

When Students Resort to AI First for Homework-Challenges and Countermeasures for the Transformation of Classroom-Teaching Paradigms

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Abstract: As artificial intelligence gains wider application, it has become commonplace for students to turn to AI first when completing homework. This practice exerts substantial pressure on conventional classroom-teaching paradigms. This paper explores practical dilemmas confronting traditional instruction in the AI-driven era and feasible pathways toward renewed teaching frameworks. By analysing behavioural patterns, driving forces and dual-faceted outcomes of students' "AI-first" learning, this study identifies prominent bottlenecks within knowledge delivery, teacher-role positioning and assessment mechanisms. A transition framework shifting from knowledge transmission toward problem-solving is proposed, covering conceptual renewal, instructional innovation and teacher capacity-building. Findings suggest that AI will not supersede teachers, yet it reshapes existing teaching paradigms. Such transformation demands coordinated progress across four dimensions: educational philosophy, instructional strategies, assessment reform and teacher empowerment. Future research ought to address subject-specific differences, ethical concerns and long-term outcome monitoring.

Keywords: Students' AI-First Learning Behaviour; Transformation of Classroom-Teaching Paradigms; Knowledge Transmission; Problem-Solving.

1. Introduction

1.1 Research Background

Rapid advances in artificial intelligence have penetrated multiple spheres of society, including education. It is increasingly common for students to seek outputs from AI tools for homework tasks and exam preparation. Such behaviour contributes to diminishing classroom

attention and has sparked heated discussions among educators. At the 2026 World Artificial Intelligence Conference, specialists called for an educational shift from knowledge delivery to problem-solving to accommodate technological progress[1].

1.2 Research Status and Research Gaps

Existing scholarship has examined how artificial intelligence reshapes education, with many studies focusing on technical applications such as the development of intelligent tutoring systems[2]. Nevertheless, few empirical works investigate how students' habitual "AI-first" behaviour disrupts classroom-teaching paradigms. Most available publications remain confined to surface-level description of phenomena, lacking thorough diagnosis of real-world challenges and systematic countermeasure frameworks.

1.3 Research Questions and Objectives

This paper addresses two core questions: what challenges do conventional teaching paradigms encounter under AI penetration? And how can renewed teaching frameworks be constructed for the new era? Answers to these questions can offer theoretical grounds and practical references for classroom pedagogical reform and support sound educational development amid artificial-intelligence adoption.

1.4 Research Methodology

This study adopts a mixed-method approach combining literature review, case study and questionnaire-based investigation. Relevant domestic publications are reviewed to map research frontiers of AI-enabled education. Case studies are implemented in selected schools to gather first-hand evidence on student AI-use patterns and practical classroom difficulties. Questionnaires and semi-structured interviews further collect perceptions and suggestions from teachers and students regarding pedagogical

change.

2. Analysis of Students' "AI-First" Learning Behaviour

2.1 Behavioural Characteristics

2.1.1 Daily-use routine

Students frequently deploy artificial-intelligence tools across learning scenarios ranging from essay revision to mathematical problem-solving. AI has become an indispensable component in their everyday study routines.

2.1.2 Immediacy-driven queries

Learners tend to consult AI immediately once academic obstacles emerge. Compared with textbook reference or face-to-face consultation with instructors, AI generates abundant feedback within a short time frame and satisfies students' demand for instant responses.

2.1.3 Broad scenario coverage

Students' AI-first practice extends beyond routine homework to examination preparation. They leverage AI to summarise knowledge points and generate mock tests for self-assessment.

2.2 Driving Factors behind the Behaviour

2.2.1 Efficiency-seeking motivation

Heavy academic workload and tight timelines push students to pursue higher study efficiency. Artificial intelligence furnishes ready-made solutions and helps reduce time costs. For instance, students may obtain historical materials and analytical viewpoints via AI to accelerate history-assignment completion.

2.2.2 Overcoming cognitive bottlenecks

AI can function as a cognitive scaffold when learners confront confusing or abstract concepts[3]. Intuitive explanations and illustrative examples generated by AI help students break through intellectual barriers.

2.2.3 Peer conformity

Peer influence accelerates the spread of AI-assisted study. When some classmates achieve satisfactory learning outputs with AI support, other students tend to follow this practice.

