THE TWO-WAY TRACK OF AI AND HU IN THE CLASSROOM

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ABSTRACT

More effective and efficient solutions may be possible with the help of AI's new possibilities for in-situ and real-time learning and teaching. Therefore, AI may have an effect on the ways in which humans and machines work together to learn and teach, as well as on the integration of AI with other forms of artificial intelligence. The conversation surrounding artificial intelligence (AI) in the classroom has evolved from a singular emphasis on AI-based automation to a broader goal of AI-enhanced human capacities in the areas of learning and instruction. Here, humans and AI may divide up work through reciprocal engagement. This means that AI systems can recognize patterns or structures in big datasets, even unstructured data, in real time, which can aid intelligent human decision making in learning and teaching scenarios. For instance, recommender systems exist to aid students in subjects where the volume of material outstrips their processing capacity by surfacing the most pertinent, engaging, or practical objects. Traditional approaches presume that students who have similar tastes will gravitate toward the same materials. This is shown by content-based recommender systems and collaborative filtering. Adaptation that works includes things like discovering relevant learning information, complete courses, or the best way to learn things. Given the ongoing difficulties in incorporating AI into educational settings, particularly for more complex activities, a potential solution might be a partnership between humans and AI, which would enhance the capabilities of both parties.

KEYWORDS: Mobile Applications; Securing Date; Cybersecurity Protection Data

INTRODUCTION

AI, which is a stakeholder among humans, chooses and collects material for learning and knowledge generation, how it processes and forgets information, or how it learns to share knowledge with collaborators [1-13]. Scholarly research and theory on current concerns pertaining to AI and HE in education and their assistance for students in educational contexts are included in this special issue [14-25]. The papers shed light on how human and AI stakeholders might enhance educational practice in different circumstances. As a result, the pieces in this anthology critically consider the symbiotic

problems of AI and HU in the classroom.

Artificial intelligence models may be taught to understand written language, according to a case study by Burkhard Schäffer and Fabio Lieder. New opportunities for teaching qualitative approaches will arise when distributed interpretation by humans and AI becomes a reality. Another important takeaway from "Distributed Interpretation. Teaching Reconstructive Methods in the Social Sciences Supported by Artificial Intelligence" is the fact that a hybrid actor-style of research-based education is in the horizon. For a domain-specific classification job, Christian Mayer, Sabrina Ludwig, and Steffen Brandt explore the possibility of automated classification combining prompt-based learning techniques with transformer models. "Transformer Models for Prompt Text Classifications!" According to "An Exemplary Introduction to Prompt-Based Learning with Large Language Models," a two-way process including human and machine raters should underpin answer rates [25–40].

Methodology

A request for proposals was disseminated in the summer of 2021 via the usual routes of educational analytics and technology for teaching email lists in the scientific community. Here are the key points that the call outlined for the possible submissions:

• The integration of AI with human and machine learning to improve educational processes.

• Backing both human and machine-based treatments connected to evaluation (both formative and summative).

Concerns around privacy, data security, algorithmic bias, and ethics in the context of AI-assisted education and training.

• Skills necessary for effective human-machine collaboration in education.

The design, construction, and assessment of user interfaces that facilitate the collaboration of human and artificial intelligence in educational settings.

Integrating human and AI requires technological and algorithmic solutions that take into account data sources and educational needs.

The initial submission period ended in November 2021 with 31 abstracts. By the end of March 2022, ten authors had been invited to submit a full article after thorough evaluation and consensus among the advisory board. The primary considerations for choosing manuscripts were the degree to which the emphasis on AI and HL was expressed and maintained throughout the whole project. The Journal of Research on Technology in Education and the special issue review board each assigned three reviewers to each paper. By the end of May 2022, all of the preliminary evaluations had been finished. The papers were advanced to the second round of reviews after careful consideration of the reviewers' remarks and the personalized feedback provided by the

guest editors. By the end of July 2022, authors were requested to submit a revised manuscript that addressed the concerns made by the reviewers and the guest editor. At the tail end of October 2022, the manuscripts were finally accepted.

