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Scoping review rhetorical structure of discussion section: genre specifics and principles of modeling

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Abstract:
Background: Although scoping reviews have gained recognition as an independent form of scholarly synthesis, the rhetorical structure of their *Discussion* sections remains theoretically underdeveloped and is not always implemented effectively in practice. Despite increasing standardization of methodological procedures through frameworks such as PRISMA-ScR and the JBI Manual, the rhetorical conventions governing how findings are presented and how contributions are positioned within the research field remain poorly defined. As a result, the *Discussion* section in many scoping reviews appears formally structured but substantively diffuse and overloaded with loosely organized commentary. It often fails to fulfill the genre-specific function of scoping reviews: mapping the research landscape and identifying conceptual, methodological, and thematic gaps.
Problem: This study aims to identify and describe the rhetorical structure of the *Discussion* section in scoping reviews by developing a typology of rhetorical moves and steps and analyzing their frequency, communicative functions, and sequencing. The analysis seeks to clarify how authors construct research-based argumentation in a genre that does not rely on empirical synthesis or quality appraisal.
Methods: The study is based on a corpus of 50 scoping reviews published between 2019 and 2023 in leading English-language journals on education ranked in the first quartile (Q1) of the SJR index. A two-level rhetorical coding scheme was employed: *moves* were conceptualized as macro-level functions aligned with genre-specific communicative tasks, while *steps* were analyzed as micro-level strategies that realize those functions. The initial move categories were identified deductively from established models developed for empirical research articles and were subsequently refined and adapted to the logic of the scoping review genre through iterative

analysis. The coding process was carried out by three independent researchers, with disagreements resolved through interpretive discussion supported by textual evidence.

Results: The analysis resulted in the identification of six core rhetorical moves specific to the *Discussion* section in scoping reviews, each serving a distinct communicative purpose. While analytical and evaluative moves were consistently present across the corpus, introductory and interpretive moves exhibited considerable variation and were frequently absent. Only 24% of the articles implemented the full six-move structure. The two-tiered move-step model revealed stable rhetorical patterns, but also highlighted common omissions, such as limited contrastive framing and reference to prior development of the field, insufficient explanatory commentary, and uncritical transfer of rhetorical structures from systematic reviews, which undermine the logic of the scoping review genre.

Conclusion: The findings indicate that the *Discussion* sections in scoping reviews often suffer from rhetorical inconsistency and genre hybridity. In the absence of a coherent rhetorical structure, discussions tend to reproduce results rather than advance interpretation or field-level insight. The proposed move-step model provides a genre-sensitive rhetorical framework that can enhance both the communicative clarity and argumentative precision of scoping reviews. Moreover, the model contributes to a broader understanding of how research-based argumentation functions in non-synthetic academic genres.

Keywords: Discussion section; Scoping review; Move-step model; Genre-based analysis; Argumentation in review articles; Rhetorical steps in scoping reviews; Scientific writing conventions

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Риторическая структура раздела «Обсуждение результатов» в обзоре предметного поля: жанровая специфика и принципы моделирования

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Аннотация:
Актуальность: Несмотря на то что обзоры предметного поля (*scoping reviews*) получили признание как самостоятельная форма научного синтеза, риторическая структура их раздела *«Обсуждение результатов»* остается теоретически недостаточно проработанной и не всегда реализуется на практике эффективно. Несмотря на растущую стандартизацию методологических процедур в рамках таких протоколов, как PRISMA-ScR и руководство JBI, риторические конвенции, регулирующие способы представления результатов и позиционирования вклада в предметную область, остаются неопределенными. Как результат, раздел Дискуссия в обзоре предметного поля является формально оформленным, но содержательно расплывчатым и перегруженным обсуждениями, которые не обеспечивают выполнение жанрово-специфической задачи (картографирования исследовательского ландшафта и выявления концептуальных, методологических и тематических лакун).
Проблема: Настоящее исследование направлено на выявление и описание риторической структуры раздела *«Обсуждение результатов»* в обзорах предметного поля путем разработки типологии риторических ходов и шагов, а также анализа их частотности, функций и порядка следования. Анализ призван прояснить, как авторы выстраивают исследовательскую аргументацию в жанре, который не включает синтеза эмпирических данных и оценки качества литературы.
Методы: В качестве материала анализа использован корпус из 50 обзоров предметного поля, опубликованных в ведущих англоязычных журналах по педагогике, входящих в первый квартиль рейтинга SJR (Q1). Применялась двухуровневая схема риторического кодирования: ходы интерпретировались как макрофункции, реализующие ключевые жанровые задачи, а шаги - как их конкретные микростратегии. Начальные категории риторических ходов были выделены дедуктивно на основе существующих моделей для эмпирических исследований, после чего уточнялись и адаптировались к логике жанра *scoping review* в ходе итеративного анализа. Процедура кодирования осуществлялась тремя независимыми экспертами, с согласованием расхождений через интерпретативную дискуссию и аргументацию, основанную на текстовых примерах.
Результаты: Анализ позволил выделить шесть ключевых риторических ходов, характерных для раздела *«Обсуждение результатов»* в обзорах предметного поля, каждый из которых выполняет отдельную коммуникативную функцию. Аналитические и оценочные ходы присутствовали практически во всех проанализированных текстах. Вводный и интерпретационный ходы продемонстрировали высокую вариативность и нередко отсутствовали. Только в 24% статей была реализована полная шестиэлементная структура всех риторических ходов. Двухуровневая модель (ходы и шаги) позволила зафиксировать устойчивые риторические паттерны, а также выявить типичные смысловые пробелы: отсутствие объяснений, нехватку контрастивной рамки, а

также риторические заимствования из систематических обзоров, нарушающие логику жанра обзор предметного поля.

Выводы: Результаты исследования свидетельствуют, что раздел *«Обсуждение результатов»* в обзорах предметного поля страдает от риторической несогласованности и жанровой гибридности. При отсутствии целостной риторической структуры обсуждение рискует превратиться в повторение результатов, не обеспечивая ни интерпретации, ни полевой аналитики. Предложенная модель ходов и шагов для обсуждения результатов предлагает жанрово чувствительный риторический каркас, способный повысить прозрачность и аргументативную точность текстов в структуре обзора предметного поля. Кроме того, модель вносит вклад в более широкое понимание принципов научной аргументации в жанрах, не ориентированных на синтез доказательств.

Ключевые слова: Раздел «Обсуждение результатов»; Обзор предметного поля; Модель риторических ходов и шагов; Жанровый анализ; Аргументация в обзорных статьях; Риторические шаги в обзоре предметного поля; Конвенции научного письма

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Introduction

Changes in the nature of scholarly communication and the structure of academic knowledge substantiate recent interest in scoping reviews. As research problems become more complex and the body of research in various disciplines increases, there is a growing need for tools that allow not only to identify reliable evidence, but also to understand how the research space itself is structured (Tikhonova, 2024): which topics have already been explored, which are in early stages of scholarly development, where gaps are identified and how methodological approaches are distributed. Scoping reviews respond to this request, providing the opportunity for a structural analysis of literature without striving for a general synthesis (Grant, Booth, 2009; Moher et al., 2015; Tricco et al., 2016; Peters at al., 2020). This approach is especially in demand in new and interdisciplinary fields where the systematic evidence base is still insufficient, but material has already been accumulated that allows identifying trends and patterns in the development of the field (Arksey, O'Malley, 2005; Levac et al., 2010; Khalil et al., 2016). Due to this versatility and extensive coverage, scoping reviews are actively used both in academic research and in applied analytics, namely, at the stages of preliminary design, formation of research programmes and expert assessment of knowledge.

Despite their methodological affinity with a systematic review (both formats rely on similar procedures for searching, selecting, and documenting sources), the differences between them are fundamental and relate primarily to the aims of analysis and the logic of argumentation. A systematic review involves a rigorous assessment of empirical evidence: the validity, reproducibility, and evidential value of the results (Grant, Booth, 2009). It is always built around a clearly formulated research question, which can be answered by comparing quantitative or qualitative evidence obtained from primary sources (Arksey, O'Malley, 2005; Khalil et al., 2016). Such a model requires a critical interpretation of the included data and serves as the basis for practical recommendations.

Unlike a systematic review, a scoping review is not aimed at testing hypotheses or drawing conclusions about the reliability of empirical results, but at mapping the research landscape (Schreiber, Cramer, 2022). Its purpose is to determine the structure of knowledge, delineate the boundaries of the topic, track the dynamics of interest in the problem under study, and record dominant concepts and methods against the background of fragmented research (Arksey, O'Malley, 2005). Accordingly, even if there is a research question in the scoping review, it is of a guiding rather than evidential nature. As a rule, it sounds like an open query: "What approaches are utilised to study X?", "What is the geography of publications on topic Y?", "What methodological traditions are involved ini the analysis of Z?" Such questions are focused on description and classification, rather than on confirming or refuting a thesis. This difference in goal-setting logic is directly reflected in the structure of all sections of the review, including Discussion, which aims at analytical description of the field rather than its evaluation.

Despite the development of methodological guidelines (including PRISMA-ScR[1] and Joanna Briggs Institute Manual for Evidence Synthesis[2]), the rhetorical organization of the sections of the scoping review remains poorly defined (Peters at al., 2020; Mak and Thomas, 2022). This uncertainty is most acute in the Discussion section, which, unlike the instrumental sections (source selection criteria, source search, source selection, data extraction, data visualization), is virtually not standardized. In the published scoping reviews, two deviations from genre logic are most typical. Firstly, the discussion of the results often becomes descriptive. In other words, the authors simply repeat the information already presented in the Results section, without interpreting them analytically and without identifying the reasons for the differences or relationships between the identified research areas. Secondly, there is often a substitution of the genre function. Instead of understanding the structure of the research scope, the authors begin to generate a discussion based on the logic of a systematic review or original empirical research, with an emphasis on evidence, comparison of results and evaluation of the quality of sources. As a result, the coherence of the text is disrupted: the conclusions do not correspond to the stated objectives, and the discussion diverges from the genre-specific purpose.

This confusion of rhetorical strategies is usually due to the lack of understanding of the differences between closely related genres (Tikhonova, 2024). A scoping review is indeed formally close to a systematic review: both reviews follow the same logic of documentation and transparency of procedures (Peters at al., 2020; Schreiber, Cramer, 2022). However, this proximity should not lead to stylistic and genre substitution. In a scoping review, it is better not to use rhetorical techniques aimed at evaluating the reliability of empirical data, as well as it is not recommended to use the structure of the Discussion section of the original empirical study with the evaluation of its results (Arksey and O'Malley, 2005). A scoping review does not produce new data, but works with secondary material, and therefore should offer an analytical synthesis of existing areas and identify gaps in knowledge which is considered to be the pivotal function of the Discussion section. Thus, the development of a clear rhetorical structure of a scoping review Discussion section becomes a necessary step to improve the quality of manuscripts in this genre. An effective rhetorical structure of a scoping review should include a logically verified sequence of rhetorical moves corresponding to the aims of the scoping review, and serve as a guideline for authors, reviewers, and editors.

Writing a research paper demands following conventional rules of its format.

[1] PRISMA for Scoping Review. https://www.prisma-statement.org/scoping

[2] JBIManual for Evidence Synthesis. https://jbi-global-wiki.refined.site/space/MANUAL/355862497/10.+Scoping+reviews

Having distinctive features and communicative purposes, a research paper is usually analysed through its rhetorical structure which is considered to be a part of academic genres (Deng et al., 2024; Jin et al., 2024; Ash'ari et al., 2023; Casal, Kessler, 2020; Samraj, 2016; Basturkmen, 2012). Following the seminal CARS model provided by Swales (1990), an extensive body of research has analysed the rhetorical structures of various sections of research papers in different disciplines (Farhang-Ju et al., 2024; Sun et al., 2024; Golparvar et al., 2023; Tikhonova et al., 2023; Al-Shujairi et al., 2020). Discussion section in a research paper appears to be the most challenging for scholars as it posits the difficulty to demonstrate their persuasive writing abilities to substantiate the novelty and validity of their findings (Tikhonova et al., 2023). Still, the research investigating the rhetorical structure of review papers is scarce.

