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27 September 2024
Kahramanmaraş Teknokent, Kahramanmaraş Sütçü İmam University

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PREFACE
ÖNSÖZ

Educational approaches and practices cannot be thought in separate from historical and social realities and scientific/technological developments in society. The characteristics of the period we live in and the scientific and technological developments affect the structure and functioning of the society while, at the same time, reflecting on education as a social institution in various forms. Issues and notions frequently discussed in recent years such as 21st century competencies, individualization in education, values education, augmented reality, and artificial intelligence are some indicators of this reflection.

EDUCCON, first held in 2017, is set out to construct an educational agenda through discussing new concepts and practices in the field of educational sciences. Towards this aim, what is meant by "new" may be the development or application of a new technology, new concept, theoretical approach, teaching method, instructional model, educational program, philosophical approach or alternative school architecture. In 2018 EDUCCON main theme was EDUCATION 4.0, the notion that reflects practices and understandings in science and technology that moved into societal agenda through the term INDUSTRY 4.0. In 2020, EDUCCON is going to be held as a virtual conference with the theme Empowering Teaching. EDUCCON 2020 will energize and inspire the scientists and teachers whose job is to teach in new-normal. In 2020 EDUCCON main theme was Empowering Teaching. Most presented studies demonstrated the development of a teaching philosophy and how to apply evidence-based teaching in lessons from the point of "new normal" view, considering after COVID-19 Pandemic. EDUCCON in 2022 was focalized on Digital Competence & STE(A)M Education. The conference papers include latest scientific developments and experiences in STE(A)M education practices and Digital Competence, as well as papers from other fields of educational sciences.

EDUCCON 2024 is particularly focuses on (but not districted to) Artificial Intelligence (AI) and robotics in education. AI holds promise for various educational aspects, including planning, assessment, material development, and personalization. AI's impact in education is debated by researchers, practitioners, and policymakers. Ethical concerns exist, leading to varied stances among countries. Empirical research and theoretical conclusions are needed. EDUCCON 2024 is also address the role of robotics in education from preschool to university level. It aims to develop a sustainable

framework for robotics education, including curricula and resources. Robotics is highlighted as a learning object and tool within the frame of the technology and engineering and the currently emerging in educational movements. In addition to current applications of AI and robotics in education, future projections require attention. EDUCCON aims to facilitate discussions on these topics, shaping the field's direction. The EDUCCON 2024 conference program consists of invited speeches, paper presentations, and training sessions.

EDUCCON 2024 is organized as final conference of Robot Cooperation Project. The Robot Cooperation (RoboCoop) Project, funded by the European Union and coordinated by Kahramanmaraş Sütçü İmam University in Türkiye, was launched in 2022. The project aims to develop comprehensive educational programs and materials for social humanoid robots, enhancing human-robot collaboration and ensuring safety. With multiple European partners, RoboCoop focuses on practical applications in various industries.

Prof.Dr. Mehmet TEKEREK
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SCIENTIFIC PROGRAM
BILIMSEL PROGRAM

ROBO COOP ROBOT COOPERATION
EDUCCON EDUCATION CONFERENCE 2024

Program Outline

Face to face (Kahramanmaraş Teknokent Conference Hall)		Online	
8:30	REGISTRATION		
9:00	Opening speeches		
9:30	Invited Speaker: **Prof.Dr. S.Sadi Seferoğlu**		
10:00	Pepper		
10:15	Break	10:15	PPS-3 (Lang: EN) Chair: Prof Dr. Hakan Tüzün
10:30	Invited Speaker: **Dr. Hasan Tınmaz**		
11:00	Sponsored Presentation by Robot Sepeti Moderator: Prof.Dr. Mehmet Tekerek		
11:20	Invited Speaker: **Dr. Susam Dündar Işık & Arda Işık**	11:15	PPS-4 (Lang: EN) Chair: Prof. Dr. Sencer Çorlu
11:35	Break		
11:45	Invited Speaker: **Assoc. Prof. Dr. Burak Şişman**		
12:15	Invited Speaker: **Assoc. Prof. Dr. Magdalena Palacz**	12:15	PPS-5 (Lang: EN) Chair: Dr. Fatma Coşkun
12:45	Break		
13:00	PPS-1 (Lang: TR) Chair: Assoc. Prof. Dr. Reyhan Ağçam	13:00	PPS-6 (Lang: EN) Chair: Dr. Hasan Tınmaz
13:15			
13:30	Lunch	13:45	Lunch
14:15	Invited Speaker: **Assoc.Prof.Dr. Adem Tekerek**	14:15	TS-2 (Lang: EN) Moderator: Assoc. Prof. Dr. Ferhat Karakaya
14:45	Invited Speaker: **Prof.Dr. Javier Sánchez-García & Dr. Luis Callarisa-Fiol**		
15:15	Break	15:15	PPS-7 (Lang: TR) Chair: Prof.Dr. Bayram Coştu
15:30	TS-1 (Lang: TR) Moderator: Şerife Durna	16:00	PPS-8 (Lang: TR) Chair: Prof.Dr. Salim Sever
16:15	PPS-2 (Lang: EN) Chair: Assoc.Prof.Dr. Magdalena Palacz	16:45	PPS-9 (Lang: TR) Chair: Dr. Tuğba Abanoz
17:30	Closing Ceremony		

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ROBO COOP ROBOT COOPERATION
EDUCCON 2024 EDUCATION CONFERENCE

Detailed Program

TS-1

15.30	16.15	Training Session-1	Presentation and Q&A Language: TR
Face to Face		Customizable AI-Powered Learning Platform: Akıllı Eğitim Asistanı *by* Ekrem Tekin (CEO, The Blue Red, Türkiye)	

TS-2

14.15	15.15	Training Session-2	Presentation and Q&A Language: EN
Passcode: educcon		Qualitative Data Analysis with Databeeg (AI Supported) by Fırat Yılmaz (Data Scientist, Databeeg, Türkiye)	

PPS-1

13.00	13.30	Paper Presentation Session-1 Chair: Assoc.Prof.Dr. Reyhan Ağçam	Presentation and Q&A Language: TR
Face to Face		*Human-Robot Interaction in Education: A Systematic Mapping Study* Zeynep Beyazaslan (Kahramanmaraş Sütçü İmam University)*; Hamza Aydemir Gök (Kahramanmaraş İstiklal University); Mehmet Tekerek (Ankara University); Mehmet Gök (Kahramanmaraş İstiklal University) *Educational data privacy: How do Turkish scholars consider it?* Mehmet Boz (Ministry of National Education)*; Recep Başarıcı (Ministry of National Education)	

