, reflective practice, and responsible AI use. The paper concludes that strengthening professional-deontological competence is essential for preserving teacher agency, protecting learners' dignity, and ensuring that technological innovation remains consistent with the humanistic purposes of education. The proposed framework requires further empirical investigation to establish its effectiveness across different educational contexts.

Keywords: professional-deontological competence, teacher education, professional ethics, artificial intelligence, digital responsibility, pedagogical judgment, teacher agency, reflective practice, ethical decision-making.

1. Introduction

Contemporary education is undergoing profound changes driven by digital transformation, the expansion of artificial intelligence, increasing social diversity, and the growing complexity of professional teaching responsibilities. Teachers are expected not only to possess subject-specific

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

knowledge and pedagogical skills but also to demonstrate ethical judgment, emotional intelligence, professional accountability, and the ability to respond responsibly to emerging technological challenges. Consequently, teacher competence can no longer be understood exclusively in terms of instructional effectiveness or the technical implementation of teaching methods. It must also encompass the moral and professional principles that guide educational decisions and interactions.

The increasing use of generative AI, automated assessment systems, and digital learning platforms has intensified the importance of professional ethics in education. These technologies may support lesson planning, feedback, differentiated instruction, and professional learning. Nevertheless, they also raise concerns about data privacy, algorithmic bias, academic integrity, misinformation, transparency, and the potential weakening of teachers' independent professional judgment. UNESCO's AI Competency Framework for Teachers emphasizes human-centred approaches, AI ethics, pedagogical integration, and continuous professional development as essential dimensions of teacher competence in the AI era [1]. These developments demonstrate that technological proficiency alone is insufficient to ensure responsible educational practice. A teacher may be able to use AI tools effectively while lacking the knowledge or judgment required to evaluate their ethical implications. Similarly, familiarity with professional codes does not necessarily guarantee that ethical principles will be applied appropriately in complex classroom situations. The central challenge is therefore to connect professional knowledge with ethical reasoning, responsible action, and reflective self-regulation.

Professional deontology provides a useful theoretical perspective for addressing this challenge. In its broad philosophical sense, deontology concerns duties, obligations, and the principles by which actions are evaluated. Within education, professional deontology refers to the ethical obligations arising from the teacher's professional role, including respect for learners' dignity, fairness in assessment, confidentiality, professional integrity, and accountability for pedagogical decisions.

The relevance of this perspective becomes particularly evident when teachers encounter situations in which professional obligations appear to conflict. For example, the use of AI-generated assessment recommendations may improve efficiency but introduce risks of bias or inaccurate judgments. Similarly, digital monitoring may provide information about learner performance while raising questions about privacy and proportionality. Addressing such situations requires more than procedural compliance; it demands informed professional judgment grounded in ethical principles and an understanding of educational purposes.

Recent international policy discussions reinforce the need to reconsider teacher development in response to technological change. The OECD's 2026 report, Reimagining Teaching in an Accelerating World, examines the implications of technological transformation for teaching, professional autonomy, collaboration, and the use of AI in education [2]. <Cite refs={["turn136836search4"]}/> These developments support the view that professional responsibility and ethical competence should be treated as integral elements of contemporary teacher education rather than as supplementary topics.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

The purpose of this paper is to develop a theoretical framework for understanding and strengthening teachers' professional-deontological competence in digitally transforming educational environments. Specifically, the paper seeks to clarify the conceptual foundations of professional-deontological competence, identify its principal dimensions, examine its relationship with AI-related professional responsibilities, and propose pedagogical principles for its development.

2. Materials and Methods

This study adopts a theoretical and conceptual research design. It does not report an experimental intervention or claim empirical evidence of the effectiveness of a specific educational methodology. Instead, it synthesizes relevant philosophical perspectives, international policy frameworks, and conceptual approaches to teacher competence in order to develop a theoretically grounded model of professional-deontological development.

The methodological framework is based on four complementary approaches.

First, **conceptual analysis** is used to clarify the relationship between professional deontology, ethical competence, professional responsibility, and pedagogical judgment. This approach helps distinguish knowledge of professional obligations from the capacity to interpret and apply them in context.