This study aims to systematically describe the rhetorical structure of the Discussion section in a scoping review, including typical moves and steps, as well as their function in the context of the goals of this genre, in order to ensure genre rhetorical consistency of this section, improve the quality of interpretation of the data obtained and prevent confusion with rhetorical models of systematic reviews.

Theoretical Background

Modern research on academic writing is increasingly turning to the analysis of the rhetorical organization of scientific texts, not only from the point of view of their thematic content, but also from the standpoint of their functional structure, namely, those repetitive rhetorical moves by which authors achieve genre and communicative goals. One of the most stable and productive approaches to describing such a structure has become genre analysis based on the separation of moves and steps. These concepts were proposed by Swales (1990; 2004) and have become widespread in the English-language rhetorical tradition.

According to the genre approach, move is a discursive unit that performs a certain rhetorical function within a scientific text, whereas step is a way to implement this function at the level of a specific utterance (Pho, 2009). The totality of the moves presented in the genre comprises its rhetorical architecture. At the same time, the presence of a certain set of moves, as well as their expected sequence and communicative load, create genre predictability, which, as Swales (2004) emphasizes, is critically important for effective scientific communication. The conventionality of moves and steps serves as a distinguishing mark for both the author and the reader, making it easier to navigate through the text and understand its purpose. When such a structure is not specified or violated, the genre loses its functional transparency, and the scientific text loses its rhetorical manageability.

If stable descriptions of typical rhetorical patterns have been developed regarding the Introduction (Zhou et al., 2023; Swales, 1990), Abstracts (Jin, Gao, 2024; Samraj, 2005), Materials and methods (Cotos et al., 2017; Kanoksilapatham, 2005), Results (Yang, Allison, 2003; Peacock, 2011), Conclusion (Pho, 2009), and even figure legends (Liu et al., 2023), then the structure of Discussion continues to cause the greatest difficulties. As shown by Hopkins and Dudley-Evans (1988), Peacock (2002), Ruiying, Allison (2003), Discussion is characterized by high rhetorical variability and depends on both disciplinary norms and the genre nature of the text as a whole. This is especially true for hybrid and relatively new scientific formats such as scoping review. In particular, the Discussion section in this genre often happens to be either overly descriptive or formally borrowed from other genres (for example, systematic reviews or original empirical research). Such a construction of the text leads to a blurring of argumentation and a decrease in the analytical density of the text, whereas the main task of Discussion in scoping reviews should be the intellectualization of mapping (identifying

patterns, fixing gaps, assessing the distribution of topics and methods, and directing further research). In other words, Discussion in scoping reviews performs not strictly a synthetic or interpretative function but an orienting, generalizing and predictive one.

The focus on the concept of moves and steps in this study is substantiated by the need to replenish the lack of rhetorical devices characteristic of a significant part of the published scoping reviews, and to identify those rhetorical guidelines that make the discussion not just a formal conclusion to the analysis, but a tool for reflection on the state of scientific knowledge.

Materials and methods

Research Design

The present study is a qualitative genre-rhetorical analysis aimed at describing the structure and functional content of the Discussion section in scoping reviews. The research is based on a corpus approach and focuses on content analysis methods followed by the categorization of rhetorical elements (moves and steps) based on iterative expert discussion. The general logic of the study corresponds to a narrative design with elements of comparative analysis and reconstruction of rhetorical models.

Corpus

The analysis was based on a corpus of 50 scoping reviews, published in leading peer-reviewed journals in the field of education, included in the top 50 of the Scimago Journal Rank (SJR) at the time of selection (as of February 15, 2025; see Table 1). The papers were selected using a continuous sampling method based on the following criteria:

1. There is a separate Discussion section in the article;
2. It is published in English;
3. There is a clear indication (either in the title or in the keywords) of the genre of the review – *scoping review*;
4. The papers should be open access.

Table 1. Journals Demographics
Таблица 1. Описание журналов

	Title	ISSN	SJR	SJR Quartile	H index	Country	Publisher
1	Computers and Education: Artificial Intelligence	2666920X	5,217	Q1	51	Netherlands	Elsevier B.V.
2	International Journal of Educational Technology in Higher Education	23659440	3,912	Q1	77	Netherlands	Springer Netherlands
3	International Journal of STEM Education	21967822	2,606	Q1	63	Switzerland	SpringerOpen
4	Smart Learning Environments	21967091	2,476	Q1	41	United Kingdom	SpringerOpen
5	JMIR Medical Education	23693762	1,974	Q1	36	Canada	JMIR Publications Inc.
6	Computers and Education Open	26665573	1,678	Q1	25	United Kingdom	Elsevier Ltd

7	Australasian Journal of Educational Technology	14493098, 14495554	1,249	Q1	75	Australia	Australasian Society for Computers in Learning in Tertiary Education
8	Medical Education Online	10872981	1,037	Q1	55	United Kingdom	Taylor and Francis Ltd.
9	BMC Medical Education	14726920	0,947	Q1	107	United Kingdom	BioMed Central Ltd
10	Journal of University Teaching and Learning Practice	14499789	0,909	Q1	28	Australia	
11	Online Learning Journal	24725730, 24725749	0,821	Q1	75	United States	The Online Learning Consortium
12	International Journal of Educational Research Open	26663740	0,758	Q1	22	United Kingdom	Elsevier Ltd
13	American Journal of Pharmaceutical Education	15536467, 00029459	0,736	Q1	85	United States	Elsevier B.V.
14	Education Sciences	22277102	0,73	Q1	68	Switzerland	Multidisciplinary Digital Publishing Institute (MDPI)
15	Journal of Information Technology Education: Research	15393585, 15479714	0,712	Q1	38	United States	Informing Science Institute

The choice of journals with a high impact factor is justified by the desire to capture representative rhetorical practice in the most influential academic publications on the subject of education. All articles were encoded (by number and source), which made it easier to compare and reverse-check the data (Appendix 1).

Extracting Data from a Corpus

The data was extracted manually based on pre-encoded PDF versions of the articles. Only the Discussion section was allocated for each article. Conclusions, if they were designed as a distinct section, were not excluded, but were considered separately. This is due to the fact that conclusions are often integrated into the Discussion. A corresponding entry was added to the data extraction table (Appendix 2), indicating whether the Conclusion was a standalone section or part of the Discussion. The selection of rhetorical units (moves and steps) was based on text segmentation, thematic transitions, and language markers (for example, *This review aimed to ..., A major gap identified was..., Unlike previous reviews* ...), as well as the logical position of the passage in the structure of the section.

To facilitate analysis, the text of each Discussion section was extracted into a dedicated table. Each entry consisted of individual semantic blocks (ranging from 1 to 5 sentences), which were systematically evaluated based on their rhetorical function. The table included fields for coding moves and steps, along with researcher notes on any genre ambiguity or structural deviations. Additionally, all text fragments were annotated with the corresponding article number, page reference, and original wording to enable traceability and verification.

This method of organizing the extracted data made it possible to ensure textual accuracy of the analysis, avoid interpretative distortions, and maintain transparency of decisions during the transition to the stages of categorization and generalization. In addition, the presence of a database of annotated fragments made it possible to return to previously analyzed articles in case of discrepancies or the need for recoding when refining categories.

Data Analysis

The data were analysed by manual qualitative coding, aimed at identifying and describing the rhetorical structure of the Discussion sections in selected scoping reviews. The main analytical unit was a rhetorical move, that is, a functionally completed piece of text that performs a specific task in the compositional organization of the discussion. Each move, in turn, could contain one or more steps clarifying its function. For example, the Interpretation Move could include steps related to explaining the relevance of the findings, comparing them with other studies, suggesting possible causes of differences, etc.

The analysis was carried out in several stages. At the first stage, for each article, the following were recorded: (1) the number of moves and their sequence; (2) the presence or absence of key steps within each move; (3) rhetorical deviations, including:

- borrowing structures typical of systematic reviews or empirical studies (e.g. critical assessment of the data validity, discussion of one's own results);
- excessive descriptiveness without interpretation;
- violations of logical coherence between rhetorical blocks.

At the second stage, the data were grouped into tables, where each recorded move and step was matched with a text example from the corpus, as well as the researchers' comments on its function, position in the text, and degree of correspondence to the scoping review genre. This allowed us to correlate real rhetorical practices with the expected genre model.

The formation of categories took place in a dual logic:

(1) deductively – based on existing rhetorical models, primarily the descriptions of the discussion structure in original empirical studies and systematic reviews;

(2) inductively – based on the analysis of corpus material, where rhetorical elements that did not fit into the preliminary scheme were discovered. Such cases became the subject of expert discussion and, if necessary, led to the expansion or revision of the categorical apparatus.

For each identified rhetorical unit, its formal and functional features were determined: the nature of the linguistic design, the position in the section, the logical connection with other elements. This provided a multi-layered description of the structure of the discussion section, including both stable, typical solutions and deviations from the norm.

The summarized results are presented in the form of summary tables, which record the frequency of occurrence of moves and steps, their variability and sequence, as well as representative examples from the corpus. The examples illustrate both genre-correct rhetorical strategies and typical errors associated with genre confusion, structural blurring, or lack of interpretation.

Procedure

The analysis of the Discussion sections was carried out independently by three researchers. Each researcher studied the Discussion section of each article in the corpus to identify all the rhetorical moves and their constituent steps used by the authors. A Google spreadsheet was used to organize the collaboration, recording the wording, function, and frequency of each rhetorical element occurrence. Any discrepancies or uncertainties were discussed during joint meetings until consensus was reached.

The initial analysis framework was formed based on the rhetorical structure of the Discussion section in empirical research, described in studies on academic writing and scientific rhetoric. The starting model was based on typical moves (such as interpretation of results, discussion of limitations, comparison with previous research) and their constituent steps, characteristic of original research articles. This framework served as a preliminary coding matrix for the corpus data.

However, at an early stage of the analysis, it became obvious that the structure of the Discussion sections in the scoping reviews differed significantly from the empirical genres both in purpose and compositional logic. The corpus data began to reveal rhetorical moves that were not provided for by the original model: for example, an analytical description of the research field structure, indicating the scope limits without appealing to the quality of the data, highlighting new thematic areas without interpreting empirical results. This required going beyond the ready-made schema and moving to an iterative reconstruction of categories based on textual material.

In this process, a narrative approach to conceptualization was applied, based not on strict formalization of codes at the beginning of the analysis, but on consistent refinement, redefinition, and reasoned discussion of categories as the research team engaged in close reading of the texts. Each potential innovation, whether it was a new category, renaming an existing step, or splitting one move into two, was evaluated by the research team with reference to specific text passages. The discussion used both textual arguments (language implementation, position in the section structure, functional load) and genre considerations (compliance with the stated purpose of the review, the difference between description and interpretation, genre correctness in relation to the scoping review).

Decisions were made not by vote, but by consensus - that is, until all participants agreed on how to interpret a particular rhetorical move and how to classify it. Thus, the final scheme was not imposed from the outside, but was gradually formed from within the corpus, reflecting the real diversity of academic writing practices within scoping review. This approach ensured not only the flexibility of the analysis, but also a high level of consistency between researchers, since each category has been repeatedly tested in the discussion and textual plane.

Reliability Measurement

To ensure reliability of the analysis, the method of triple inter-rater agreement was used. All discrepancies between codings were discussed until full consensus was reached. Repeated coding of a part of the corpus (20% of articles) with a time interval confirmed the stability of the categories and the uniformity of their application. To assess the consistency of coding, the Cohen’s Kappa coefficient was additionally used, which showed a high level of agreement ($\kappa = 0.82$).

Results

The analysis of the corpus of 50 scoping reviews published in leading educational journals resulted in a typology of rhetorical moves implemented in the Discussion section. The final structure is presented in Table 5 and includes six moves being described in terms of the function performed and typical steps of implementation. Separate subsections present the main empirical observations and statistical data on the frequency of use, the function performed and the internal content of moves and steps, as well as typical cases of

violations of genre and rhetorical logic in their use.