PPS-2

16.15	17.30	Paper Presentation Session-2 Chair: Assoc.Prof. Dr. Magdalena Palacz	Presentation and Q&A Language: EN
Face to face		*Predicting Student Performance with Machine Learning Algorithms* Semiha Güngör (Ankara Hacı Bayram Veli University)*; Birnaz Kanbur Tekerek (Gazi University); Adem Tekerek (Gazi University) *Teachers' Metaphorical Perceptions of Artificial Intelligence* Şerife Durna (Kahramanmaraş Sütçü İmam University)*; Selçuk Kaba (Ministry of National Education); Kadir Demirkaynak (Ministry of National Education); Ahmet Akküncü (Ministry of National Education) *Critical Review of AI Competency Framework for Teachers* Şerife Durna (Kahramanmaraş Sütçü İmam University)*; Aslıhan İleri (Ankara Yıldırım Beyazıt University) ; Haris Haq (Georgia Institute of Technology) *Mobile Learning Enhanced by AI in Distance Education: A Comprehensive Examination of Conceptual, Historical, Technological, Pedagogical, and Accessibility Dimensions* Münevver Calayir (Bahçeşehir University)* *Examining the Application of a Word Association Test Through a Social Humanoid Robot from the Perspective of Human-Robot Interaction* Fatma Coşkun (Kahramanmaraş Sütçü İmam University)*; Hamza Aydemir (Kahramanmaraş İstiklal University); Mehmet Gök (Kahramanmaraş İstiklal University); Mehmet Tekerek (Ankara University)	

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PPS-3

10.15	11.15	Paper Presentation Session-3 Chair: Prof.Dr. Hakan Tüzün	Presentation and Q&A Language: EN
Passcode: educcon		*Artificial Intelligence in Education: Current Applications and Future Prospects* Aryan Chopra (Vellore Institute of Technology Vellore India); Harshita Patel (VIT, Vellore); Dharmendra Singh Rajput (VIT Vellore India)* *The Integration of AI, Robotics and Assistive Technology in Indian Higher Education for differently-abled Learners: A Study in Reference with Europe* Dharmendra Singh Rajput (VIT Vellore India)*; Harshita Patel (VIT, Vellore); Ramalingam Murugan (Vellore Institute of Technology); Kuruva Lakshmanna (VIT); Praveen Kumar Maddikunta (VIT) *A Systematic Review of Key Areas and Educational Implications of VEX Robotics Competition* Huseyin Hakan Cetinkaya (Başkent University)* *Advisory-AI: Fostering Learning Support with an LLM-powered Dialogue System* Hatice Karaaslan (Ankara Yildirim Beyazit University); Uygar Yüzsüren (İleri Veri Teknolojileri ve Danışmanlık); Özkan Kılıç (Cisco Systems Inc.); Emirhan Aslankarayiğit (Ankara Yildirim Beyazit University)*; Buğra Alptekin Sarı (Ankara Yildirim Beyazit University); Melisa Boydak (Ankara Yildirim Beyazit University); Gürkan Er (Ankara Yildirim Beyazit University); Melikşah Bozkurt (Ankara Yildirim Beyazit University)	

PPS-4

11.15	12.15	Paper Presentation Session-4 Chair: Prof.Dr. Sencer Çorlu	Presentation and Q&A Language: EN
Passcode: educcon		*Teacher Competencies and Teacher Training in the Age of AI and Robotics in Education* Ghulam Mustafa (International Islamic University Islamabad)* *Empowering Pre-Service STEM Teachers: An AI Competency Module Based on the AIcID Model* Bersu Ansen (Boğaziçi University)* *Investigation of the Opinions of Classroom Teachers Working in Science and Art Centers on Artificial Intelligence* Deniz Görgülü (Selçuklu Bilim ve Sanat Merkezi)*; Mete Sipahioğlu (Samsun University); Dr. Martina Brazzolotto (Centro Didattica Talenti) *Preschool Teachers' Experiences and Views on Artificial Intelligence* İlkay Ulutaş (Gazi University); Emine Bozkurt Polat (Kahramanmaraş Sütçü İmam University); Feyza Aydin Bölükbaş (Aksaray University)*; Kübra ENGİN (Gazi University); Kadriye Selin Budak (Bilecik Şeyh Edebali University)	

PPS-5

12.15	13.00	Paper Presentation Session-5 Chair: Dr. Fatma Coşkun	Presentation and Q&A Language: EN
Passcode: educcon		*AI tools for writing: Can they really improve the quality of texts written in Turkish?* Arzu Atasoy (Gaziantep University)*; Saieed Moslemi Nezhad Arani (Higher Education Complex of Bam) *The Role of AI in Transforming Language Education: A Blueprint for Personalized Learning* Saieed Moslemi Nezhad Arani (Higher Education Complex of Bam); Arzu Atasoy (Gaziantep University)* *University Admission Prediction Machine Learning Modeling by Evaluting Student Profile* Sunil Kumar (Vellore Institute of Technology, Vellore)*; Ponnaganti Sahithi (Vellore Institute of Technology, Vellore)	

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PPS-6

13.00	13.45	Paper Presentation Session-6 Chair: Dr. Hasan Tınmaz	Presentation and Q&A Language: EN
Passcode: educcon		*Preliminary Insights into AI Anxiety and Attitudes Among Bangladeshi Students in Higher Education* Yunze Liu (Woosong University); Hasan Tınmaz (Woosong University)* *Adolescent Perceptions of Artificial Intelligence (AI) in Education and Its Role in Tackling Global Challenges* Merve Çolakoğlu (Balıkesir University)*; Huseyin Colak (Northeastern Illinois University); Semiral Öncü (Balikesir University) *AI Prompt Rubric: Validity and Reliability Study* Nurcan İnan (Marmara University)*; Sibel Cengizhan (Marmara University); Seyfi Kenan (Marmara University)	

PPS-7

15.15	16.00	Paper Presentation Session-7 Chair: Prof.Dr. Bayram Coştu	Presentation and Q&A Language: TR
Passcode: educcon		*Pilot Study of Assessment Tools for Entrepreneurship Skills-Specific Pedagogical Content Knowledge: AI and Preservice Teachers' Performance* Kadriye Bayram (Nevşehir Hacı Bektaş Veli University)*; Oktay Aslan (Necmettin Erbakan University) *Teachers' Usage and Competences of Productive Artificial Intelligence* Veysel Bilal Arslankara (Akyazı District Directorate of National Education)*; Elif Arslankara (İŞMONT Halil Bildirici Vocational and Technical High School); Ertuğrul Usta (University of North Texas at Dallas) *Artificial Intelligence in Education: The Use of Artificial Intelligence in Academic Libraries* Fatih Kaleci (Necmettin Erbakan University)*; Ebru Kaya (İhsan Doğramacı Bilkent University)	