Second, **comparative analysis** is employed to examine the relationship between established ethical principles and contemporary frameworks for teacher competence. Particular attention is given to the integration of human-centred AI use, professional accountability, and continuous learning in UNESCO's teacher competency framework [1].

Third, **systems analysis** is used to conceptualize professional-deontological competence as an interconnected structure of knowledge, values, practical decision-making, and reflection. This perspective avoids treating ethical development as an isolated instructional objective.

Fourth, **theoretical modelling** is applied to formulate a conceptual framework connecting educational objectives, learning activities, professional practice, and assessment. The proposed framework is intended to support future curriculum design and empirical research.

The analysis draws primarily on UNESCO's AI Competency Framework for Teachers (2024), the OECD's work on teaching and AI-related educational transformation, and foundational literature on professional reflection and ethical responsibility. The sources are used to construct a conceptual argument rather than to conduct a systematic review or claim exhaustive coverage of the literature.

3. Results

3.1. Conceptual foundations of professional-deontological competence

Professional-deontological competence can be conceptualized as an integrated professional capacity that enables teachers to understand their ethical obligations, interpret professional norms, make justified pedagogical decisions, and accept responsibility for the consequences of their actions.

Its philosophical foundation is closely associated with the idea that professional conduct should be evaluated not only by its immediate outcomes but also by the principles governing the actions

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

through which those outcomes are achieved. Kant's ethical philosophy, particularly its emphasis on duty and respect for persons, provides a relevant conceptual basis for understanding the moral dimension of professional practice [3].

Applied to education, this perspective suggests that learners must be treated as persons possessing dignity and agency rather than merely as recipients of instruction or objects of measurement. Accordingly, professional decisions should respect individual differences, protect learners' rights, and avoid unjustified discrimination or the instrumental use of personal information.

However, professional deontology should not be reduced to rigid compliance with predetermined rules. Educational practice involves uncertainty, competing interests, and context-dependent judgments. Teachers therefore need the capacity to interpret ethical obligations in relation to specific circumstances while remaining accountable to professional standards and relevant legal requirements.

Professional-deontological competence is consequently understood in this paper as a multidimensional construct comprising five interconnected dimensions.

1. Ethical and normative awareness. This dimension concerns knowledge of professional codes, institutional regulations, confidentiality requirements, fairness, safeguarding responsibilities, and the rights of learners. Such knowledge provides the foundation for identifying ethical issues before they develop into professional conflicts.

2. Value-based professional commitment. This dimension reflects the internal acceptance of professional values, including integrity, respect, fairness, impartiality, and responsibility. Its significance lies in the transformation of external professional requirements into meaningful principles that guide conduct.

3. Responsible pedagogical decision-making. This dimension involves the ability to identify ethical dilemmas, evaluate alternative actions, consider the interests of affected individuals, anticipate consequences, and justify professional decisions.

4. Digital and AI ethics. This dimension encompasses responsible data use, critical evaluation of AI-generated information, awareness of algorithmic limitations, protection of privacy, and preservation of human oversight in educational decisions.

5. Reflective professional development. This dimension concerns the systematic examination of professional experiences, recognition of errors, evaluation of decisions, and development of strategies for improving future practice.

These dimensions should be understood as interdependent rather than independent indicators. Ethical knowledge without practical judgment may remain abstract, while professional commitment without reflective capacity may prevent teachers from recognizing inconsistencies in their own conduct.

3.2. Professional deontology in AI-mediated education

The integration of AI into educational practice creates a new context in which traditional professional obligations must be interpreted alongside emerging technological responsibilities.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

UNESCO's AI Competency Framework for Teachers identifies five principal dimensions: a human-centred mindset, ethics of AI, AI foundations and applications, AI pedagogy, and AI for professional development [1]. These dimensions provide a relevant foundation for integrating digital responsibility into the broader concept of professional-deontological competence. A human-centred approach requires teachers to retain meaningful responsibility for pedagogical decisions rather than treating algorithmic recommendations as inherently authoritative. AI-generated feedback, assessment suggestions, and learning recommendations should be evaluated in relation to their accuracy, appropriateness, fairness, and educational purpose.