Move 1. Introductory Move

The main function of this rhetorical move is to establish the genre and analytical context for the subsequent discussion. Within the framework of a scoping review, where the emphasis is not on the synthesis of evidence, but on mapping the research field, Move 1 performs an orienting function, namely, it sets the starting point, indicating what exactly was analyzed, to what extent, and with what research task. This avoids rhetorical "depressurization" - when the discussion begins without relying on the focus and scope of the review, which is especially important for scoping reviews that do not rely on formalized synthesis. Unlike other moves, Move 1 does not include interpretations, comparisons, or predictive statements. Its rhetoric is neutral, orienting: the author describes, but does not explain; records, but does not analyze.

Step 1. Reaffirming the purpose of the review (and research question, if applicable)

At the first step, the author returns the reader's attention to the original research task and, if available, to the research question that served as the basis for designing the analysis. Unlike the Introduction, where the goal is often formulated declaratively, here its reformulation should be built into the logic of the review, emphasizing its substantive guidelines: thematic areas, types of objects of analysis, research prospects. This approach allows not only to repeat the goal, but to introduce it into the context of the data obtained, indicating which part of the field the author sought to map.

This step is especially important when the review has formulated a research question. Its brief reproduction (usually in a generalized or paraphrased form) strengthens the rhetorical integrity of the text and demonstrates that the discussion is structured within the framework of the given analytical focus. At the same time, the author does not interpret the data or answer the question; he or she merely reminds the reader that the question served as a constructive basis for the analysis. This structural "reorientation" of the reader is especially important for reviews with a broad scope, where, without it, the subsequent discussion may be perceived as disorganized or fragmented.

Step 2. Descriptive summary of the mapped evidence

The second step of the first move involves a brief but structured presentation of the resulting picture of the research on the subject. Its main goal is to capture the scope, diversity, and distribution of publications by themes, methods, or geographic focus, thereby preparing the basis for further analytical progress. Well-written texts at this stage report: (1) the total volume of sources and time frame (e.g., "the review included 67 articles published between 2001 and 2023"); (2) the typology of sources (e.g., empirical vs. theoretical; journal publications, dissertations, reports); (3) the geographic, institutional, or disciplinary scope; (4) the most frequently encountered topics, methods, or research contexts (using neutral wording, e.g., "the most commonly examined contexts were..."). Unlike analytical moves, here the author does not explain why certain topics prevail or offer conclusions. This is a purely descriptive stage, where the map is documented - without yet introducing the tools for navigating it. This step should not be implemented formally, in one or two sentences, as this reduces its potential as a support for subsequent moves.

Move 2. Analytical Move

This rhetorical move is the analytical core of the Discussion section in the scoping review. Its main function is to offer a structured description of how the research field is organised: which of its components predominate, how they relate to each other, and where systemic unevenness is found. This move does not provide explanations, does not derive cause-and-effect relationships, and does not offer forecasts. The author does not reason, but records - so that this basis can be further relied on in interpretation (Move 3) and in deriving directions for future research

(Move 6). Move 2 is built on the generalization of the data corpus, already briefly presented in Move 1, but performs a different rhetorical function: not introductory, but analytical. Its steps are arranged according to the principle from the overall thematic structure of the research field (e.g., digital equity in education) to its internal asymmetries and emergent trends.

Step 1. Analysis of the scope and types of research

At this stage, the author systematizes the internal architecture of the studied domain based on the formal and substantive characteristics of the identified sources. In the context of a scoping review, this step serves a genre-specific mapping function: it demonstrates what components make up the field, which segments dominate, and how the publications are distributed according to key parameters. These parameters include the type of sources (empirical studies, theoretical works, review articles), methodological approaches used (qualitative, quantitative, or mixed), level of analysis (individual, institutional, or systemic), studied groups (such as teachers, students, or administrators), as well as geographical and disciplinary affiliations.

The goal at this point is not to explain why certain imbalances in distribution occur but rather to document these patterns as an empirical foundation for the subsequent analysis of asymmetries in Step 2 and the identification of trends in Step 3. The formal characteristics to be considered may include the length of the section, the presence of subheadings, and the density and nature of in-text references. Substantive features involve the degree of meta-analytical synthesis, the presence of authorial evaluation, and the use of visual or taxonomic generalizations. These characteristics allow the field to be presented not as a mechanical collection of publications but as a structured body of approaches, perspectives, and data types that require further interpretive analysis.

Step 2. Identification of research gaps

This step aims to capture underrepresented, missing or systematically excluded areas in the research field: topics, methods, contexts, levels of analysis, categories of participants or theoretical perspectives. This step does not explain why a gap exists or draw conclusions about its consequences – it simply states the absence or lack of research in a neutral analytical manner (in other words, it states facts that will be interpreted in the next move).

Step 3. Identification of dominant trends and directions

This step is aimed at capturing the most stable, recurring, or growing trends in the field being studied. It does not reflect individual thematic points, but patterns: what is most often studied, what methods are consistently used, what concepts or contexts have received more attention in recent years. The author does not explain why these trends appeared, but helps the reader to understand in what direction the field is developing and what vectors have become central.

Move 3. Interpretation Move

This rhetorical move serves the central analytical function in the Discussion section, offering insight into the mapping results. If Move 2 recorded the structural characteristics of the research field (topics, methods, gaps, and trends), Move 3 allows the author to go a step further and comment on why these characteristics are significant, what they may indicate, and how they can be interpreted in terms of the internal logic of the studied scope. In the scoping review genre, interpretation is not evidential or evaluative: it is not aimed at testing hypotheses or determining the reliability of data but performs an orientation function—it helps the reader better understand the architecture of the research space.

Move 3 may include from one to three steps. Step 1 is the main one and is found in most texts. Steps 2 and 3 are used optionally when the analytical framework of the review involves comparing and clarifying internal contradictions. Move 3 plays a linking role between the description of the results (Move 2) and the formulation of directions for

further research (Move 6). Its task is to transform the map of the subject field into a semantic field, to endow the structure with meaning, without moving on to practical recommendations and forecasts.

Step 1. Clarifying the relevance of the findings

This is the core of the interpretation move. Here the author moves from a neutral description to an analytical assessment of the relevance of the patterns identified. In this step, it is important not just to repeat what was found (for example, the prevalence of a certain topic), but to explain why this is significant: what it says about the state of scientific interest, how it reflects methodological priorities, where thematic imbalances are evident. Such an interpretation does not evaluate the quality of research, but affects scientific completeness, representativeness and thematic distribution within the field. The structure of a text description of this type is related to how the field is organised, and not to what is "right" or "wrong" in research on the topic.

Step 2. Comparison with other studies (optional step)

This step is used when the review has a clearly stated research question, and its implementation involves comparing the identified patterns with individual studies from the corpus. The purpose is not synthesis, but rather rhetorical correlation, demonstrating how individual sources either reinforce or complicate the general picture established in Move 2. This comparison can show the stability of trends, contradictory positions or differences in approaches, while the author does not evaluate which of the authors of the analyzed sources is "right", but records the heterogeneity of approaches.

Step 3. Explaining internal inconsistencies or contradictions (optional step)

At this step, the author addresses the internal heterogeneity of the field if the included sources provide contradictory or methodologically inconsistent conclusions (differences in the operationalization of concepts, in the sample, in the context of application). The task of the step is not only to record the discrepancy (this has already been done in Move 2), but to explain what it may be due to. Such an interpretation strengthens the argumentative coherence of the text and demonstrates the reflexivity of the author.

Step 2 (Comparison with other studies) and Step 3 (Explaining internal inconsistencies or contradictions) in Move 3 highlight the differences between the sources (Table 2). But they have different rhetorical goals, units of analysis, and analytical emphases of understanding, which fundamentally separate their functions within the scoping review.

Table 2. Comparison of step 2 and step 3 functions
Таблица 2. Сравнение функций шага 2 и шага 3

Criterion	Step 2: Comparison with other studies	Step 3: Explaining internal discrepancies
Purpose	To show that the generalized result agrees or disagrees with individual sources, that is to show agreement/disagreement	Explain why the results of individual sources contradict each other: do not show agreement/disagreement, but explain the reasons for the contradictions.
Focus	Results of the review as a whole ↔ individual articles from the corpus *("Here's what I found in the review as a whole – and here's how it relates to the results of individual studies"*).	Discrepancies between two (or more) studies included in the review

Type of utterance	Juxtaposition (rhetoric of parallelism or contrast): *"The review found…, and some articles say the same thing…"*	Interpretation of the reason for the discrepancy (rhetoric of resolution): *"These two studies included in this review provide contradictory conclusions. This is due to… (methods, context, sample, definition of concepts)"*
Degree of difficulty	Relatively simple comparison (thematic or conceptual)	Requires an analytical assessment of differences in approaches, methods, and context
Context of application	If there is a clearly structured focus or research question	If real contradictions or logical conflicts are found in the corpus
What is being compared?	Summary of the review result and selected studies from the review	Study included in the review with another study/studies included in the review

Move 4. Comparison with Previous Reviews Move

This rhetorical move operates at a meta-analytical level of reflection, in which the author of a scoping review positions their work in relation to previously published scoping reviews on the same topic or in adjacent fields. It is not merely a gesture of academic courtesy or a citation-based comment, but a functionally important element of scholarly contribution. This move allows the author to show: (1) how the field is complemented or expanded, (2) what new perspectives or thematic refinements are introduced, and (3) how the structure of academic knowledge has evolved over time.

Move 4 is especially important in areas where a body of review literature already exists, and where claims to originality require a clear positioning relative to earlier work. In the context of a scoping review, this move helps to avoid the impression of redundancy and demonstrates that the new mapping either covers previously unexplored areas or refines, restructures, or reinterprets existing syntheses. Move 4 may involve one to five rhetorical steps. The first three are core components, while the latter two are optional and appear when the accumulated evidence justifies a revision or reconsideration of the thematic architecture (Table 3).

Step 1. Reference to previous reviews

The function of this step is to introduce the comparison by clearly indicating the existence of previous scoping or systematic reviews on the topic. The author may refer to one or several reviews, briefly outlining their scope or aims without critical evaluation. This establishes a basis for substantive analysis of differences and thematic shifts in subsequent steps.

Step 2. Comparison of the coverage and scope of the current and previous reviews

In this step, the author compares the scope, focus, and methodology of the current scoping review with those of previous publications. This allows them to delineate the boundaries of novelty: how the current review differs, in what way it expands methodologically or thematically, and which segments were previously unaddressed. This step is particularly crucial for establishing the review as a scholarly contribution.

Step 3. Identification of emerging or fading themes

This step highlights that, compared to previous scoping reviews, new themes have emerged in the literature or previously prominent areas have waned. It allows the author to demonstrate the dynamic nature of the field and emphasize the need for renewed mapping. This step is particularly useful in

fast-developing or post-crisis domains where the thematic landscape evolves rapidly.

Step 4. Re-evaluation of earlier thematic groupings (optional step)

At this rhetorical move, the author of the scoping review returns to a previously proposed structural framework of the research field, established in one or more earlier reviews, and, based on the newly assembled corpus of data, demonstrates that this framework no longer reflects the current state of the literature. This does not refer to the emergence of new topics not previously covered (as in Step 3), nor to changes in the content of already known directions (addressed in Step 5), but rather to the need to revise the underlying logic of thematic classification itself. This pertains to cases where earlier thematic blocks, clusters, or lines of inquiry begin to overlap, lose their analytical clarity, partially merge with one another, or, conversely, fragment into smaller, more distinct subfields. Such a revision does not invalidate the previous structure, but highlights its limitations when applied to the new body of research, thereby justifying the development of a more nuanced or multi-level classification that more accurately reflects the current scope. This move shows that the author not only adds to the existing map but also refines the structure of the navigation itself.