PPS-8

16.00	16.45	Paper Presentation Session-8 Chair: Prof.Dr. Salim Sever	Presentation and Q&A Language: TR
Passcode: educcon		*A New Method in Education: Artificial Intelligence Summary* Arş. Gör. Sacide Tüfekçi (Kahramanmaraş Sütçü İmam University)*; Prof. Dr. Ökkeş Alpaslan Gençay (Kahramanmaraş Sütçü İmam University); Georgian Badicu (Transilvania University of Brasov) *A View of sports training from The Metaverse World* Arş. Gör. Sacide Tüfekçi (Kahramanmaraş Sütçü İmam University)*; Ökkeş Alpaslan Gençay (Kahramanmaraş Sütçüimam University); Badicu Georgian (Transilvania University of Brasov) *Artificial Intelligence in Education: A Bibliometric Analysis* Seher Keser Ateş (Necmettin Erbakan University)*; Fatih Kaleci (Necmettin Erbakan University); Ahmet Erdoğan (Necmettin Erbakan University)	

PPS-9

16.45	17.30	Paper Presentation Session-9 Chair: Dr. Tuğba Abanoz	Presentation and Q&A Language: TR
Passcode: educcon		*Evaluating the Performance of Artificial Intelligence in Mathematics Education: A Focus on ChatGPT-4's Handling of Proportional Reasoning Problems* Yasin Memis (Niğde Provincial Directorate of National Education)* *The GPT Series from Past to Future and the use of the GPT in Education* Zeliha Gökçe (Erciyes University)*; İshak Afşin Kariper (Erciyes University) *Determining the Cognitive Structures of Prospective Science Teachers Regarding the Concept of Artificial Intelligence via Word Association Test* Hasan Gökçe (Ministry of National Education)*	

TEKNOKENT kahramanmaraş

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İÇİNDEKİLER

TEACHER COMPETENCIES AND TEACHER TRAINING IN THE AGE OF AI

INVITED SPEECHES

Must be Co-creation 5.0: The FLE–Social Humanoid Robot Team and Firms' Outcomes. The Tin Woodman Paradox

Prof.Dr. Javier Sánchez-García - Dr. Luis Callarisa-Fiol
Universitat Jaume I de Castellón – UJI, Spain

ABSTRACT
The objective of this research is to examine the impact of co-creation 5.0 on service outcomes and to explore the moderating effect of the frontline employee (FLE) and social humanoid robot (SHR) team. Attribution theory serves as the conceptual framework. Six causality hypotheses are proposed, with a focus on the moderating role of the FLE–SHR team. The empirical investigation was carried out in two hotel lobbies, where SHRs provided information to customers for one week each. Qualitative research was conducted through observation and personal interviews with employees and customers. Customer evaluations were gathered using a questionnaire based on validated scales from the literature. Findings reveal that, in the current technological context, the FLE is seen by customers as primarily responsible for firms' outcomes, while the SHR is perceived as a complementary member of the service delivery team. However, staff view the SHR negatively and do not consider it a true partner. Interestingly, customers assign responsibility to the SHR, and an increase in its social-emotional capabilities results in higher responsibility attribution.

EĞİTİMDE DİJİTAL DÖNÜŞÜM SÜRECİNDE YAPAY ZEKÂ ARAÇLARININ KULLANIMI [THE USE OF ARTIFICIAL INTELLIGENCE TOOLS IN THE DIGITAL TRANSFORMATION PROCESS IN EDUCATION]

Prof. Dr. S. Sadi SEFEROĞLU
Hacettepe University, Türkiye

ABSTRACT
Dijital çağda eğitimin toplumsal işlevi ve teknolojik gelişmelerin etkileri son yıllarda daha sık konuşulan konulardır. Eğitim, toplumların gelişimi için her zaman önemli bir unsur olmuştur, ancak Bilgi ve İletişim Teknolojilerinin (BİT) yaygınlaşması, bu işlevin boyutlarını değiştirmiştir. Yeni teknolojiler, özellikle internet ve sosyal medya, bilginin paylaşımı ve erişiminde devrim yaratmış; internet kullanıcı sayıları yıllar içinde hızla artmıştır. Bu değişim, dijital çağda eğitimin paradigmasını kökten değiştirmese de yeni yaklaşımların benimsenmesini zorunlu kılmıştır.

Türkiye'deki internet, mobil cihaz ve sosyal medya kullanımı da bu dönüşümün bir parçası olarak dikkat çekmektedir. İnternet erişim oranları ve mobil cihaz sahipliği giderek artarken, Türkiye'de bireylerin internette ve sosyal medyada geçirdiği süreler, dijital dünyadaki etkileşimlerini anlamak açısından kritik veriler sunmaktadır. Dünya genelinde sosyal medya platformlarının kullanıcı sayıları da, dijital iletişimin ne kadar hızlı büyüdüğünü gözler önüne sermektedir. Bu dijitalleşme, aynı zamanda "veri tsunamisi" adı verilen büyük veri akışına ve bu verilerin anlamlandırılmasının gerekliliğine yol açmaktadır. Ancak, dijital dünyanın sunduğu fırsatlar kadar, risk ve tehditler de söz konusudur. Özellikle, dijital vatandaşlık kavramı bu noktada önem kazanmakta; bireylerin dijital ortamda nasıl hareket etmeleri gerektiğine dair bilinç kazanmaları gerekmektedir. Öngörülemeyen kaygılar ve değişmeyen genellemeler, dijital araçların doğru seçimi ve verimli kullanımı konusunda bireylere sorumluluk yüklemektedir.