Data protection constitutes another important dimension. Teachers may work with sensitive information concerning learners' academic performance, personal circumstances, or learning needs. Responsible professional conduct therefore requires awareness of confidentiality, data minimization, appropriate access, and the limitations of transferring personal information to external digital systems.

Algorithmic fairness is equally significant. AI systems may reproduce or amplify biases embedded in training data, design choices, or patterns of use. Teachers should consequently examine whether technology-supported decisions disadvantage particular learners and whether alternative forms of assessment or intervention are necessary.

Academic integrity also requires reconsideration in AI-mediated environments. Rather than relying exclusively on prohibition, teacher education should develop clear expectations regarding authorship, disclosure, verification, and the appropriate use of AI-generated materials. Teachers must also model responsible technological behaviour in their own professional practice.

These considerations demonstrate that digital ethics should not be treated as a separate technical subject disconnected from professional deontology. Instead, it should be integrated into the broader framework of professional duties, pedagogical responsibility, and respect for learners' rights.

3.3. A conceptual model for developing professional-deontological competence

On the basis of the theoretical analysis, this paper proposes a four-stage pedagogical model for developing professional-deontological competence among teachers.

Stage 1: Ethical awareness and conceptual understanding. Teachers examine professional duties, ethical principles, institutional expectations, and the responsibilities associated with digital and AI-supported education. Learning activities may include guided discussions, analysis of professional codes, and comparison of alternative ethical approaches.

Stage 2: Contextual ethical reasoning. Participants analyse authentic or carefully constructed professional situations involving confidentiality, assessment fairness, conflicts of interest, learner welfare, or AI-generated recommendations. They identify the relevant stakeholders, clarify competing obligations, and evaluate possible courses of action.

Stage 3: Responsible professional action. Teachers apply ethical reasoning to practical tasks, including lesson planning, assessment design, communication with learners and families, and the responsible use of digital technologies. Simulation, collaborative problem-solving, and case-based

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

learning can provide opportunities to practise decision-making before applying it in real educational settings.

Stage 4: Reflection and continuous improvement. Teachers evaluate their decisions, consider feedback, identify potential unintended consequences, and formulate plans for professional improvement. Reflective journals, professional portfolios, peer dialogue, and structured self-assessment can support this process.

The stages are conceptually sequential but should also operate cyclically. New professional experiences may reveal gaps in ethical understanding and require a return to earlier stages. Such a structure positions professional-deontological development as a continuing process rather than a one-time training activity.

The model also requires institutional support. Professional learning opportunities, clear policies on AI use, access to appropriate digital resources, collegial collaboration, and transparent procedures for addressing ethical concerns are important contextual conditions. Responsibility for ethical AI use should not be assigned exclusively to individual teachers when institutional policies, technology providers, and system-level decisions also shape the conditions of practice.

3.4. Indicators for evaluating professional-deontological development

A central implication of the proposed model is that professional-deontological development should be evaluated through multiple forms of evidence rather than through theoretical knowledge tests alone.

The following indicators are proposed for future empirical investigation:

- **Cognitive indicator:** the ability to explain professional obligations and identify relevant ethical principles.
- **Ethical reasoning indicator:** the ability to analyse dilemmas, compare alternative decisions, and justify conclusions.
- **Behavioural indicator:** the demonstrated application of professional standards in simulated or observed educational situations.
- **Digital responsibility indicator:** the ability to identify privacy, bias, accuracy, and accountability risks associated with AI-supported teaching.
- **Reflective indicator:** the ability to evaluate one's own decisions, recognize limitations, and formulate realistic improvement strategies.

Assessment may combine scenario-based tasks, structured observation, professional portfolios, reflective writing, peer feedback, and expert evaluation. The use of several methods can help distinguish what teachers know from what they can demonstrate in practice.

Any empirical application of these indicators would require clear scoring criteria, appropriate validation procedures, and attention to contextual differences among educational institutions and teaching specializations. The indicators presented here are proposed analytical categories, not a validated measurement instrument.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

4. Discussion

The proposed framework contributes to the conceptualization of teacher competence by positioning professional deontology as an integrative dimension of pedagogical professionalism. Rather than treating ethical education as an additional component of teacher training, the framework connects professional obligations with the knowledge, judgments, and actions required throughout teaching practice.