Step 5. Reinterpretation or reframing of previously identified themes (optional step)

This step aims to show that previously defined thematic directions in scoping reviews now carry different meanings or emphases. This may involve a shift in focus, a paradigmatic turn, or the introduction of new terminology within existing frameworks. This step is particularly valuable when the author seeks to illustrate how the semantic content of the field has transformed, rather than simply identifying new topics.

Table 3. Comparing the steps of Move 4
Таблица 3. Сравнения шагов Хода 4

Step	Function	Element being reviewed
Step 2	Compares the current and previous scopes	Scope, method, context
Step 3	Identifies emerging or fading themes	Thematic composition of the field
Step 4	Shows the outdated nature of previous groupings	Architecture of thematic classification
Step 5	Reframes old themes with new meanings	Semantics and structure within existing themes

Move 5. Evaluation Move

This rhetorical move serves a reflexive function within the Discussion section, allowing the author to honestly and professionally outline the boundaries of the review's applicability without diminishing its scholarly contribution. Unlike the Conclusion, where the emphasis is shifted towards constructive generalization, Move 5 underscores the limitations arising from methodological decisions and genre specifics. It indicates that the author does not claim to be comprehensive or epistemologically definitive and is aware of the framework within which his or her observations are formulated. This enhances the credibility of the work, as it demonstrates methodological awareness and a correct rhetorical stance. Move 5 returns the reader to the real conditions of the study, adjusts expectations,

and demonstrates the author's intellectual integrity. In the context of a scoping review, where generalizations are often built on broad and heterogeneous material, this move helps to maintain scientific accuracy and genre ethics. It strengthens the persuasiveness of the study not through enhanced argumentation, but through honest and structured reflection.

This move is especially important in scoping reviews where the scope is technically or conceptually constrained—by time frame, language, or type of sources. In scoping reviews, which do not synthesize data or formally assess quality, the author's ability to critically reflect on the review itself as a research instrument becomes particularly significant. Move 5 typically includes two mandatory and one optional step, each serving a distinct reflective purpose.

Step 1. Framing the contribution and its limits

In this step, the author articulates the contribution made by the review, while simultaneously acknowledging the boundaries within which this contribution holds. This rhetorical balance is crucial as it emphasizes the significance of the findings without overstating them. Unlike the Conclusion, where the value of the work is stated with confidence, this step follows a more restrained logic: *"Here is what we were able to identify—within the limits of our results obtained".* This approach helps to maintain analytical integrity and prevent false generalizations, especially in situations where the field is highly fragmented.

Step 2. Methodological and procedural limitations

At this point, the author outlines specific methodological choices that may have influenced the completeness, representativeness, or direction of the findings. These limitations typically relate to the search strategy and inclusion/exclusion criteria for sources. This step is important not as a self-critique, but as a contextualization of the review's reliability, helping readers properly align the findings with the methodological framework within which they were obtained.

Step 3. Absence of quality assessment (optional)

This step is relevant when the review does not include a formal assessment of the quality of sources, which is typical for most scoping reviews but may require clarification for the reader. The author may briefly explain that quality appraisal was not part of the review's objectives, and that the findings do not aim to assess the strength of evidence in the included publications. This approach helps to avoid false interpretations: the reader understands that the review maps, not evaluates.

Move 6. Deduction from the Study

This rhetorical move performs the final analytical function within the structure of the scoping review Discussion section. Unlike Move 3 (Interpretation Move)), which aims to reflect on and explain the obtained results, Move 6 focuses on drawing logical conclusions from the revealed structure of the research field, with an emphasis on the future development of the area. This move does not summarize the data or assess their relevance; rather, it formulates propositions that the scholarly community may use to design future studies.

The key feature of Move 6 is that it does not offer direct practical recommendations (as is typical in systematic reviews), since scoping reviews are not grounded in quality assessment or strength of empirical evidence. Instead, it generates research-oriented proposals: where gaps have been identified, which topics require further exploration, and which methodological approaches remain underutilized. In doing so, Move 6 ensures the genre-specific completeness of the review by transforming the descriptive mapping of the field into a research agenda. It turns the scoping review from a "mapping report" into a scholarly tool that enables the reader not only to understand the current state of the domain, but also to anticipate its potential trajectories. While Move 6 does not function as a rhetorical conclusion (as its place is in the Conclusion section), it endows the discussion with a

future direction, thereby enhancing the scientific significance of the review as a prognostic platform.

In its rhetorical structure, Move 6 may include up to four steps, which vary in terms of their predictive strength and target orientation.

Step 1. Reaffirming the contribution to the field of knowledge

This step acts as a summative frame: the author demonstrates how the review has altered or refined the understanding of the knowledge domain, namely, how it helped to structure, systematise, or reconsider the existing body of literature. It is not a summary of results, but the implementation of the scoping review research function: clarifying what is now better understood, more clearly articulated, or viewed from a new perspective. This step helps the reader recognise the state of the researched field after its analysis and reconsideration.

Step 2. Emphasizing the need for further research

At this step, the author identifies those areas where the reviewed literature remains particularly fragmented or contradictory, indicating the necessity for further study. The step does not require an explanation of why these gaps exist (that is the function of Move 3), but merely notes that existing studies do not yet present a cohesive picture (e.g., lack of regional diversity, underdeveloped conceptual tools, methodological gaps).

Step 3. (If applicable) Indirect recommendations for policy or practice

Although scoping reviews do not typically offer formal recommendations, in certain cases the author may suggest that the findings are potentially relevant for the educational policy, governance, or regulatory practices. It is crucial to emphasise, that these recommendations are indirect, based on the identified trends, and not derived from the research effectiveness assessment.

Step 4. Making specific suggestions for further study

This is the central step of this move, in which the author formulates specific suggestions for the direction and nature of further research, which may include: (1) methodological refinements (e.g., longitudinal or comparative designs), (2) expansion of the context (research into new countries, groups, levels of the system), (3) theoretical development (concepts, typologies, frames), (4) empirical filling of the gaps discovered during the review. It is important that the proposals are not general or declarative but **are based on the structural features of the scope identified in the review.**

Table 4. Scoping Review Rhetorical Structure of Discussion Section
Таблица 4. Риторическая структура секции Обсуждение результатов в обзоре предметного поля

Moves and Steps	**Example from the corpus**[1]
Move 1. Introductory Move	
Step 1. Reaffirming the purpose of the review (and research question, if applicable)	This study aimed to examine how the scientific literature conceptualises AI literacy in relation to teachers' different forms of professional knowledge relevant for TE. In doing so, we focused on two research questions: 1. What is the current scope and nature of the scientific literature on AI literacy relevant for TE? and 2. How are teachers' different forms of professional knowledge reflected in the literature? (6-4) CQEIs aimed at evaluating and improving the quality of HE courses continue to

[1] The table displays selected examples from the corpus, while the full dataset is available in Appendix 2.

	be developed and refined at universities around the world. This contribution aimed to pull together these disparate works into a more cohesive body of knowledge from which we can learn and improve the development of such instruments. (7-1) The overarching objective of this scoping review was to advance our understanding of the ways in which FYIC are being supported in their pursuit of post-secondary education and to apply these in the Canadian context. (12-2)
Step 2. Descriptive summary of the mapped evidence	This scoping review analyzed a total of 17 studies conducted in different countries from 1995 to 2021 regarding AI teaching tools, knowledge, activities, and impacts on learning and teaching in the crucial field of ECE. Different types of publications are included in this review, such as journal article, book chapter and conference paper. This scoping review shows that most of the studies were conducted in developed Western countries (e.g., United States, Australia, UK, Greece, Austria, and Finland). Only four studies (i.e., Ge et al., 2021; Jin, 2019a, 2019b; Nan, 2020) have been conducted in the Asia context. Most studies were found to use interviews, assessments and observations, followed by questionnaires. Qualitative data were generated to draw conclusions for the proof-of-concept or user studies. (1-3) We found 114 studies that were relevant to our objective, including 47 (41.2%) RCTs, 49 (42.9%) other experimental study designs, 14 (12.3%) cross-over studies, 3 (2.6%) case studies and cases series, and 1 (0.9%) meta-analysis. Most of the papers were published from Europe or the United States. (5-4) Studies on passive participation in collaborative online learning activities in formal learning contexts have spanned twenty years, from 2002 to 2022. However, the number of studies on this topic is very low, with an annual maximum of only five studies. Studies on participation in online learning spaces are abundant (Martin et al., 2020: 7), but studies specifically investigating passive participation are limited. If a narrow definition is applied, the number of studies on passive participation is even lower. (11-2)
Move 2. Analytical move	
Step 1. Analysis of the coverage and types of research	The review was overwhelmingly dominated by small scale pilot studies that were sometimes limited in their application of educational theory and learning design. (4-2) There is a focus on quantitative research, although, because the available survey instruments were considered insufficient to determine digital literacy, researchers often developed their own. (5-3) In this scoping review, we mapped out the existing VR modalities used in undergraduate medical education, including the characteristics of the VR modalities, target population, tools used in development, educational elements, and the outcomes measured of each VR modality. We found 114 studies that were relevant to our objective. (5-4)
Step 2. Identification of research gaps	Finally, for the most part, the body of instruments lacked both explicit capability building supports and an articulation of the underpinning educational theories, pedagogies and research informed best practices influencing the design of the instruments. (7-2)

	While data analysis, interpretation, and visualization are discussed in almost every theoretical framework and case study, this review found a notable lack of research on the planning and implementation of independent data collection. (14-1) This implies that there is a gap in robot storytelling conceptual model research. (15-2)
Step 3. Identification of dominant trends and directions	In addition to the increased number of publications, the current trend suggests increased quality of published work. Specifically, Fig. 1 (left side) shows a sustained increase in the number of journal publications since 2018. (1-2) Ultimately, however, it must be noted that the endeavor of defining AI literacy is still ongoing. (1-4) This picture suggests that AI is making progress in peer assessment, but there is still a considerable way to go, particularly with automated assignment and automated assessment. Calibration and teamwork effectiveness also merit further research. (2-2)
Move 3. Interpretation Move	
Step 1. Clarifying the significance of the findings	Although the results of this review are preliminary, they provide a different understanding of GenAI's role in modernizing and potentially revolutionizing the assessment landscape in higher education. (2-1) These qualitative insights are crucial in generating deeper, more targeted research questions that propel the field forward, ensuring our approaches in STEM education are responsive to diverse student needs (3-3) Our findings can contribute to the understanding of AI literacy within the teaching profession and set the stage for future research within this topic that acknowledges the intricacies and situatedness of teaching. In the next sections, we discuss the findings we consider most crucial for future consideration of the nature of AI literacy, its background in computer science, the related emphasis on digital resources for teaching about AI and AI EdTech in teaching, and how ethics are reflected. (6-4) This uniformity in findings lends substantial credence to the technology's utility and efficacy across a diverse array of research settings, thereby highlighting its considerable promise as an instructional medium. (15-1)
Step 2. Comparison with other studies (optional)	While mentioning cultural-historical activity theory (CHAT), which like Shanahan (2009), we view is a fruitful theoretical framework for use in future studies due to its ability to connect multiple levels of analysis, Naidoo (2017) did not reference Cole, Engeström, Leontiev, and Vygotsky, whose work contributed to CHAT, nor attend to the subject, object, rules, community, and division of labor components of the theory. (3-1) Second, it seems that still, no consensus existed on the definition and measurement of student engagement among scholars (Appleton et al., 2008; Bond et al., 2020). (4-1) This finding aligns with previous literature suggesting that interprofessional training evaluation methods need to shift to include the assessment of long-term impacts on patient care and collaboration. (13-3)