Yapay zekâ teknolojilerinin hızla yayılması, öğrenme-öğretme süreçlerinde de büyük değişimlere yol açmaktadır. Yapay zekâ (YZ), farklı alanlarda kullanılmakla birlikte, eğitimdeki uygulamaları giderek artmaktadır. ChatGPT gibi yapay zekâ araçları, bilginin aktarımı ve kişiselleştirilmiş öğrenme imkânı sunarak eğitimi dönüştürebilecek potansiyele sahiptir. Ancak, bu teknolojilerin etkileri ve amaçları konusunda dikkatli olmak, yapay zekânın eğitime entegrasyonunu doğru yönetmek gerekmektedir. Dijital teknolojilerin hızla yayılmasıyla birlikte, yaşam boyu öğrenme

anlayışı da daha önemli hale gelmiştir. Teknolojiyi doğru kullanmak, sadece bireylerin kariyerlerinde değil, toplumsal hayatta da etkin ve başarılı olmalarını sağlayacaktır. Dijital yetkinlikler ve ulusal/uluslararası standartlar çerçevesinde, bireylerin bu yeni dünyaya uyum sağlamaları, eğitimin temel hedeflerinden biri haline gelmiştir.

ARTIFICIAL INTELLIGENCE BASED ENGAGEMENT APPLICATIONS IN EDUCATION

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ABSTRACT

Artificial Intelligence (AI) is revolutionizing education by offering personalized learning experiences, improving teaching methods, and streamlining administrative tasks. AI-powered systems can adapt educational content to individual students' learning needs, providing personalized support and helping students progress at their own pace. This personalized approach benefits learners with different abilities and learning styles, ensuring more equitable education.

Intelligent tutoring systems (ITS) powered by AI offer real-time feedback and assistance, simulating the role of a human tutor. These systems identify student weaknesses and provide tailored interventions, helping to close learning gaps. AI also enhances learning environments by integrating with virtual and augmented reality, making education more interactive and engaging.

In addition to its impact on learning, AI improves the efficiency of administrative processes. Automated grading systems reduce the workload for teachers, allowing them to focus on student development. AI tools can also assist in scheduling, monitoring student performance, and predicting educational outcomes, which helps institutions make data-driven decisions. AI plays a key role in making education more accessible, offering tools like speech recognition, text-to-speech, and translation services to support students with disabilities. However, the widespread use of AI raises concerns about privacy, data security, algorithmic bias, and the potential loss of jobs for educators.

Despite these challenges, AI offers immense potential to transform education. By personalizing learning, supporting teachers, and improving educational access, AI contributes to more efficient, engaging, and inclusive education systems. Careful implementation is essential to address ethical concerns and maximize the benefits of AI in education.

ROBOTLAR ATALARIMIZ GİBİ ALETLER İCAT EDEBİLİR Mİ? [CAN ROBOTS INVENT TOOLS LIKE OUR ANCESTORS?]

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ABSTRACT
Yaklaşık 3.3 milyon yıl önce atalarımız ilk aleti icat ettiler. Yeni bir gereç hayal edip, bir taşı yontarak onu bir şeyi kesmek için verimli bir araca dönüştürdüler. Alet yapımı, insanlık için olağanüstü bir teknolojik dönüm noktasıydı ve çevremiz üzerinde benzeri görülmemiş bir kontrol sağlamıştır. Bu yetenek, öngörü, üstbiliş, soyutlama ve yaratıcılık gibi bilişsel kabiliyetler gerektirmektedir ve bunların tümü, insanlarda farkındalıkla ilişkilidir. Günümüzdeki yapay zeka sistemleri ve robotlar ise bu yeteneklerden büyük ölçüde yoksundur. Kendi eylemlerinin sonuçlarını izleyip değerlendiremedikleri gibi, çevresel zorluklara yanıt olarak yeni aletler geliştirebilme kapasitesine de sahip değillerdir. Peki bu durumda robotların alet icat etmesi mümkün müdür?

Approximately 3.3 million years ago, our ancestors invented the first tool. They imagined a new utensil and shaped a stone, turning it into an efficient tool for cutting. Tool creation was an extraordinary technological milestone for humanity, providing unprecedented control over our environment. This ability required cognitive skills such as prediction, metacognition, abstraction, and creativity—all of which are associated with awareness in humans. However, today's artificial intelligence systems and robots largely lack these capabilities. Not only are they unable to monitor and evaluate the consequences of their actions, but they also lack the capacity to develop new tools in response to environmental challenges. So, is it possible for robots to invent tools in this case?

HOW DO WE LEARN? THE NEUROSCIENTIFIC BACKGROUND OF THE LEARNING PROCESS

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ABSTRACT
The paper deals with basic information about why and how we learn, what makes learning more effective, what hinders learning and why some learning methods work and others do not. The pure biology of the process. Today's available research methods make it possible to identify such determinants, and knowledge in this area can effectively support both teachers and students in the effective process that is learning.

AN OVERVIEW OF ARTIFICIAL INTELLIGENCE APPLICATIONS IN EDUCATION IN EAST ASIA: A FOCUS ON SOUTH KOREA

Dr. Hasan Tınmaz
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ABSTRACT
Artificial Intelligence (AI) is transforming various sectors, with education being one of the most impacted domains. This speech provides an in-depth overview of AI applications in education across East Asia, with a particular focus on South Korea. The speech highlights how AI technologies are reshaping educational practices, enhancing learning experiences, and addressing the challenges faced by educational institutions. South Korea, renowned for its advanced technological infrastructure, serves as a prominent example of AI integration in education. The speech examines several key AI applications, including intelligent tutoring systems, personalized learning platforms, and AI-driven administrative tools. These technologies are analyzed in the context of their impact on student engagement, learning outcomes, and administrative efficiency. Furthermore, the speech explores the challenges associated with AI adoption in education, such as ethical considerations, data privacy concerns, and the need for equitable access to technology. By reviewing current trends and case studies from South Korea, the speech provides insights into the practical implications of AI in education and offers recommendations for leveraging these technologies to enhance educational outcomes. This overview contributes to the broader understanding of AI's role in shaping the future of education in East Asia and provides a framework for policymakers, educators, and technology developers to navigate the evolving educational landscape.

THE RESULTS OF THE SURVEY OF NEEDS IN CONTEXT OF ROBOCOOP PROJECT

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ABSTRACT
This presentation will explore the transformative potential of social humanoid robots in education, focusing on their use as teaching aids, classroom assistants, and interactive learning tools. Drawing on findings from the RoboCOOP project's Survey of Needs, the presentation will address how robots like Pepper can bridge the gap between the private sector and academia, fostering innovative teaching methods and enhancing student engagement. How the results of the needs analysis formed the curriculum will also be explained. Key insights will include the benefits, challenges, and future directions of integrating humanoid robots into the educational landscape, emphasizing their role in supporting individualized learning, improving social interaction among students, and aiding teachers in daily tasks. The presentation aims to highlight the potential for these technologies to reshape modern education by providing data-driven strategies and practical examples.

