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AI-Assisted Coursework and Independent Examination Performance in Higher Education: A Scoping Review of Performance Discrepancies

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ADMINISTRATIVE INFORMATION

Support - No support.
Review Stage at time of this submission - Preliminary searches.
Conflicts of interest - None declared.
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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 October 2026 and was last updated on 21 October 2026.

INTRODUCTION

Review question / Objective The review question is: What is known about performance discrepancies between AI-assisted or AI-permitted coursework/formative assessments and independently completed examinations without AI assistance among university students? This scoping review aims to map and summarize existing evidence on these performance discrepancies among undergraduate and postgraduate students enrolled in higher education institutions. Using the Population-Concept-Context (PCC) framework, the population comprises undergraduate and postgraduate students; the concept focuses on objective performance outcomes from both AI-assisted or AI-permitted coursework/formative assessments and AI-free examinations in the same or clearly comparable student cohorts, including higher, lower, or similar examination performance; and the context encompasses universities, colleges, and other tertiary education institutions worldwide, across all academic disciplines.

Background Generative artificial intelligence (AI) tools, particularly large language models such as ChatGPT, are increasingly used in higher education to support academic activities, including assignments, programming tasks, problem-solving, and formative assessments. These tools may improve task completion, provide immediate feedback, and support learning. However, concerns remain regarding whether improved performance on AI-assisted coursework reflects students' independently acquired knowledge and skills.

Traditional examinations conducted without AI assistance may provide an opportunity to assess students' independent academic performance. Differences between AI-assisted coursework scores and independently completed examination scores may indicate a potential mismatch between supported task performance and independent learning outcomes. Nevertheless, such differences may also reflect variations in assessment difficulty, learning objectives, grading methods, and student

characteristics rather than the effects of AI assistance alone.

Emerging studies have examined academic performance under AI-assisted and independent assessment conditions across different disciplines. However, the evidence varies in study design, assessment methods, AI exposure, and reported performance outcomes. A clear understanding of the available evidence is needed to identify the extent to which these assessment outcomes have been compared and how observed discrepancies have been interpreted.

This scoping review will map existing evidence comparing objective performance outcomes from AI-assisted or AI-permitted coursework/formative assessments and independently completed examinations among university students. It will summarize study characteristics, assessment approaches, AI usage conditions, and reported performance patterns, while identifying methodological limitations and evidence gaps. The findings may inform future research and the development of assessment strategies that balance the educational benefits of AI with the evaluation of independent student competence.

Rationale The increasing use of generative artificial intelligence (AI) in higher education raises questions about whether performance on AI-assisted coursework accurately reflects students' independent knowledge and skills. Although AI tools may improve coursework performance, the extent to which these outcomes correspond to performance in examinations completed without AI assistance remains unclear. Existing studies vary in their educational settings, academic disciplines, study designs, AI usage conditions, assessment methods, and reported outcomes, making it difficult to draw consistent conclusions.

A scoping review is appropriate because the primary aim is to identify, map, and characterize the available evidence rather than estimate a pooled effect or establish a causal relationship between AI use and academic performance. By examining studies that report objective outcomes for both AI-assisted or AI-permitted coursework/formative assessments and independently completed examinations, this review will identify patterns of performance discrepancies, methodological differences, and gaps in the literature. Particular attention will be given to distinguishing differences attributable to assessment characteristics from those potentially associated with AI assistance. The findings will provide an overview of the current evidence and

help guide future comparative studies and assessment practices in higher education.

METHODS

Strategy of data synthesis A literature search will be conducted in PubMed/MEDLINE, Scopus, ERIC, and Web of Science Core Collection from database inception to October 23, 2026. The search strategy will combine terms related to generative artificial intelligence (e.g., “generative AI,” “ChatGPT,” “large language model,” and “artificial intelligence”), higher education (e.g., “university,” “college,” “undergraduate,” and “student”), coursework or formative assessment (e.g., “coursework,” “assignment,” “homework,” “project,” and “formative assessment”), and examinations (e.g., “examination,” “exam,” “test,” and “summative assessment”). Boolean operators and database-specific search syntax will be applied. The search will be restricted to English-language publications. Forward citation searching will be conducted using Scopus for studies included following full-text eligibility assessment. Backward citation searching will not be performed.