Step 3. Explaining internal inconsistencies or contradictions (optional)	We had assumed that there would be greater correlation between the thematic groupings and individual criteria; however, this is not the case. We propose that the differences at the criteria level arise from individual institutional priorities, rather than a lack of a shared conception of course quality. (7-2) However, it is critical to note that their analysis spanned the entire range of K-12 education without a specific focus on elementary-aged students, which may account for this discrepancy (15-3) The discrepancy between these findings can be attributed to differences in the scope of the two reviews, as Novak et al. included studies spanning all educational levels. (15-3)
Move 4. Comparison with Previous Reviews Move	
Step 1. Reference to previous reviews	In our review, we came to the same conclusion as Long & Magerko in their seminal AI literacy review (2020), in that AI is a relatively novel research field. (1-4) This decision was made based on a previous review of literature that was completed by Deshpande (2017) who completed an exploratory research that examined journals from 1993-2015. It only made sense to review the literature written since that time to find the most current practices used in online graduate advising. (11-1) In a 2021 scoping review, adapting inpatient rounding models to include an interprofessional team and the patient resulted in improved team and patient satisfaction, and positively affected clinical outcomes.42. (13-1)
Step 2. Comparison of scope and coverage of the current with previous reviews	In contrast, our review focused on mapping games for teaching CR, with 16 of the 19 games being simulation games and escape rooms. (8-2) The field of surgery has produced 33 relevant articles according to a scoping review conducted up until April 2020 [29], while internal medicine has contributed 32 articles by 2018 [30]. (9-2)
Step 3. Identification of emerging or fading themes	However,the findings veered away from Deshpande's sensitivity to cultural issues and pairing of faculties and focused on the need for program knowledge and technical skills. (11-1)
Step 4. Re-evaluation of earlier thematic groupings	This paper changes the theoretical framework for artificial intelligence in peer assessment to six areas: Assigning Peer Assessors, Enhancing Individual Reviews, Deriving Peer Grades/Feedback, Analyzing Student Feedback, Facilitating Instructor Oversight, and Peer Assessment Systems. (2-2)
Step 5. Reinterpretation or reframing of previously identified themes	The pre-AI era primarily involved using computers, basic software applications, and early e-learning platforms. The focus was on computer-assisted learning, which mainly entailed using computers as tools to support instructional processes. Learning management systems (LMS) were used to organise and deliver content, but the focus now is the sophisticated capabilities that AI brings (Osamor et al., 2023). (10-3) Threrfore, game genre selection should consider not only efficiency, but stakeholder preferences and contextual factors apart. (8-2)

Move 5. Evaluation Move	
Step 1. Framing the contribution and its limits	Overall, we found that initial groundwork has been laid for research on mental models of AI, but there are a number of research gaps that need to be explored in more detail in the future. (1-1) The findings of our review offer some insight into the research status of interprofessional education interventions towards patient safety. (8-3) With that being said, this study contributes to the growing literature on DSE. The identification of challenges in DSE is a step towards building learning programs that are fit for purpose and address various stakeholders' needs. (15-3)
Step 2. Methodological and procedural limitations	Limitations of this review include the small number of studies that directly deal with teaching first aid and also the large number of articles with closed access,unavailable in full in open access to the public, making it impossible the scope of the content that could add to the discussion of the subject covered in this review. Furthermore, another limitation is the low number of old articles that talk about the subject. (12-3) Whilst the authors attempted to carry out a comprehensive and rigorous search strategy there is always a risk that not all relevant articles were located. In addition, the articles included in the review were limited to those published in English and grey literature was not included. This may have led to the exclusion of some relevant articles. (10-2) When constructing the search term, no wildcards were used, which limited the search of potential fitting literature, which must be specified as a further limitation. In addition, more variants of the job title medical professional could have been used to maximize the search results. Another limitation could be the practical implementation of the selection of papers and their evaluation by just 1 author. Although the procedure was planned as a team, and the results were discussed extensively, the process was carried out by only 1 person. (5-3)
Step 3. Absence of quality assessment[2].	Furthermore, the quality of the included studies was not assessed as part of this scoping review because a scoping study does not seek to assess evidence quality and, consequently, cannot determine whether studies provide robust or generalizable findings [27,28]. However, this should be mentioned as a limitation of this study. (5-1) One limitation of this literature review is that, because of the very nature of scoping reviews, the quality of the included works was not considered in the review process, and all papers were included in the synthesis, irrespective of quality [14]. This may have led to inferior works being included in the results and being placed on an equal footing with high-quality works. (5-3) In accordance with scoping review methodology, there was no quality assessment of the included articles; thus, the included studies may be biased or incomplete in terms of some of the information reported. (5-4)

[2] In some cases, the authors, on the contrary, include a limited assessment of quality and then explicitly note this as a deviation from the protocol norm, which also requires rhetorical support.

Move 6. Deduction from the study	
Step 1. Reaffirming the contribution to field of knowledge	This review highlights valuable trends and proposes future research directions in GenAI for both researchers and practitioners. (2-1) The current review adds to the recent body of literature investigating the HyFlex course delivery model. (6-1) The unique application of an academic literacies lens to the findings of studies in the review sample reveals insights that suggest the journey of becoming a pedagogic scholar is more than one just filled with "growing pains" (Kim et al., 2021: 168). (10-1)
Step 2. Emphasizing the need for further research	As an increasing number of medical schools turn toward incorporating VR into their curriculum, there is a need to evaluate these novel VR modalities as well as describe the methods used to incorporate VR into the curriculum. (5-4) Further study regarding the implementations of CQEIs would make a valuable contribution. (7-2) As a result, it is suggested that new studies be produced on the topic of first aid in schools, in addition to the democratization of access to existing literature, in order to contribute to evidence for practice. (12-3)
Step 3. (If applicable) Indirect recommendations for policy or practice	As GenAI is here to stay and its usage for learning becomes more popular, higher education institutions need to rethink their assessment policies. This is supported by the three aspects: redesigning assessment policies, new literacy and professional development for teachers, shifting educational focus, and rethinking learning objectives. (2-1) Therefore, teachers should know what technologies/tools students will be using, and choose appropriate approaches when delivering courses. Hence, we suggest organizing a tailor-up professional development program. In the training program, proper use of digital tools and technologies (i.e., AR to boost online interaction), positive psychology, or flexible pedagogy should be prioritized. (4-1) Therefore, when integrating nursing education and the emerging technology, educators should comprehensively consider the strengths and limitations of ChatGPT. Educators and educational institutions should embrace this technology with an open mind and avoid simply banning its use. (5-2)
Step 4. Making specific suggestions for further study[3]	Future reviews are invited to extend the scope of their studies by incorporating other moderating variables as well as to use papers from other sources using other methods of data collection such as snowballing (Wohlin, 2014). Furthermore, the

[3] Step 2 focuses on the importance and necessity of continuing research in general, as a response to identified gaps. It serves primarily to justify the need for further investigation in certain areas, without specifying how such research should be carried out. In contrast, Step 4 offers concrete suggestions—what should be studied, how, by which methods, and in what contexts. At this point, the author moves beyond merely asserting necessity and begins to articulate possible research trajectories. It is a shift from *diagnosis* to *design*. Step 2 performs an argumentative function, aiming to convince the reader that the existing body of knowledge is incomplete, fragmented, or limited. It serves as a rhetorical lead-in to the deductive component. Step 4, by contrast, fulfills an applied function: the author moves from identifying the problem to proposing potential solutions, thereby advancing the argument. This distinction is especially important in the context of a scoping review, where the logic of argumentation is based not on evidence synthesis but on the structural analysis of the research field. Accordingly, it is crucial first to delineate the gaps and only then to propose how they might be addressed.

	research results for one of the research directions identified here can be synthesized in another systematic literature review. (1-1) A more complex consideration of the relationships among the individual competences, for example, through a factor analysis, would also be conceivable and should be investigated in subsequent research work. (5-3) Future research should focus on determining learning outcomes with respect to content but should also assess interprofessional competencies intended to be addressed by the programs. Ideally, longitudinal and impact data would be collected rather than simply focusing on preknowledge and postknowledge and attitude assessments. (13-3)

Obligatory and Optional Moves: Frequency of Occurrence

The analysis of the rhetorical structure of the Discussion section enabled us to determine the frequency of implementation of specific moves (Table 4). It is obvious that some of them are more consistent and stable than others. The highest frequency is demonstrated by the moves that are inherent for the genre of scoping review as a tool for mapping a research area. Thus, the analytical presentation of results (Move 2) is registered in all 50 papers, that is in 100% of cases, which allows us to interpret it as an obligatory structural element of the discussion, and a scoping review as a genre is impossible without it. Similarly, the Evaluation move (Move 5) associated with the conducted review limitations proved to be frequent. It is present in 46 out of 50 papers, which is 92%. As a rule, it is located at the end of the Discussion section and serves as a critical reflection, testifying to researchers' integrity and a thorough approach to research.

The Introductory move, which provides a transition between the Results and Discussion sections, is present in 47 papers, that is in 94% of cases. Its primary function is to briefly remind about the review purpose (Step 1) and map the scope of the collected evidence (Step 2). Step 1 is found in 48% of papers, while Step 2 occurs in 76%. Move 6 (Deduction from the study) is also implemented in almost all papers of our corpus, that is 49 out of 50, or 98%; its aim is to provide implications for future research. This fact can be interpreted as an indicator that papers pay great attention to the field development from the current state to a possible future from the point of view of both research potential and pedagogical recommendations. The level of development of this move varies from generalised statements, such as *more comprehensive research into the MyFlex mode is needed* (6-1), to extended comments on specific research topics, geographical areas, methodologies, e.g. *future reviews are invited to extend the scope of their studies by …* (1-1); *a future investigation of … would be a valuable addition to build upon the findings in this paper* (7-2); *further research from a … standpoint is needed* (4-2).

Much less frequent are the moves that are related to a deeper interpretation and meta-positioning of the review. More specifically, the Interpretation move (Move 3) aimed at explaining the relevance of the certain topics, comparing and contrasting the results with the reviewed papers, or accounting for unexpected discrepancies is found in 30 papers, which constitutes 60% of the corpus. It is most frequently found in the studies that include a clearly formulated research question with an analytical component (34 papers). Move 4 related to comparing the current review with previously published ones on the topic is found in 17 out of 50 papers, which is 34%. As a rule, the absence of this move can be explained by insufficient maturity of the research field and the lack of published reviews, which can serve as a basis for comparison. Even if the reviews exist and are cited by the authors, the

emphasis is usually on comparing the scope and coverage rather than development of the subject area from past to present.

Consequently, the full implementation of all six moves was registered only in 11 out of 50 papers, which is 24% of the corpus. This again highlights the lack of a well-established rhetorical model for the Discussion section. Even in leading journals on Education, the results are presented through a limited number of moves, while the interpretation of results and framing of the discovered trends in previous reviews is either limited or completely absent.

The Logic of Distinguishing between the Rhetorical Functions of Moves

At the stage of categorization and re-verification of coding consistency, special attention was paid to the validity of distinguishing rhetorical phrases as autonomous, non-overlapping units. Despite the thematic proximity of some rhetorical moves, their functions in the Discussion section structure are fundamentally different. This difference is traced not only at the level of the task being performed, but also in the direction of argumentation, the degree of generalization, and the nature of the connection with the data corpus.

Thus, the distinction between Move 2 with an analytical representation of the structure of the research field (Analytical Move) and Move 3 with the interpretation of the identified patterns (Interpretation Move) is based on the difference between description and explanation. Move 2 answers the question of what exactly has been discovered: what topics, methods, and approaches are represented in the corpus and where the gaps are recorded. At the same time, it limits itself to recording, without offering judgments about the significance or reasons for the distribution. In contrast, Move 3 takes the next analytical step: it interprets what has been discovered, explains why certain topics have gained a dominant position, what factors can explain the absence of certain approaches, and how the discovered patterns relate to the broader research context. Thus, Move 2 performs the function of describing the structure of knowledge, and Move 3 - of understanding its scientific relevance.

A separate rhetorical block is Move 4 (Comparison with Previous Reviews Move), aimed at comparing the results of the current review with previous review publications. This comparison is carried out not with individual studies included in the corpus (as in Move 3), but with previous reviews on the topic as genre units. Move 4 thus reaches the level of meta-analysis of the genre, allowing the author to show what novelties his work brings in comparison with already existing generalizations. This distinction is especially important for genre self-determination: if Move 3 remains within the boundaries of the corpus under consideration, then Move 4 allows the text to be positioned as an element of academic dialogue, recording the contribution to the evolution of the scientific description of the field.