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PRESENTATIONS

A SYSTEMATIC LITERATURE REVIEW OF HUMAN-ROBOT INTERACTION IN EDUCATIONAL CONTEXTS

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ABSTRACT
In the educational context, human-robot interaction involves using robots to enhance students' learning experiences and outcomes. In the field of Human-Robot Interaction (HRI), many studies examine human-robot interaction; however, no systematic review of these studies exists. This study aims to systematically review the relevant literature to better understand the impact of HRI in educational settings. A search of the Web of Science and ScienceDirect databases yielded 59 studies using the keywords "human-robot interaction" and "education," which was reduced to 19 studies after eligibility assessment. In the review process, criteria such as the purpose of the studies, the referenced theory and model, the educational variables examined (academic performance, motivation, social interaction, etc.), the method used, the sample group and size, the role of the robot, the country, the discipline/course/subject, data collection tools, the results of the study, and the recommendations provided to teachers, practitioners, and developers were evaluated. This study will serve as a reference point for evaluating the potential of using robots in education, assessing the effectiveness of current practices, and guiding future research and application development processes. The systematic study of HRI in education will expand the body of knowledge in this field and support more effective integration of educational technologies and robotics applications. Additionally, it will offer strategic insights into optimizing the use of robots in education, providing valuable recommendations for teachers, practitioners, and developers.

Keywords: Classroom-interactions, Educational robotics, Human-robot interaction, Social robots, Systematic literature review.

EDUCATIONAL DATA PRIVACY: HOW DO TURKISH SCHOLARS CONSIDER IT?

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ABSTRACT
The increase in the volume and diversity of data stored in the field of education has made data access much easier for researchers, opening new areas of study but also introducing risks in terms of data privacy. Researchers must take measures to ensure data privacy as both an ethical and legal responsibility in data-driven studies. The aim of this study is to determine which measures are taken to ensure data privacy and how carefully this issue is addressed in educational research conducted in Türkiye. To this end, educational data-based studies conducted in the last 10 years were searched on the DergiPark academic journal platform. To identify the studies that serve as the source of this research, a search was conducted on the platform using the terms "learning analytics" and "educational data mining." Of the 41 articles retrieved from this search, 15 were excluded because they were either review papers or conceptual papers. The remaining 26 research articles formed the data set for this study. A paper evaluation form, prepared by the researchers, was used to determine whether attention was paid to data privacy in the studies and, if so, which measures were taken to prevent the violation of data privacy. According to the findings, data privacy was mentioned in only 6 out of the 26 examined articles, but none of these 6 articles provided an explanation of the methods used to ensure data privacy. It is recommended that future research pays attention to data privacy and takes measures to protect personal privacy. In applying these measures, the methods used should be explained in line with the nature of the scientific method, thus ensuring transparent and ethical scientific progress.

Keywords: Data privacy, Data privacy methods, Educational data, Educational data privacy

PREDICTING STUDENT PERFORMANCE WITH MACHINE LEARNING ALGORITHMS

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ABSTRACT
Education is of vital importance in the sustainable development of societies and in increasing the quality of life of individuals. Predicting students' academic success accurately allow educators to plan education support programs in a better way. In this way, it becomes more possible to provide solutions that are suitable for students' needs and to optimize educational processes. While traditional methods have limitations in predicting student performance, the application of big data analytics and machine learning techniques in education has significantly enhanced the accuracy of these predictions. This study examines various machine learning algorithms aimed at predicting student performance. The algorithms used include Decision Tree, Random Forest, Gradient Boosting, SVM, LGBM, Bagging, XGBoost and AdaBoost. In the research conducted using different approaches and techniques, it was seen that the highest accuracy rate of 92% in predicting students' GPA was obtained with the LightGBM (LGBM) algorithm.

Keywords: Machine Learning Algortihm, Student Performance Prediction

TEACHERS' METAPHORICAL PERCEPTIONS OF ARTIFICIAL INTELLIGENCE

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ABSTRACT
This study aims to determine teachers' perceptions of the concept of artificial intelligence through metaphors. The study group of the research consists of 108 teachers working in public schools in Kahramanmaraş province. The study was conducted using phenomenology, one of the qualitative research methods. The data were collected online through a semi-structured interview form developed by the researchers. The data were analysed using content analysis method and various categories were created. Artificial intelligence tools were used in the analysis process. In the content analysis phase, the demographic characteristics, frequency values and ratios of the participants were prepared as a table using ChatGPT. In addition, the metaphors were categorised and their characteristics and responses were detailed and presented with frequencies and ratios. The metaphors were collected in six categories: 'Artificial Intelligence as Development and Innovation', 'Artificial Intelligence as Efficiency and Time Management', 'Artificial Intelligence as Guide and Guide', 'Artificial Intelligence as Education and Information Source', 'Artificial Intelligence as Help and Support' and 'Artificial Intelligence as Transport and Travel'. In the study, it was determined that 108 teachers produced a total of 64 different metaphors about the concept of artificial intelligence. The most frequently produced metaphors were 'Helper' and 'Convenience' (5 each), 'Assistant' and 'Magic Wand' (4 each), 'Guide', 'Automatic Tool' and 'Laziness' (3 each), and 'One-to-one Teaching', 'Magic', 'Car', 'Unobstructed Running' and 'Surfing' (2 each). As a result, it was determined that teachers characterised artificial intelligence as helpful, development, efficiency, time management, information source and supportive.

Keywords: Artificial intelligence, Education, Teacher

CRITICAL REVIEW OF AI COMPETENCY FRAMEWORK FOR TEACHERS

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ABSTRACT
As the educational landscape undergoes a period of significant transformation, the integration of artificial intelligence into the classroom has become increasingly prevalent. This has led to a pressing need for the development of a robust competency framework, with the aim of equipping teachers with the necessary skills and knowledge to effectively utilise these transformative technologies (Zulkarnain & Yunus, 2023; Ng et al., 2023; Oh & Ahn, 2024; Çelik et al., 2022). The objective of this paper is to identify the core competencies that educators must possess in order to fully leverage the potential of AI in improving teaching and learning outcomes. The integration of AI in education offers significant potential, including the provision of personalised learning experiences, data-driven insights and increased efficiency in administrative tasks (Owoc et al., 2021). Nevertheless, the successful implementation of AI-based technologies in the classroom is contingent upon the resolution of the challenges associated with teacher readiness and digital competencies. It is possible that teachers may lack the technological experience required to effectively analyse data, create customised learning pathways, or leverage AI-driven tools for assessment and feedback generation. In order to address this issue, it is crucial to develop a comprehensive competency framework that empowers teachers to navigate the complexities of AI-enabled education. This research will review the AI Competency Framework for Teachers released by UNESCO with a critical view.