Works published in this special edition

With an emphasis on the study topics, methodology, and empirical foundation, Table 1 summarizes the nine contributions to this specific subject. How AI may aid in education and how associated ethical issues might be addressed are major themes running through the offered research.Tables 41–62Thus, as seen in the following articles, the primary focus of study is still on human-algorithmic decision making and the collaboration of human and machine intelligence.

The first part of this special issue is a review that Robert Moore, Shiyan Jiang, and Brian Abramowith conducted. They looked at twelve different publications that dealt with artificial intelligence in K-12 settings. Consequently, the research paper "What Would the Matrix Do?: A Systematic Review of K-12 AI Learning Contexts and Learner-Interface Interactions" details the advantages and disadvantages of using AI in the classroom, including how well it influences students' learning and their progress through the curriculum [63–88]

A "Literature Review of the Reciprocal Value of Artificial and Human Intelligence in Early Childhood Education" is presented by Lucrezia Crescenzi-Lanna. The results of a five-stage study showed, for example, that there are still restrictions on the use of AI in preschools and kindergartens, mostly pertaining to regulations meant to safeguard students' personal information [89–100].

An increasing amount of study on artificial intelligence (AI) in the classroom has been highlighted in the article "At the Intersection of Human and Algorithmic Decision Making in Distributed Learning" written by Paul Prinsloo, Sharon Slade, and Mohamad Khalil. At four critical points in the learning process, the essay lays forth a framework to think about robot autonomy [101–112].

In "A Systematic Review of Conversational AI in Language Education: Focusing on the Collaboration with Human Teachers," Hyangeun Ji, Insook Han, and Yujung Ko give evidence of human-computer collaboration from 24 investigations. Conversational AIs can enhance human intellect and reduce human instructors' burden through classroom orchestration, according to the findings [113–118]. They should be integrated into future language teaching programs.

According to "In-Service Teachers' (Mis) Conceptions of Artificial Intelligence in K-12 Science Education," the K-12 curriculum might benefit from the incorporation of AI-related resources, competencies, and lessons. Antonov Yusif and Brian Abramowitz discuss the consequences for pre-service and in-service teacher training on the use of

artificial intelligence (AI) in K-12 classrooms.

Several obstacles are highlighted by Philippe J. Giabbanelli, Andrew A. Tawfik, and Bao Wang as reasons why teachers do not widely use the assessment tools that are now available. Hence, "Designing the Next Generation of Map Assessment Systems: Open Questions and Opportunities to Automatically Assess a Student's Knowledge as a Map" delves into three unanswered problems and finds ways to leverage AI for the creation of assessment systems that will be used in the future [118–124].

The authors of "AI-Assisted Programming Question Generation: Constructing Semantic Networks of Programming Knowledge by Local Knowledge Graph and Abstract Syntax Tree" contend that most of the time, teachers still rely on crude technical tools to generate programming questions. With the goal of assisting educators in creating programming questions and expanding assessment items, Cheng-Yu Chung, I-Han Hsiao, and Yi-Ling Lin provide a knowledge-based programming question creation approach.

The two-way street of AI and HU in the classroom

This special edition of the journal gives conceptual clarity, empirical proof, and practical consequences for a new area of study in education research through nine articles that span a broad variety of topics related to AI and LT in the classroom. Here are some potential obstacles that may be addressed by future studies on human-machine collaboration in the classroom:

• A solid theoretical groundwork is necessary for a multi-faceted understanding of the intricacies, paradoxes, and challenges of augmenting machine and human intelligence in education. • A practical, adaptable, and strong set of tools is required for stakeholders in the educational setting to effectively engage with artificial and human intelligence. The ability for educational stakeholders to comprehend the underlying algorithms, data, mechanisms, and values is crucial for the augmentation of artificial and human intelligence. This transparency allows them to assess the machine's decision-making process and identify instances of bias or unfairness. There has to be professional development on artificial intelligence and its uses in education, and those involved in educational settings need to make sure they have the time, knowledge, money, and resources to make it happen.

This study adds to the expanding body of knowledge on the topic of integrating AI and its augmentation with human stakeholders in educational contexts by providing a theoretical framework, insightful findings, innovative frameworks, and practical implications that will motivate future high-quality research studies. The guest editors of this issue would like to express their deepest gratitude to the editor of the Journal of Research on Technology in Education, as well as the many reviewers who contributed to the volume's high standard of quality

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