Another key transition is from interpretation (Move 3) to recommendations (Move 6. Deduction from the study). Here, the difference is not so much related to the subject of the study, but to its time perspective. Move 3 completes the analysis of the current state of the field, revealing the internal logic of the patterns discovered. At the same time, Move 6 represents a transition to project-based thinking: it is aimed at formulating directions for future research based on the identified gaps. Thus, Move 3 and Move 6 differ in function (explanation vs. forecast) and in focus (analysis of the present vs. orientation to the future).

The distinction between Move 4 and Move 6, despite possible overlaps in the source material (for example, both moves can refer to previous reviews), also maintains rhetorical clarity. Move 4 describes how the field has changed in recent years – which topics have lost relevance, which, on the contrary, have emerged or intensified. Move 6, based on this understanding of the dynamics, proposes concrete steps: which directions require further development, which methods should be adapted, which aspects

should be integrated into subsequent research. Thus, Move 4 records the evolution, and Move 6 projects the trajectory of development.

The final rationale for the rhetorical autonomy of the moves is presented in the table (see Table 5), where each pair of potentially intersecting rhetorical moves is compared in content, logic, and function. This table serves as a visual confirmation that the proposed rhetorical model is not a mechanical division of the text, but reflects the deep structural and argumentative diversity within the Discussion section of scoping reviews.

Table 5. Differentiation of Rhetorical Functions
Таблица 5. Различия риторических функций

Thematically related moves	**Commenting on functional differences**
Move 2 (Analytical move) и Move 3. (Interpretation Move)	Move 2 answers the question of *what* is in the research field and *what is not*; Move 3 - *why* it is important, *how* it can be understood, and *what* it relates to. The first move describes, the second - explains.
Move 3 (Interpretation) и Move 4 (Comparison with Previous Reviews)	Move 3 compares the results of the current review with individual studies included in the corpus; Move 4 – with other reviews as genre generalizations, that is, it works at the meta-level.
Move 3 (Interpretation) и Move 6 (Deduction from the study)	Move 3 completes the analysis of the current state of the field; Move 6 makes a logical transition to the future: what steps need to be taken to fill the gaps.
Move 4 (Comparison with Previous Reviews Move) и Move 6 (Deduction from the study)	Move 4 captures changes in the research landscape (e.g. the emergence of new topics); Move 6 builds on this by suggesting specific directions for further research.

Violations of Genre Logic and Rhetorical Deviations

Corpus analysis revealed a number of rhetorical deviations, indicating the genre instability of the scoping review Discussion section. These deviations were found in 21 out of 50 analysed papers, which is 42% of the corpus. The deviations manifested themselves in various forms, but all of them had a common basis, namely, the substitution of rhetorical logic of a scoping review with the logic of a different academic writing genre, such as a systematic review and original empirical research

The most frequent rhetorical deviation was lack of interpretation of the obtained results alongside with their detailed presentation. It was observed in 20 papers, i.e. 40% of the corpus. In these cases, the Discussion section resembled the Results section, reproducing the same information in an expanded form, but unchanged in content. In this case, the authors of the review often entitle the section as Discussion, without making any effort to build interpretative logic or formulate analytical conclusions. As a result, Discussion becomes a formality, while the text stays incomplete and lacks proper rhetorical development and function being the interpretation of the research field composition and indication of potential research directions.

The second most common rhetorical deviation was shifting the focus from mapping the evidence and building it into the subject area development towards outlining practical recommendations. These recommendations became the central line of 8 papers, which constitutes 16%. It is pivotal to note that overall, 37 papers out of 50 presented practical recommendations based on the results, which did not present a deviation. The violation was observed when all findings, identified trends and topics were presented through the lens of improving instructional design, classroom practices, teacher/student interactions. This focus might be explained by an assumption within the research field of education, which presupposes research-based enhancement of pedagogical practices, but contradicts the requirements of the scoping review as a genre.

The third most frequent violation was inappropriate incorporation of rhetorical strategies typical of a systematic review. This was observed in 9 out of 50 cases, i.e. 18% of papers. In these cases, the authors built into the discussion such elements as reliability and validity assessment of reviewed papers, using terminology and argumentation typical of a critical review of evidence, without specifying such a need in the source selection criteria. For example, there were formulations that implied conclusions about the reliability of data, the strength of evidence, the reproducibility of results, etc. These conclusions, however, cannot be correctly integrated into the logic of scoping review rhetorical development, since the genre, by definition, does not presuppose evaluation of the source's quality and results verification[4]. These rhetorical elements not only violate the genre purpose but also undermine transparency of the author's methodological position by shaping an erroneous conception of the scoping review purposes and attributes.

The fourth type of deviation was observed less frequently but requires special attention due to its fundamental genre incorrectness. These are the cases in which the authors propose their own hypotheses, form causal relationships and make predictions without solid methodological justification, only based on the analysis of the reviewed publications. Such elements were found in 3 papers (6%). In some fragments the texts approached the format of an original empirical research or even an essay instead of a scoping review. It happened because the authors tried to build their own explanatory models for phenomena and to express their attitude to them instead of systematising and mapping existing approaches. This can be explained by incomplete understanding of the genre and lack of guidance for writing the Discussion section of a scoping review.

It is essential to state that in several papers some moves migrated to other paper sections. The most common examples include adding Deduction from the Study (Move 6) and Evaluation (Move 5) to the Conclusion Section, Limitations (Move 5 Step 2) follow or is included into the Methods; Comparison with Previous Reviews (Move 4) becomes part of Introduction and Related Work. Although these can be journal requirements, the same information acquires a different rhetorical function within the paper and leaves the structure of the Discussion section incomplete. By not building Deduction, Evaluation and Comparison with Previous Reviews into Discussion, the authors fail to present a synthesis of research trends within a topical field based on the past state, through the current development, and to the future prospects. These rhetorical moves have different goals in other parts, namely, reference to previous research in the Introduction section serves as a reason for conducting the current review, Limitations in the Methods section highlight only the methodological aspect excluding other considerations, and Conclusion is aimed at providing closing remarks without focussing

[4] The exceptions are the papers in which the authors set out to include these review criteria and stated in explicitly in the Materials and Methods sections. In our corpus such cases were not registered.

on representing a coherent view of the research field development.

Finally, the logical inconsistency that to a greater or lesser extent disrupted the rhetorical structure of the Discussion sections pertains to the order of information presentation. Being present as a rhetorical unit, moves and steps were occasionally distributed across the section or its sub-sections, which could violate the logical sequence and presented a challenge to the reader. One example is distributing a summary of collected evidence throughout various parts of the section instead of framing it as a single rhetorical unit.

Discussion

This study aimed to describe the rhetorical structure of the Discussion section in scoping reviews published in leading journals on Education. The analysis allowed us to identify and describe a rhetorical model of six functionally distinct rhetorical moves, each of them playing an independent role in the logic of developing a scientific argument. This model allows us to more clearly understand the genre specificity of a scoping review as an independent form of scholarly communication with its own rhetorical organization, structurally and functionally different from both systematic reviews and original empirical research.

The described rhetorical model demonstrates that although most authors confidently implement key genre functions (the description of the research field structure, the indication of existing gaps in knowledge and future research implications), the interpretative and metapositional components often remain either weakly expressed or completely absent. This lacuna is especially indicative in relation to moves that involve analytical comparison with other reviews. Only in 24% of cases in the context of the analyzed corpus was a full set of six moves recorded, while in the remaining texts either omissions of moves/steps or substitutions of rhetorical tasks were observed.

The revealed irregularity of the Interpretation move implementation indicates a systemic rhetorical lacuna that reduces the genre completeness of the scoping review. Despite the fact that this format does not imply any synthesis of evidence or evaluation of the data quality, the interpretation of the identified patterns, gaps, and directions remains its mandatory component (Levac et al., 2010; Peters et al., 2020; Bouck et al., 2022). It ensures the transition from description to analytical orientation and allows the review to perform the function of scientific navigation, and not just an inventory. The insufficient representation of this rhetorical move in the corpus indicates its undeserved stylistic displacement: interpretation is often perceived as optional, whereas in essence it constitutes the core of research reflection and should be integrated into the structure of the discussion along with the description and predictive conclusions. This perspective has significant implications for the genre identity of the scoping review. When interpretive components are underrepresented, the review risks functioning merely as a descriptive inventory rather than as a theoretically oriented instrument capable of not only documenting the current state of knowledge, but also modelling its prospective development and epistemic trajectories. Thus, the formation of a stable rhetorical model of discussion within the framework of scoping reviews requires not so much normative prescriptions as institutional recognition of the analytical function of interpretation as a central element of scientific communication in this genre.

All the recorded deviations from the described rhetorical model of the Discussion section, despite their outwardly diverse manifestations, have a common basis: the absence of a stable rhetorical model of the Discussion section, purposefully adapted to the purposes and functions of scoping reviews. Moreover, some researchers use the terms “scoping review” and “systematic review” as synonyms. Attempts to integrate argumentative structures borrowed from other genres into the scoping review and to shift the focus to practical significance indicate the

need to develop methodological and genre-rhetorical guidelines that would help authors structure their discussion considering the specifics of the scoping review format. Recent work in genre-based academic instruction highlights the importance of explicit rhetorical modeling not only for writing productivity but also for genre awareness among early-career researchers (Jin et al., 2024). This further supports the argument that genre-specific guidance in constructing the Discussion section is both pedagogically and rhetorically necessary. Only if there is a complete and balanced model, genre integrity, analytical clarity, and internal consistency of the discussion in scoping reviews can be ensured.

These findings are consistent with earlier observations suggesting that, despite the formal institutionalization of the scoping review through protocols such as PRISMA-ScR and the JBI Manual (Peters et al., 2020), its rhetorical conventions remain only partially articulated at the level of genre. As noted by Grant and Booth (2009) and later reaffirmed by Peters et al. (2020), the Discussion section represents the most structurally volatile and genre-vulnerable component of the review: it is precisely here that rhetorical uncertainty most often results in unreflective borrowing from more established formats - particularly from systematic reviews. The results of the present study empirically confirm this tendency. In more than one-third of the analyzed in this research texts, we observed genre displacement in the form of critical appraisals of study validity or interpretive framing of the discussion as if the authors were reporting their own empirical data (both of which fundamentally contradict the mapping-oriented logic of scoping review).

At the same time, the findings also indicate that adherence to a purpose-driven rhetorical structure (where each move and step is explicitly linked to a defined communicative function) serves not only to reinforce genre integrity, but also to minimize textual redundancy. As shown in Tikhonova et al. (2024), functionally organized academic discourse is inherently economical: it avoids repetition, prevents genre drift, and compels the extracted data to perform rhetorical work within the architecture of the review, rather than remain inertly descriptive. This observation aligns with the rhetorical distinctions identified by Tikhonova (2024) in original empirical research, where each rhetorical move contributes to the epistemic function of the section and strengthens internal argumentative cohesion. In this light, a genre-sensitive model of the Discussion section should be understood not as a formalistic constraint, but as a necessary condition for rhetorical coherence, epistemic transparency, and effective scholarly communication.

Implications

While the structural delineation of rhetorical steps allows for a clearer compositional model of the Discussion section, this alone does not guarantee rhetorical coherence or genre effectiveness. Without stylistically stable and genre-relevant realizations, each step remains abstract and of limited practical value. The corpus analysis revealed that rhetorical moves in published scoping reviews are often incompletely verbalized, confused with other genre elements, or overly dependent on context thus hindering reproducibility and violating the functional integrity of the text.

To tackle this problem, the study devised linguistic patterns aligned with each rhetorical move (Table 6). These patterns were constructed independently of any specific thematic content but are carefully aligned with their communicative function, discursive structure, and typical linguistic realisations. They are not prescriptive clichés, but functionally justified formulations intended to serve as reference points for authors aiming for genre precision and rhetorical consistency when constructing the Discussion section.