Keywords: AI competency framework, Education, Teacher training

MOBILE LEARNING ENHANCED BY AI IN DISTANCE EDUCATION: A COMPREHENSIVE EXAMINATION OF CONCEPTUAL, HISTORICAL, TECHNOLOGICAL, PEDAGOGICAL, AND ACCESSIBILITY DIMENSIONS

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ABSTRACT
This research investigates the complex context of mobile learning enhanced by AI as one of the branches of educational technology, providing insights on its definition, history, and types, and revealing how it has changed distance education for the better. The research is exhaustive in understanding mobile learning by looking at the theoretical, conceptual and pedagogical aspects. Importantly though, artificial intelligence (AI) is yet another area that is emerging as a core driver for the sprinting development of mobile learning. AI provides a broad perspective for learners through focusing on their behaviors and preferences within the learning process. This means that mobile content and learning activities have to be varied to meet the needs of learners using mobile learning tools. The absence of in-person mentoring is compensated by the presence of AI-assisted chatbots and virtual tutors, who provide on-the-spot help as well as feedback to learners, which enhances their engagement and independence. The integration of AI is also increasing the scope of evidence-based decision making within the field of education. Predictive analytics assist the educationists and educational institutions in observing the students' performance, spotting indicators of disengagement early on, and responding appropriately enhancing the learning process. The inclusion of learning mobile solutions with the help of the AI gives ways for more adaptive and broad-sided education systems even in vast or heterogeneous educational settings. In addition, beyond the present level of artificial intelligence application, more functionality of the technology will be expected especially when it comes to new technologies such as virtual reality (VR), augmented reality (AR) and 5G. In most cases, using AI, these solutions permit soaking and mobile education which is context wise and real time suitable for learning. In this case, it could use both virtual reality (VR) and augmented reality (AR) to carry out and adapt the learning processes and simulations depending on the style of the pupil and the status they are at that point in time. The research also looks at the possible outcomes of policy and institutional structures emphasizing the importance of regulatory frameworks, AI based platforms and ongoing training for education for the effective utilization of these technologies. The paper comes to an end by considering one more

area of importance – the state of mobile learning practices in Türkiye, its evolution, the problems it faces and the way it is incorporated into the national educational policy. In view of the warming up of technologies of AI, VR, AR and 5G, it is apparent that mobile learning is still vibrant and innovative in the aspect that it needs improvement upon, and more research appropriately carried out.

Keywords: AI, Flexible, Mobile learning, mLearning, Self-pace

EXAMINING THE APPLICATION OF A WORD ASSOCIATION TEST THROUGH A SOCIAL HUMANOID ROBOT FROM THE PERSPECTIVE OF HUMAN-ROBOT INTERACTION

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ABSTRACT
This research aims to examine the application of the Word Association Test (WAT) using a Social Humanoid Robot (SHR) from the perspective of human-robot interaction. The study is designed as an action research, one of the qualitative research designs, and the sample consists of 40 students enrolled in the English Language Teaching program. The research was conducted in four phases. In the first phase, students were taught about the concepts of "Validity, Reliability, and Usability." In the second phase, a WAT was developed to assess their cognitive structures related to these topics, and the words "Validity," "Reliability," and "Usability" were chosen as stimuli. A software was developed for the Pepper robot to administer the test, utilizing artificial intelligence-supported speech recognition to convert students' responses into text on the robot's tablet. In the third phase, the WAT was administered first through the SHR and then using the traditional paper-and-pencil method. In the final phase, the test analyses were conducted separately by the SHR and experts, and feedback was provided to the students. Semi-structured interviews were also conducted with the students to gather their experiences with both the SHR and traditional WAT applications. The data were analyzed using content analysis.

Keywords: Human robot interaction, Social humanoid robot, Word association test

ARTIFICIAL INTELLIGENCE IN EDUCATION: CURRENT APPLICATIONS AND FUTURE PROSPECTS

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ABSTRACT
The integration of Artificial Intelligence (AI) in education has been rapidly evolving, promising to revolutionize various aspects of teaching and learning. This paper examines the current applications of AI in educational settings and explores potential future developments. Through a comprehensive literature review and analysis of existing AI-powered educational tools, we investigate the impact of AI on curriculum planning, student assessment, personalized learning, and educational material development. The study also addresses the ethical considerations and challenges associated with AI implementation in education. Our findings suggest that while AI offers significant potential for enhancing educational outcomes, careful consideration must be given to issues of equity, privacy, and the changing role of educators. The paper concludes by proposing a framework for the responsible integration of AI in education and outlining areas for future research.

Keywords: Artificial intelligence, Education Technology, Educational Assessment, Ethics in AI, Personalized learning

THE INTEGRATION OF AI, ROBOTICS AND ASSISTIVE TECHNOLOGY IN INDIAN HIGHER EDUCATION FOR DIFFERENTLY-ABLED LEARNERS: A STUDY IN REFERENCE WITH EUROPE

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ABSTRACT
This research investigates the potential of Artificial Intelligence (AI), robotics, and Assistive Technology (AT) in transforming higher education for differently-abled learners in India. By exploring the integration of these technologies, the study aims to understand their impact on accessibility, inclusivity, and overall learning experiences. The paper focuses on analyzing how AI can be leveraged to develop personalized learning environments, provide assistive technologies, and enhance communication for students with disabilities. Additionally, it examines the role of robotics in developing practical skills, promoting independence, and fostering social interaction among differently-abled students. The study contributes to the growing body of knowledge on inclusive education by highlighting the transformative potential of AI, robotics, and AT in empowering differently-abled learners in India. The existing educational reference is taken from European countries for a better understanding of the impact on the Indian scenario.

Keywords: Artificial intelligence, Assistive Technologies, Differently Abled Learners, Inclusive Education, Robotics

A SYSTEMATIC REVIEW OF KEY AREAS AND EDUCATIONAL IMPLICATIONS OF VEX ROBOTICS COMPETITION

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ABSTRACT
Robotics in education has emerged as a powerful tool for enhancing STEM learning and engaging students in practical problem-solving. Among various robotics platforms, the VEX Robotics Competition (VRC) is one of the most widely recognized robotics competitions, providing students with opportunities to develop skills in engineering, robotics, and STEM (Science, Technology, Engineering, and Mathematics). It stands out for its extensive implementation and impact on educational outcomes. This critical systematic review examines the current literature on VRC, focusing on its role in advancing educational objectives and its effectiveness in promoting student development. The review examines research from multiple databases, including Web of Science, Scopus, IEEE Xplore, and Taylor & Francis. It covers numerous topics, including the development of technical and soft skills through VRC, the impact of VRC participation on student motivation and self-efficacy, and the usefulness of VRC in fostering inclusivity and resolving gender inequality. This review provides insights into how VRC contributes to educational outcomes and identifies strengths, limitations, and gaps in the existing literature.