Retrieved records will be deduplicated and screened against the predefined eligibility criteria. Data will be extracted from eligible studies using a structured charting form, including publication characteristics, study design, sample size, academic discipline, AI tools and usage conditions, assessment characteristics, and objective performance outcomes for both AI-assisted or AI-permitted coursework/formative assessments and independently completed examinations. The findings will be synthesized descriptively using tables and narrative summaries. Reported performance patterns will be categorized according to whether examination performance is lower than, similar to, or higher than coursework performance, while considering differences in assessment difficulty, grading methods, and study design. Where available, comparative results between AI-exposed and non-AI-exposed groups will be summarized separately. No meta-analysis is planned because the primary objective is to map the available evidence and identify methodological differences and research gaps. Reporting will follow the PRISMA extension for Scoping Reviews (PRISMA-ScR).

Eligibility criteria Eligibility criteria will be defined using the Population–Concept–Context (PCC) framework. The population will include undergraduate and postgraduate students enrolled in higher education institutions, regardless of academic discipline. The concept will focus on

studies reporting objective quantitative performance outcomes from both AI-assisted or AI-permitted coursework/formative assessments and independently completed examinations without AI assistance in the same students or clearly comparable student cohorts. Eligible studies must clearly establish that AI assistance was used or permitted during coursework or formative assessments and prohibited during examinations. Both assessment types must have separately reported numerical performance outcomes, such as grades, scores, or accuracy rates. Studies will be eligible regardless of whether examination performance is lower than, similar to, or higher than coursework performance. The context will include universities, colleges, and other tertiary education institutions worldwide.

Original peer-reviewed journal articles and full-length peer-reviewed conference papers will be eligible, including randomized controlled trials, nonrandomized and quasi-experimental studies, cohort studies, longitudinal studies, cross-sectional comparative studies, and mixed-methods studies reporting relevant quantitative outcomes. Only English-language publications will be included, without restrictions on publication year.

Reviews, editorials, commentaries, opinion articles, book chapters, preprints without peer-reviewed publication, conference abstracts lacking sufficient methodological details or outcome data, and purely qualitative studies will be excluded. Studies reporting only student perceptions, self-reported learning outcomes without objective performance data, or outcomes from only one assessment type will also be excluded. Studies in which AI assistance was permitted during examinations, examination conditions regarding AI use could not be established, or comparable student cohorts could not be identified will be excluded. Studies involving AI solely as a teaching or instructional tool, without AI-assisted or AI-permitted coursework/formative assessments, will not be eligible.

Source of evidence screening and selection All records retrieved from the electronic databases will be imported into reference management software, and duplicates will be removed before screening. Two reviewers will independently screen titles and abstracts against the predefined eligibility criteria. Potentially eligible articles will undergo full-text assessment by the same two reviewers independently. Disagreements at any stage will be resolved through discussion and consensus. If consensus cannot be reached, a third reviewer will be consulted.

Reasons for excluding studies at the full-text stage will be documented. Forward citation searching of the included studies will be conducted using Scopus, and additional records will undergo the same screening and selection procedures. The study selection process will be documented using a PRISMA-ScR flow diagram, including the numbers of records identified, duplicates removed, records screened, full-text articles assessed, studies excluded with reasons, and studies included in the final review.

Data management All records retrieved from the electronic databases and forward citation searching will be imported into reference management software for organization and deduplication. Following duplicate removal, records will be managed systematically throughout title and abstract screening, full-text assessment, and final study selection. Screening decisions and reasons for full-text exclusion will be documented.

Data from included studies will be recorded in a standardized electronic spreadsheet developed for this review. The extracted information will include study characteristics, participant characteristics, AI tools and usage conditions, assessment methods, and objective performance outcomes. Two reviewers will independently verify the extracted data, and discrepancies will be resolved through discussion or consultation with a third reviewer when necessary.

All search results, screening records, full-text articles, extracted data, and analysis files will be stored securely in electronic formats. The data management process will maintain an auditable record of study selection, data charting, and synthesis to support transparency and reproducibility.

Language restriction English.

Country(ies) involved Thailand.

Keywords Generative artificial intelligence; ChatGPT; Higher education; Academic performance; Coursework; Formative assessment; Independent examination; Scoping review.

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