Table 6. Functional examples of speech patterns to describe each rhetorical step in the scoping review Discussion section.
Таблица 6. Функциональные примеры речевых моделей для описания каждого риторического шага в разделе «Обсуждение результатов» обзора предметного поля.

Moves and Steps	Speech patterns to describe each rhetorical step
Move 1. Introductory Move	
Step 1. Reaffirming the purpose of the review (and research question, if applicable)	This review was undertaken to examine how inclusive pedagogical practices are conceptualized and investigated within the context of digital education. The aim was to map the thematic range, methodological diversity, and target populations addressed in recent empirical studies, rather than to evaluate the effectiveness of specific interventions. Accordingly, the review was guided by the following question: *What types of approaches to inclusion have been explored in digital learning environments, and how are these approaches framed across different educational levels and contexts?* This question provided the analytical orientation for identifying dominant patterns and underrepresented areas across the mapped literature.
Step 2. Descriptive summary of the mapped evidence	The review included 74 publications published between 2005 and 2023, the majority of which were peer-reviewed empirical studies conducted in Europe and North America. Most studies focused on the primary and secondary education sectors, with a smaller subset addressing higher education or informal learning settings. Thematically, the literature most frequently addressed technological accessibility, teacher training for inclusion, and student engagement in digital environments. Methodologically, qualitative case studies and mixed-methods designs predominated, while quantitative longitudinal designs were relatively rare. Across the literature, studies tended to emphasize practical implementation over theoretical framing, although several contributions did engage with inclusive education models or sociocultural theory.
Move 2. Analytical move	
Step 1. Analysis of the scope and types of research	The corpus comprised predominantly empirical studies (n=58), with a smaller number of theoretical or policy-oriented contributions (n=16). Most studies were conducted in Western Europe (n=31) and North America (n=22), while research from the Global South was significantly underrepresented. The literature focused largely on primary and secondary education, with limited attention to early childhood or vocational training. Methodologically, qualitative designs (particularly case studies and ethnographic approaches) dominated, while experimental and longitudinal studies were rare. The reviewed works addressed teachers more frequently than learners, and institutional or policy-level perspectives appeared sporadically.
Step 2. Identification of research gaps	Notably absent from the reviewed literature were longitudinal studies that trace the sustained impact of inclusive digital practices over time. Few studies examined early childhood education or informal learning settings. Additionally, there was a marked lack of research focusing on multilingual classrooms, rural schools, and marginalized learner groups such as newly arrived migrants or students with emotional and behavioral needs. Theoretical engagement was also limited, with most studies relying on applied frameworks and very few referencing critical or intersectional perspectives.
Step 3. Identification of pivotal trends and	Across the reviewed literature, a growing emphasis was placed on digital tools as enablers of inclusive pedagogy, particularly in response to the COVID-19

Moves and Steps	Speech patterns to describe each rhetorical step
directions	pandemic. Several studies published after 2020 focused on the integration of assistive technologies in mainstream classrooms. There was also a noticeable shift in terminology, with earlier work centering on "access" and more recent publications framing inclusion through the lens of "participation" and "agency." In terms of research design, the use of practitioner-led inquiry and design-based approaches appeared to be gaining traction.
Move 3. Interpretation Move	
Step 1. Clarifying the relevance of the findings	The strong focus on teacher-centered perspectives observed across the reviewed studies indicates a continuing reliance on institutional and instructional framings of inclusion, while learner-centered or community-based approaches remain underexplored. This imbalance may suggest a narrow conceptualization of inclusive pedagogy within digital contexts, privileging formal settings and teacher agency over more participatory or context-sensitive models.
Step 2. Comparison with other studies (If applicable)	While the majority of studies emphasized teacher readiness and technology access as primary enablers of inclusion (e.g., Author, 2009; Author and Author, 2021), a smaller number of contributions (e.g., Author, 2020) highlighted relational and affective dimensions, pointing to the importance of trust and belonging. This divergence in emphasis reveals the presence of parallel strands within the field, each privileging different operational definitions of inclusion.
Step 3. Explaining internal inconsistencies or contradictions (If applicable)	The divergent findings regarding the impact of digital tools on learner participation may stem from the heterogeneity of study contexts. For instance, studies conducted in urban, resource-rich schools (e.g., Author, 2020) reported positive effects, while those based in rural or under-resourced settings (e.g., Author, 2021) emphasized barriers and limited impact. These inconsistencies likely reflect contextual variables such as infrastructure, teacher digital competence, and administrative support, which shape the implementation of inclusive strategies.
Move 4. Comparison with Previous Reviews Move	
Step 1. Reference to previous reviews	Several prior reviews have examined aspects of inclusive digital education, most notably Author et al. (2018), who focused on policy frameworks, and Author & Author (2020), who synthesized intervention-based studies targeting students with disabilities.
Step 2. Сравнение охвата и предметного поля текущего и предыдущих обзоров	Unlike the review by Author et al. (2020), which focused solely on secondary education, our study includes both primary and secondary levels.
Step 3. Identification of emerging or fading themes	While earlier reviews highlighted issues of access and equity (Author et al., 2019; Author et al., 2021), more recent studies (Author et al., 2019; Author et al., 2021) (including ours) show a growing interest in digital engagement.
Step 4. Re-evaluation of earlier thematic groupings	The three-part categorization proposed by Author et al. (2018) (infrastructure, pedagogy, and policy) no longer adequately captures the thematic complexity of the field. Our review shows that many recent studies operate at the intersection of these domains, particularly in contexts where inclusive practices emerge through hybrid responsibilities. As such, the earlier segmentation may need to be revised in favor of more integrated or multidimensional thematic groupings.

Moves and Steps	Speech patterns to describe each rhetorical step
Step 5. Reinterpretation or reframing of previously identified themes	Although the theme of accessibility remains central, its framing has evolved: whereas earlier studies focused on hardware provision, recent work increasingly addresses cognitive and linguistic accessibility, expanding the concept beyond its infrastructural roots.
Move 5. Evaluation Move	
Step 1. Framing the contribution and its limits	This review contributes to the understanding of how inclusive practices in digital education are currently framed and operationalized, particularly in school-based contexts. However, it does not aim to provide an exhaustive synthesis of all possible approaches, nor does it account for implementation outcomes or intervention effects, which lie beyond the scope of this analysis.
Step 2. Methodological and procedural limitations	The review was limited to peer-reviewed articles published in English between 2005 and 2023. As a result, relevant studies published in other languages or within grey literature repositories may not have been captured. Additionally, the search strategy was restricted to four databases and may have excluded studies using non-standard keywords for inclusion.
Step 3. Absence of quality assessment (If applicable)	Consistent with scoping review methodology, this study did not assess the methodological quality of the included articles. The aim was to map the scope and characteristics of existing research, rather than to determine its evidentiary robustness.
Move 6. Deduction from the Study	
Step 1. Reaffirming the contribution to field of knowledge	This review contributes to a clearer conceptual understanding of how digital inclusion is addressed in contemporary education research, highlighting the multidimensionality and recent shifts in focus.
Step 2. Emphasizing the need for further research	Despite the increasing attention to equity in digital learning environments, studies on low-resource settings remain scarce and largely descriptive.
Step 3. Indirect recommendations for policy or practice (If applicable)	While the aim of this review was not to generate practice-based guidelines, the findings suggest that institutional frameworks for digital equity could benefit from greater alignment with current research on algorithmic fairness.
Step 4. Making specific suggestions for further study	Future research could employ comparative case study designs across socio-economic regions to better capture structural disparities in access and outcomes.

While the proposed typology offers a rhetorically coherent and genre-sensitive structure for the Discussion section, it is important to recognize that the actual layout of articles may be influenced by specific formatting requirements imposed by journals. For instance, the move of Deduction may appear in the Conclusion, or Limitations may be placed within the Methods section. Such shifts do not necessarily eliminate the rhetorical function of these elements but rather relocate them to other parts of the article. As a result, the typology should be understood as a flexible functional framework that can support authors' rhetorical decisions even when structural constraints are present.

Limitations

This study is subject to several limitations. First of all, the corpus was

composed of articles from the leading educational journals ranked among the top 50 in the SJR index. While this ensures the high quality of the analysed material, it may also limit the generalisability of the findings, particularly to other disciplinary fields. Secondly, the analysis was conducted manually, which, despite a high level of inter-coder agreement, still allows for some degree of subjective interpretation. Furthermore, the study was limited to English-language publications, which excludes from consideration potential cultural and regional features of academic writing in other language traditions.

Despite these limitations, the findings allow us to propose a rhetorical model that may serve as a practical guide for authors, reviewers, and instructors of academic writing. A clearly structured Discussion section enhances not only genre coherence but also analytical argumentation. This is especially important given the growing number of publications adopting the scoping review format. Overall, this study shows that the scoping review genre requires its own rhetorical framework, focused not on the synthesis of evidence, but on the mapping of scientific knowledge. The development of such a framework is an important step towards formalising academic writing standards in rapidly evolving scholarly publication formats.

Conclusion

The present study aimed to systematically describe the rhetorical structure of the Discussion section in scoping reviews published in the field of education. Based on the analysis of a corpus of 50 papers selected from journals in the SJR first quartile, a functionally substantiated discussion model was reconstructed, including six rhetorical moves, each of them implementing a specific task in the genre logic of scoping reviews. The results of the study confirmed that, despite the existence of methodological guidelines for conducting scoping reviews, their rhetorical organization remains insufficiently regulated. Particularly vulnerable elements appeared to be those related to interpretation, comparison, and prediction, while the description of the field structure and discussion of limitations were performed stably in all analyzed texts.

The proposed model not only describes the current practice of writing the Discussion section in scoping reviews, but also serves as a basis for formulating genre recommendations necessary both for enhancing the rhetorical consistency of such publications and for teaching academic writing. The delineation of rhetorical functions between moves showed that typical errors of authors consist not in the absence of content, but in the violation of genre boundaries, namely, borrowing structures from systematic reviews, the absence of an interpretative component, or the substitution of analytics with a generalization of results.

Thus, the results of this study confirm the need to develop a stable rhetorical model for scoping reviews. Such a model not only contributes to increasing the genre transparency and quality of academic texts, but also strengthens the methodological independence of scoping review as a fully formed academic genre. In the future, it would be advisable to expand the analysis to other disciplines, as well as to study how differences in rhetorical strategies are related to the goals stated in the introduction and the structure of the Results section.

Declaration

This manuscript was refined using AI-assisted tools, specifically ChatGPT 4.0, to improve language clarity and coherence, since English is not native for the authors. AI was used for language editing. However, all conceptual arguments, analyses, and interpretations were developed independently by the authors.

Заявление

Текст рукописи был обработан при помощи инструмента ИИ ChatGPT 4.0 для улучшения ясности и связности языка поскольку авторы не являются носителями английского языка. Разработка концепции,

анализ и интерпретация результатов реализовывались без опоры на ИИ.