One important implication concerns the relationship between professional ethics and technical competence. Digital proficiency enables teachers to use educational technologies, but it does not necessarily ensure that these technologies are applied appropriately. Ethical competence provides a basis for determining when a tool is suitable, which risks require mitigation, and when professional judgment should override automated recommendations.

A second implication concerns the preservation of teacher agency. As AI systems become increasingly capable of generating instructional materials, recommending interventions, and analysing learner performance, teachers must retain the capacity to question outputs and make context-sensitive decisions. The OECD's recent work on the future of teaching similarly emphasizes the need to reconsider professional practice, autonomy, collaboration, and the role of AI in education [2]. A third implication relates to the design of professional development. Training programmes that focus primarily on explaining ethical principles may be insufficient if participants have few opportunities to practise ethical reasoning. Case-based learning and reflective activities can connect abstract standards with the practical realities of classroom decision-making. Nevertheless, the effectiveness of particular methods should be established through empirical evaluation rather than assumed from their theoretical suitability.

A fourth implication is the importance of institutional culture. Teachers' professional conduct is influenced not only by individual values but also by organizational expectations, leadership practices, workload, available resources, and the clarity of institutional policies. An effective approach to professional-deontological development must therefore combine individual learning with supportive institutional arrangements.

Finally, professional deontology must remain sensitive to disciplinary and cultural contexts. The specific obligations of teachers may vary according to educational level, subject area, institutional responsibilities, and national regulatory frameworks. A common ethical foundation should therefore be accompanied by contextual interpretation rather than imposed as an inflexible set of identical procedures.

The principal limitation of the present paper is its conceptual nature. The proposed model has not been tested through a controlled intervention, and its effectiveness cannot be quantified on the basis of the current analysis. Future research should examine the model across different teacher education programmes, identify context-sensitive assessment instruments, and investigate whether changes in ethical reasoning are associated with observable improvements in professional practice.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

5. Conclusion

The development of professional-deontological competence is an increasingly important dimension of teacher education in the context of digital transformation and the expanding use of artificial intelligence. Contemporary teachers require more than technical proficiency and subject-specific knowledge; they also need the ability to interpret professional obligations, make ethically justified decisions, protect learners' rights, and accept responsibility for the consequences of their actions.

This paper has conceptualized professional-deontological competence as an integrated capacity comprising ethical and normative awareness, value-based commitment, responsible pedagogical decision-making, digital and AI ethics, and reflective professional development. It has also proposed a four-stage model that connects conceptual understanding, ethical reasoning, professional action, and continuous reflection.

The central argument is that responsible technological integration depends on the quality of professional judgment rather than on technological adoption alone. Teacher education should therefore embed ethical reasoning and digital responsibility into subject-specific training, assessment practices, professional learning, and institutional policies.

The proposed framework provides a theoretical basis for designing and evaluating professional development initiatives. Its practical effectiveness, however, remains a question for future empirical research. Such research should establish reliable indicators, examine changes in professional decision-making, and determine how institutional conditions influence the development and application of professional-deontological competence.

Ultimately, strengthening teachers' professional-deontological competence is essential to ensuring that educational innovation remains human-centred, professionally accountable, and consistent with the fundamental purposes of education.

References

1. Miao, F., & Cukurova, M. (2024). AI competency framework for teachers. UNESCO. https://unesdoc.unesco.org/in/documentViewer.xhtml?ark=%2Fark%3A%2F48223%2Fpf0000391104
2. OECD. (2026). Reimagining Teaching in an Accelerating World. OECD Publishing. https://doi.org/10.1787/d0edfe8c-en
3. Kant, I. (1998). Groundwork of the Metaphysics of Morals. Translated by M. Gregor. Cambridge University Press. (Original work published 1785.)
4. Schön, D. A. (1983). The Reflective Practitioner: How Professionals Think in Action. Basic Books.
5. UNESCO. (2021). Reimagining Our Futures Together: A New Social Contract for Education. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000379707

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

6. OECD. (2025). What Should Teachers Teach and Students Learn in a Future of Powerful AI? OECD Education Spotlights, No. 20. OECD Publishing. https://doi.org/10.1787/ca56c7d6-en