2.3 Dual-Sided Outcomes

2.3.1 Positive outcome: removing barriers to knowledge access

AI dismantles temporal and spatial restrictions on knowledge acquisition[3]. Students gain convenient access to global educational

resources, which broadens their intellectual horizons.

2.3.2 Risks: superficial learning, weakened thinking and academic-integrity violations

Excessive reliance on AI brings tangible risks. Learners may simply copy algorithm-generated outputs without deep deliberation, which triggers superficial learning. Long-term dependence may erode students' independent reasoning and problem-solving competencies. In addition, AI-facilitated cheating on homework and examinations undermines academic fairness and integrity.

3. Challenges Faced by Conventional Teaching Paradigms

3.1 Diminished Effectiveness of Knowledge Delivery

3.1.1 Easy access to knowledge empowered by AI

Knowledge retrieval has become extremely convenient in the AI era. Students can obtain massive information with simple digital operations, which undermines teacher-centred lecturing and reduces classroom attention.

3.1.2 Declining classroom attention

Having acquired pre-class information from AI, many students lose interest in teacher explanations. Distracted by personal electronic devices, they pay limited attention to classroom instruction and overall teaching effectiveness deteriorates accordingly.

3.1.3 Functional distortion of homework

Traditional homework is designed for knowledge consolidation and autonomous-learning cultivation. When students obtain answers directly from AI systems, homework fails to fulfil its intended functions and cannot truthfully reflect learning mastery.

3.2 Conflicting Expectations for Teacher Roles

3.2.1 Pressures of transition from knowledge authority to learning facilitator Teachers used to serve as authoritative knowledge sources in traditional pedagogy. Since artificial intelligence provides massive information resources, educators are no longer the sole knowledge provider. Teachers are expected to transform from knowledge authorities into facilitators, guiding students to acquire and deploy information appropriately. Such role transition imposes substantial pressure on many educators,

who need to update pedagogical concepts and practical skills continuously[4].

3.2.2 Digital-literacy gaps

AI-enhanced teaching requires adequate digital literacy. A considerable proportion of teachers remain insufficiently proficient in AI-related applications, which prevents them from leveraging technological strengths and hinders instructional improvement[5].

3.3 Lagging Assessment Systems

3.3.1 Inadaptability of standardised examinations to AI-assisted learning

Conventional assessment relies heavily on standardised examinations that primarily examine knowledge memorisation. Under the “AI-first” circumstance, examination scores cannot faithfully reflect students’ real-world competencies because AI may be exploited to obtain answers.

3.3.2 Insufficient process-oriented evaluation

Traditional evaluation overemphasises final scores while neglecting learning procedures. Given diversified AI-mediated learning trajectories, process-oriented assessment should be prioritised to track learning progress and deliver targeted feedback.

4. Transition Path: Shifting from “Knowledge Transmission” to “Problem-Solving”

4.1 Conceptual Renewal

4.1.1 Shifting training objectives from knowledge accumulation toward higher-order thinking

Given accelerating knowledge iteration, simple knowledge accumulation can hardly satisfy social demands. Educational goals shall prioritise higher-order thinking competencies including critical thinking and creative reasoning[6]. Critical thinking enables students to analyse, evaluate and judge incoming information instead of accepting content blindly; creative thinking fosters innovation and practical problem-solving capacities.

4.1.2 Reconstructing teacher-student relationships as facilitator-partner dynamics

The conventional one-way knowledge-imparting teacher-student relationship ought to be reconstructed[7]. Within the problem-solving-oriented paradigm, teachers act as facilitators, guiding students to identify, analyse and resolve problems, while students participate actively in joint inquiry. This

new dynamic helps stimulate student motivation and initiative.

4.2 Instructional Strategies

4.2.1 Problem-Based Learning (PBL)

Problem-Based Learning (PBL) adopts authentic, challenging tasks to drive autonomous inquiry and group collaboration[8]. Teachers design real-world scenarios such as shopping-discount calculation or project-progress planning for mathematics courses, encouraging students to apply theoretical knowledge for practical problem-solving. PBL improves learners’ problem-solving competence and teamwork skills[9].

4.2.2 AI-augmented classroom

The AI-augmented classroom embeds artificial intelligence into teaching practice and consists of three phases:

Pre-class AI-supported preview: Students utilise AI learning tools to acquire preliminary resources before formal classes. AI delivers personalised suggestions and assignments based on individual learning status.