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Appendix 1. Coding Table

	title	article	code
1	Computers and Education: Artificial Intelligence	Marx, E., Leonhardt, & Bergner, N. (2023). Secondary school students' mental models and attitudes regarding artificial intelligence - A scoping review. *Computers and Education: Artificial Intelligence, 5,* 100169. https://doi.org/10.1016/j.caeai.2023.100169	1_1
		Joksimovic, S., Ifenthaler, D., Marrone, R., De Laat, M., & Siemens, G. (2023). Opportunities of artificial intelligence for supporting complex problem-solving: Findings from a scoping review. *Computers and Education: Artificial Intelligence, 4,* 100138. https://doi.org/10.1016/j.caeai.2023.100138	1_2
		Su, J., & Yang, W. (2022). Artificial intelligence in early childhood education: A scoping review. *Computers and Education: Artificial Intelligence, 3,* 100049. https://doi.org/10.1016/j.caeai.2022.100049	1_3
		Laupichler, M. C., Aster, A., Schirch, J., & Raupach, T. (2022). Artificial Intelligence Literacy in Higher and Adult education: a Scoping Literature Review. *Computers and Education: Artificial Intelligence, 3,* 100101. https://doi.org/10.1016/j.caeai.2022.100101	1_4
2	International Journal of Educational Technology in	Xia, Q., Weng, X., Ouyang, F., Lin, T. J., & Chiu, T. K. F. (2024). A scoping review on how generative artificial intelligence transforms assessment in higher education. *International Journal of Educational Technology in Higher Education, 21,* 40. https://doi.org/10.1186/s41239-024-00468-z	2_1

	Higher Education	Topping, K. J., Gehringer, E., Khosravi, H., Srilekha Gudipati, Jadhav, K., & Surya Susarla. (2025). Enhancing peer assessment with artificial intelligence. *International Journal of Educational Technology in Higher Education, 22*, 3. https://doi.org/10.1186/s41239-024-00501-1	2_2
3	International Journal of STEM Education	Zhai, Y., Tripp, J., & Liu, X. (2024). Science teacher identity research: a scoping literature review. *International Journal of STEM Education, 11*, 20. https://doi.org/10.1186/s40594-024-00481-8	3_1
		Videnovik, M., Vold, T., Kiønig, L., Bogdanova, A. M., & Trajkovik. V. (2023). Game-based learning in computer science education: a scoping literature review. *International Journal of STEM Education, 10*, 54. https://doi.org/10.1186/s40594-023-00447-2	3_2
		Borrego, M., Chasen, A., Tripp, H. C., Landgren, E., & Koolman, E. (2025). A scoping review on U.S. undergraduate students with disabilities in STEM courses and STEM majors. *International Journal of STEM Education, 12*, 2. https://doi.org/10.1186/s40594-024-00522-2	3_3
4	Smart Learning Environments	Yang, D., Wang, H., Metwally, A. H. S., & Huang, R. (2023). Student engagement during emergency remote teaching: A scoping review. *Smart Learning Environments, 10*, 24. https://doi.org/10.1186/s40561-023-00240-2	4_1
		Meenaghan, A., & van Sintemaartensdijk, I. (2024). The use of XR technology in criminal justice teaching and education: a scoping review. *Smart Learning Environments, 11*, 60. https://doi.org/10.1186/s40561-024-00351-4	4_2
5	JMIR Medical Education	Lie, S. S., Helle, N., Sletteland, N. V., Vikman, M. D., & Bonsaksen, T. (2023). Implementation of Virtual Reality in Health Professions Education: *Scoping Review. JMIR medical education, 9*, e41589. https://doi.org/10.2196/41589	5_1
		Zhou, Y., Li, S. J., Tang, X. Y., He, Y. C., Ma, H. M., Wang, A. Q., Pei, R. Y., & Piao, M. H. (2024). Using ChatGPT in Nursing: Scoping Review of Current Opinions. *JMIR medical education, 10*, e54297. https://doi.org/10.2196/54297	5_2
		Mainz, A., Nitsche, J., Weirauch, V., & Meister, S. (2024). Measuring the Digital Competence of Health Professionals: Scoping Review. *JMIR medical education, 10*, e55737. https://doi.org/10.2196/55737	5_3
		Jiang, H., Vimalesvaran, S., Wang, J. K., Lim, K. B., Mogali, S. R., & Car, L. T. (2022). Virtual Reality in Medical Students' Education: Scoping Review. *JMIR medical education, 8*(1), e34860. https://doi.org/10.2196/34860	5_4
6	Computers and Education Open	Cumming, T. M., Han, C., & Gilanyi, L. (2024). University student and instructor experiences with HyFlex learning: A scoping review. *Computers and Education Open, 7*, 100229. https://doi.org/10.1016/j.caeo.2024.100229	6_1
		Schroeder, N. L., Romine, W. L., & Kemp, S. E. (2023). A scoping review of wrist-worn wearables in education. *Computers and Education Open, 5*, 100154. https://doi.org/10.1016/j.caeo.2023.100154	6_2

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		Sperling, K., Stenberg, C.-J., McGrath, C., Åkerfeldt, A., Heintz, F., & Linnéa Stenliden. (2024). In search of artificial intelligence (AI) literacy in Teacher Education: A scoping review. *Computers and Education Open, 6*, 100169. https://doi.org/10.1016/j.caeo.2024.100169	6_4
7	Australasian Journal of Educational Technology	Bowers, P., Graydon, K., Ryan, T., Lau, J. H., & Tomlin, D. (2024). Artificial intelligence-driven virtual patients for communication skill development in healthcare students: A scoping review. Australasian *Journal of Educational Technology, 40*(3), 39–47. https://doi.org/10.14742/ajet.9307	7_1
		McInnes, R., Hobson, J. E., Johnson, K. L., Cramp, J., Aitchison, C., & Baldock, K. (2024). Online course quality evaluation instruments: A scoping review. Australasian *Journal of Educational Technology, 40*(2), 55–75. https://doi.org/10.14742/ajet.8978	7_2
		Imam Hossain, S., Kelson, J., & Morrison, B. (2024). The use of virtual patient simulations in psychology: A scoping review. *Australasian Journal of Educational Technology, 40*(6), 76–91. https://doi.org/10.14742/ajet.9559	7_3
8	Medical Education Online	Tonheim, L. E., Molin, M., Brevik, A., Malene Wøhlk Gundersen, & Garnweidner-Holme, L. (2024). Facilitators and barriers to online group work in higher education within health sciences – A scoping review. *Medical Education Online, 29*, 2341508. https://doi.org/10.1080/10872981.2024.2341508	8_1
		Koelewijn, G., Hennus, M. P., Kort, M., Frenkel, J., & Thijs van Houwelingen. (2024). Games to support teaching clinical reasoning in health professions education: Ascoping review. *Medical Education Online, 29*, 2316971. https://doi.org/10.1080/10872981.2024.2316971	8_2
		Jiang, Y., Cai, Y., Zhang, X., & Wang, C. (2024). Interprofessional education interventions for healthcare professionals to improve patient safety: A scoping review. *Medical Education Online, 29*, 2391631. https://doi.org/10.1080/10872981.2024.2391631	8_3
9	BMC Medical Education	Sterpu, I., Herling, L., Nordquist, J., Rotgans, J. I., & Acharya, G. (2024). Team-based learning (TBL) in clinical disciplines for undergraduate medical students—A scoping review. *BMC Medical Education, 24*, 18. https://doi.org/10.1186/s12909-023-04975-x	9_1
		Zhang, R., Xu, X., Luo, X., & Huang, P. (2024). "Building bridges"—communication education for residents in radiology: a scoping review. *BMC Medical Education, 24*, 662. https://doi.org/10.1186/s12909-024-05660-3	9_2
		Gamborg, M. L., Salling, L. B., Rölfing, J. D., & Jensen, R. D. (2024). Training technical or non-technical skills: an arbitrary distinction? A scoping review. *BMC Medical Education, 24*, 1451. https://doi.org/10.1186/s12909-024-06419-6	9_3

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		Hosseini, A., Ghasemi, E., Nasrabadi, A. N., & Sayadi, L. (2023). Strategies to improve hidden curriculum in nursing and medical education: A scoping review. *BMC Medical Education, 23,* 658. https://doi.org/10.1186/s12909-023-04652-z	9_5
		Lesunyane, A., Ramano, E., Niekerk, K. van, Boshoff, K., & Dizon, J. (2024). Life skills programmes for university-based wellness support services for students in health sciences professions: A scoping review. *BMC Medical Education, 24,* 1418. https://doi.org/10.1186/s12909-024-06162-y	9_6
10	Journal of University Teaching and Learning Practice	Dobbins, K. (2024). Applying an Academic Literacies Lens to the Scholarship of Teaching and Learning (SoTL): A Scoping Review. *Journal of University Teaching and Learning Practice, 21* (5).	10_1
		Killingback, C., Tomlinson, A., & Stern, J. (2024). Compassionate pedagogy in higher education: A scoping review. *Journal of University Teaching and Learning Practice, 21* (10). https://10.53761/7yvrw787	10_2
		Mahrishi, M., Abbas, A., Radovanovic, D. & Hosseini, S. (2024). Emerging dynamics of ChatGPT in academia: A scoping review. *Journal of University Teaching and Learning Practice, 21* (1).	10_3
11	Online Learning Journal	Meyer, H. S., Preisman, K. A., Samuel, A. (2022). Get connected: A scoping review of advising online graduate students. *Online Learning, 26*(3), 274-292.	11_1
		Choi, H., & Hur, J. (2023). Passive participation in collaborative online learning activities: A scoping review of research in formal school learning settings. *Online Learning, 27*(1), 127-157. https://doi.org/10.24059/olj.v27i1.3414	11_2
		Wright, A. C., Carley, C., Alarakyia-Jivani, R., & Nizamuddin, S. (2023). Features of high quality online courses in higher education: A scoping review. *Online Learning, 27*(1), 46-70. https://doi.org/10.24059/olj.v27i1.3411	11_3
12	International Journal of Educational Research Open	Bulfone, G., Bressan, V., Zerilli, I., Favara, G., Magnano, R., Mazzotta, R., Barchitta, M., Alvaro, R., & Agodi, A. (2024). Nursing students' health literacy skills: A scoping review for driving research. *International Journal of Educational Research Open, 7,* 100379. https://doi.org/10.1016/j.ijedro.2024.100379	12_1
		Gahagan, J., Slipp, N., Chowdhury, R., Kirby, D., Smith, S., McWilliam, S., Carter, N., Anderson, K., Chughtai, S., Robinson, M., & Mueller, R. E. (2023). Reducing barriers to post-secondary education among former youth in care: A scoping review. *International Journal of Educational Research Open, 5,* 100303. https://doi.org/10.1016/j.ijedro.2023.100303	12_2
		Constância, L., Isabelle Leite Alves, Santos, Silva, Cristina, K., Thais, Barros, R., Daniele Vieira Dantas, & Assis, R. (2023). First aid teaching for schoolchildren: Scoping review. *International Journal of Educational Research Open, 5,* 100305. https://doi.org/10.1016/j.ijedro.2023.100305	12_3

13	American Journal of Pharmaceutical Education	Moote, R., Kennedy, A., Ratcliffe, T., Gaspard, C., Leach, E. R., Vives, M., & Zorek, J. A. (2023). Clinical interprofessional education in inpatient pharmacy: Findings from a secondary analysis of a scoping review. *American Journal of Pharmaceutical Education*, *88*, 100617. https://doi.org/10.1016/j.ajpe.2023.100617	13_1
		Soueid, R., Michael, T.J.F., Cairns, R., Charles, K. A., & Stocker, S. L. (2024). A scoping review of pharmacogenomic educational interventions to improve knowledge and confidence. *American Journal of Pharmaceutical Education*, *88*(3), 100668. https://doi.org/10.1016/j.ajpe.2024.100668	13_2
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		Schweighart, R., Hast, M., Pampel, A. M., Rebien, J. A., & Trautwein, C. (2024). Transition into distance education: A scoping review. *Education Sciences*, *14*(10), 1130. https://doi.org/10.3390/educsci14101130	14_4
15	Journal of Information Technology Education: Research	Fokides, E., & Lagopati, G. (2024). The utilization of 3D printers by elementary-aged learners: A scoping review. *Journal of Information Technology Education: Innovations in Practice*, *23*, Article 6. https://doi.org/10.28945/5288	15_1
		Essien, G., & Parbanath, S. (2024). Exploring the world of robot-assisted digital storytelling: Trends, models, and educational implications. *Journal of Information Technology Education: Research*, *23*, Article 27. https://doi.org/10.28945/5378	15_2
		Msweli, N. T., Mawela, T., & Twinomurinzi, H. (2023). Data science education – A scoping review. *Journal of Information Technology Education: Research*, *22*, 263-294. https://doi.org/10.28945/5173	15_3

Appendix 2. Data Extraction Table
https://docs.google.com/spreadsheets/d/1MXhElCSpcKEuvQlZZtTwHwUMyL3FqSWm/edit?gid=1176978533#gid=1176978533