Keywords: Content analysis, Educational robotics, Robotics in education, VEX Robotics Competition

ADVISORY-AI: FOSTERING LEARNING SUPPORT WITH AN LLM-POWERED DIALOGUE SYSTEM

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ABSTRACT
Advisory-AI is a project that offers the potential to restructure learning support by providing students with a readily available, personalized tool to overcome their learning challenges and achieve academic success. It utilizes a Large Language Model (LLM) to deliver personalized learning support through an intentionally reflective dialogue (Kato & Mynard, 2016) structured around Cognitive Behavioral Therapy (CBT) techniques. Learners will engage with the LLM, receiving prompts and guidance to identify and challenge unhelpful thinking styles hindering their progress (based on Beck's cognitive model). This will be followed by the development of personalized action plans and accountability check points to address these obstacles. The system's accessibility and scalability will allow for widespread learner support. By measuring learner satisfaction, learning progress and the reduction in self-reported learning challenges, we aim to assess the effectiveness of this approach in empowering learners to achieve academic success.

Kato, S. & Mynard, J. (2016). Reflective Dialogue: Advising in Language Learning. Routledge.

Keywords: Cognitive Behavior Therapy (CBT), Learning advising, LLM, Personalized learning support

TEACHER COMPETENCIES AND TEACHER TRAINING IN THE AGE OF AI AND ROBOTICS IN EDUCATION

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ABSTRACT
Artificial Intelligence (AI) and robotics increasingly permeate the educational landscape, the role and competencies of teachers are undergoing significant transformation. This research paper explores the evolving demands on teacher competencies in the age of AI and robotics, focusing on the essential skills and knowledge required to effectively integrate these technologies into the classroom. The paper examines the shifts in pedagogical approaches, emphasizing the need for teachers to develop digital literacy, data-driven decision-making, and ethical awareness in the context of AI-driven educational tools. The purposive sampling technique selected 5 faculty members from different universities. A semi-structured interview guide was developed to get data from the participants. Data was analyzed thematically by facilitation of NVivo 14. Furthermore, the study highlights the implications for teacher training programs, proposing a restructured framework that incorporates AI literacy, interdisciplinary collaboration, and continuous professional development. By addressing the challenges and opportunities presented by AI and robotics, this paper aims to provide a roadmap for empowering teachers to navigate and thrive in the future of education.

Keywords: Artificial intelligence, Robotics, Teacher competency, Teacher training

EMPOWERING PRE-SERVICE STEM TEACHERS: AN AI COMPETENCY MODULE BASED ON THE AICID MODEL

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ABSTRACT
Artificial intelligence (AI) is increasingly recognized as a transformative force in education (Singh, 2023) with significant potential to enhance teaching, learning, and assessment practices. It is essential to develop both educators' and students' AI competencies to effectively integrate AI into education and successfully use it in classrooms. Hence, there is a need for teacher education programs to be AI-ready to meet both teachers' and their students' needs (Luckin et al., 2022). There are several frameworks and initiatives for developing teachers' AI competencies in the literature. This study adopts the AI competency instructional design model (AIcID) (Ng et al., 2023). The AIcID is a useful model that is developed based on three foundational frameworks: DigCompEdu, the revised TPACK extended with Bloom's Taxonomy model for AI literacy (Ng et al., 2021), and the P21 framework for twenty-first-century learning. The model is organized into four key domains: (1) teacher professional engagement, (2) instructional design, (3) content choices, and (4) student learning competencies. This study aims to introduce a nine-week-long specifically designed AI module for pre-service STEM teachers in order to develop their AI competencies regarding teaching, learning, and assessment based on the AIcID model. The design of the module informs future curriculum development and provides valuable insights for educators and researchers seeking to integrate AI into STEM teacher education effectively.

Keywords: AI competency, AI literacy, Instructional design, Teacher education

INVESTIGATION OF THE OPINIONS OF CLASSROOM TEACHERS WORKING IN SCIENCE AND ART CENTERS ON ARTIFICIAL INTELLIGENCE

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ABSTRACT
The opinions of classroom teachers at Science and Art Centers regarding artificial intelligence are crucial for ensuring the effective and responsible implementation of this technology in the education of gifted students. Therefore, this study aims to investigate the perspectives of classroom teachers at Science and Art Centers on artificial intelligence. This research will utilize a case study design, a qualitative research method, and will gather the views of 18 classroom teachers working at Science and Art Centers during the 2023-2024 academic year. The data, gathered through a semi-structured interview approach, underwent analysis via content analysis. The outcomes of the research indicate that artificial intelligence streamlines classroom processes, alleviates teachers' workloads, and enhances student engagement in lessons. Nonetheless, it was observed that deficiencies in technological infrastructure, inadequate classroom resources, and internet connectivity issues negatively impact the efficient utilization of artificial intelligence. Furthermore, the study revealed that teachers harbor concerns regarding potential ethical dilemmas arising from artificial intelligence. The research findings suggest the need for comprehensive in-service training, practical instruction, and the provision of high-quality technological resources to enhance the efficacy of artificial intelligence usage. In addition, it was highlighted that teachers emphasized the necessity of establishing ethical guidelines and usage protocols.

Keywords: Artificial intelligence, Classroom teachers, Science and art centers

PRESCHOOL TEACHERS' EXPERIENCES AND VIEWS ON ARTIFICIAL INTELLIGENCE

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ABSTRACT
In a changing and transforming world, artificial intelligence tools have been included in the education and development process like many other fields. In addition to the benefits of artificial intelligence such as time saving, workforce reduction, individualization of teaching and instant feedback feature shows that it can be used as an educational material. Guidance in the processes of integration of AI technology into education should ensure that children not only see AI as a tool, but also understand the ethical, safety and societal implications of these technologies. In this context, it is important for teachers to have the skills to use AI both personally and professionally, to develop their competencies about integration into education, and to have knowledge about safety and ethics. Accordingly, the aim of this study is to describe preschool teachers' experiences with artificial intelligence and their views on the use of artificial intelligence in preschool education.