Alternating in-class sessions: Group discussions are first conducted without AI intervention to foster independent thinking and collaboration competence; subsequently, AI is introduced for data analysis and solution validation.

Post-class AI-enabled extension: Students consolidate and expand acquired knowledge with AI-provided extended learning materials and assignments.

4.2.3 Process-oriented assessment

Process-oriented assessment evaluates learning attitudes, approaches and progress throughout the whole learning cycle. Concrete measures include:

Tracking learning trajectories: AI records learning duration, content and frequency to understand study habits and developmental status.

Mandating documentation of AI-usage procedures: Students are required to label how they deploy AI in homework and reports, so that teachers can observe their self-regulated-learning capacity.

Demonstration-oriented evaluation: Organising project reports and work exhibitions to assess learners’ integrated competencies.

4.3 Teacher Empowerment

4.3.1 Tiered training

Deliver tiered training programmes tailored to teachers of varied digital-literacy levels. Provide foundational AI-technology workshops for less-proficient instructors; offer advanced sessions focusing on deep integration between AI and classroom practice for experienced teachers.

4.3.2 Scenario-oriented teaching-research activities

Organise scenario-based teaching-research workshops. Teachers conduct case discussions and explore feasible AI-application solutions for different subjects and instructional segments to improve practical innovation capacity.

4.3.3 Peer mentoring

Build teacher-exchange platforms for experience-sharing and collective problem-solving. Peer-assistance mechanisms promote joint professional development.

4.3.4 Institutional infrastructure and policy support from schools

Schools shall invest in AI-related hardware and software such as smart classrooms. Incentive policies including teaching-innovation rewards shall be formulated to encourage teachers to experiment with AI-enhanced pedagogy.

5. Discussion

5.1 Research Innovations

First, this study analyses how students' AI-first learning practice challenges traditional teaching systems, identifying bottlenecks within knowledge delivery, teacher roles and assessment mechanisms, which offers new perspectives for pedagogical-transformation research. Second, a systematic multi-dimensional transition framework from knowledge transmission toward problem-solving is constructed, covering conceptual renewal, instructional design and teacher development. Third, the AI-augmented-classroom model is proposed to provide actionable solutions for instructional optimisation.

5.2 Comparisons with Existing Literature

Many prior studies centre on technical applications of educational AI. This research shifts focus onto concrete student behavioural patterns and their impacts on classroom paradigms. It places greater weight on educational philosophy, instructional tactics and teacher development and delivers

comprehensive solutions for real-world teaching dilemmas.

5.3 Research Limitations

Sample pools are restricted to partial schools, which may bring geographical sampling bias and limit the generalisability of conclusions. Long-term tracking and quantitative evaluation concerning practical effects of AI-integrated pedagogy are absent. Besides, this research focuses on universal paradigm transformation without sufficient consideration of subject-specific and age-differentiated instructional requirements. Targeted follow-up studies are therefore required.

5.4 Prospects for Future Research

Future investigations can expand sampling scope across multiple regions and educational institutions to enhance external validity. Longitudinal monitoring and scientific indicator systems should be established to assess sustained impacts and potential risks brought by educational AI. Discipline-specific reform studies ought to be carried out to develop subject-tailored instructional strategies. In addition, more attention should be paid to ethical education guiding appropriate AI adoption for both teachers and students.

6. Conclusion

This paper analyses students' AI-first homework-seeking behaviour and corresponding crises within conventional teaching paradigms, and puts forward a multi-dimensional transition path toward problem-solving-centred education. AI will not replace human teachers, yet it reshapes classroom paradigms. Successful paradigm transformation relies on four-pronged synergy: philosophical updating, strategic innovation, assessment reconstruction and teacher empowerment. At the conceptual level, educational goals shall shift from knowledge accumulation toward higher-order-thinking cultivation alongside reconstruction of facilitator-partner teacher-student relationships. At the pedagogical level, Problem-Based Learning, AI-augmented classrooms and process-oriented assessment should be promoted. For teacher development, tiered training, scenario-oriented teaching-research and peer support contribute to enhanced digital literacy and instructional innovation. Further attention

should be paid to discipline-divergent paths, ethical norms and long-term effect evaluation, so as to advance classroom reforms in the AI era and cultivate innovative talents compatible with social requirements.

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