The study was designed in the basic qualitative research design, one of the qualitative research designs. The study group of the research consists of 30 preschool teachers working in the central districts of Ankara province, who were selected using snowball sampling method. The data were collected through the "Teacher Interview Form on Artificial Intelligence" developed by the researchers and consisting of open-ended questions about the use of artificial intelligence. The interviews with the teachers were conducted through telephone interviews, and the recordings taken during the interviews were transcribed by the researchers. The transcripts were analyzed by the researchers using content analysis method.

The teachers who participated in the study stated that children's digital skills varied from adequate, intermediate and inadequate. They stated that digital tools contribute to children in terms of creativity and time management. While emphasizing the importance of guidance, safe and age-appropriate content selection while using digital tools, they also

emphasized that they had difficulties in accessing technological materials. It was determined that teachers experienced artificial intelligence in areas such as use in education, use in daily life, creativity and design, research and project support. They stated that artificial intelligence supports the preschool education process and provides convenience in their work. They also stated that appropriate use for children's development and teachers' readiness are important in integration. On the other hand, there are also teachers who are concerned that it may hinder cognitive development. Some teachers stated that the lack of necessary infrastructure and technological equipment made it difficult for them to have an opinion.

Keywords: Artificial intelligence, Preschool education, Teachers, Technology

AI TOOLS FOR WRITING: CAN THEY REALLY IMPROVE THE QUALITY OF TEXTS WRITTEN IN TURKISH?

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ABSTRACT
The potential of Artificial Intelligence (AI) in education has been widely discussed since the introduction of AI-based tools. Recently, interest in the use of AI in educational contexts has grown, particularly in relation to its impact on teaching and learning. The debate over whether these tools pose a danger, offer potential, or provide benefits to educational environments has been ongoing. Initially met with skepticism and concern, the conversation around AI has shifted toward how it can be effectively utilized. In the context of writing instruction, it is essential for students to use these tools to compose texts and enhance the quality of their written work. This study aims to explore the role of AI tools in improving students' writing. Specifically, it investigates how three AI tools; ChatGPT, Gemini, and CoPilot, differ in terms of enhancing specific linguistic features, including planning, spelling and punctuation, and language expression. To achieve this, six texts (three low-quality and three medium-quality) were identified using a writing rubric. Each text was rewritten 10 times by each of the three AI tools, resulting in a total of 180 rewritten texts. These texts were then analyzed and compared. The findings are discussed in relation to the potential of ChatGPT, Gemini, and CoPilot to improve student writing.

Keywords: AI-based writing, Artificial intelligence, Turkish texts, Writing quality

THE ROLE OF AI IN TRANSFORMING LANGUAGE EDUCATION: A BLUEPRINT FOR PERSONALIZED LEARNING

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ABSTRACT
This concept paper examines how Artificial Intelligence (AI) can be leveraged to address individual learning needs in language education, drawing on Hart's (2018) framework. It investigates AI's potential to reshape educational practices, particularly by enabling personalized learning experiences. While AI offers promising possibilities, it also presents challenges that need careful consideration. A comprehensive review of the literature highlights the importance of developing digital literacy, establishing solid infrastructure, and ensuring effective teacher training for successful AI implementation. The paper also addresses ethical concerns, such as data bias, and suggests a balanced approach that maximizes AI's benefits while maintaining the human aspect and promoting inclusivity. Ultimately, it proposes an adaptable educational model for the digital age and contributes valuable insights for educators, policymakers, and AI developers regarding AI's role in education.

Keywords: Artificial intelligence, Language learning future, Personalized learning.

UNIVERSITY ADMISSION PREDICTION MACHINE LEARNING MODELING BY EVALUTING STUDENT PROFILE

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Vellore Institute of Technology, Vellore, India.

ABSTRACT
For students who wish to pursue postgraduate studies, choosing a suitable college and earning admission is challenging since there are many options, and not all universities are equally appropriate for every applicant. Although the applicants' search criteria might differ, they are expected to spend significant time and effort on the Internet looking for appropriate universities. For this reason, using a university recommendation system will help to locate suitable institutions based on their required features and expedite the search process. Although many internet resources and forums are available, they do not offer satisfactory suggestions, as most of them are based on assumptions from college rankings and not actual statistical relations. So, we propose a Machine Learning based recommendation system. That eliminates the tedious application search process imposed on applicants by developing a model that can help to shortlist the universities appealing to the applicants based on the input of the student's academic data using historical admission data and understand what features play an essential role in their admission. Based on a lot of models' evaluation and hyperparameter tuning, gradient boost emerged as the most accurate and efficient algorithm. In sum, our investigation elucidates how applying machine learning can ease graduate school application process by providing candidates with relevant information to make sound decisions.

Keywords: Admission probability, Gradient boosting, Graduate admissions, Machine learning, Predictive analysis

PRELIMINARY INSIGHTS INTO AI ANXIETY AND ATTITUDES AMONG BANGLADESHI STUDENTS IN HIGHER EDUCATION

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ABSTRACT
Bangladesh, a South Asian country, is one of the most densely populated countries in the world and ranks as the 8th most populous, with an estimated population of nearly 170 million. Youth aged 15-24 constitute about 20% of the population. By 2050, Bangladesh's population is projected to grow to 220 million, even if current fertility rates are reduced to replacement levels. By 2024, there were over 1.3 million places available in Bangladeshi universities. Although the country has a young and crowded population, there is limited research regarding its higher education system. As artificial intelligence continues to diffuse into higher education institutions, the lack of research presents practical problems for many countries, including Bangladesh. As a developing country, Bangladesh is attempting to integrate AI into its universities, but the success of these efforts is uncertain due to the lack of research. Therefore, as a preliminary step, this study aims to analyze Bangladeshi higher education students' AI anxiety and attitudes through a quantitative survey using convenience sampling. The survey includes nine demographic questions (gender, age, schooling level, etc.), 21 AI anxiety questions on a 5-point Likert scale (ranging from strongly agree to strongly disagree), and 20 AI attitude questions on a 5-point Likert scale (ranging from strongly agree to strongly disagree). The online survey was shared on various platforms, and 356 responses were collected and analyzed quantitatively. This study suggested that both female and male students in Bangladesh hold a positive attitude toward AI, but they may some concern regarding ethical issues and AI errors.

Keywords: AI anxiety, AI attitude, Bangladesh, Higher education, Gender

ADOLESCENT PERCEPTIONS OF ARTIFICIAL INTELLIGENCE (AI) IN EDUCATION AND ITS ROLE IN TACKLING GLOBAL CHALLENGES

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ABSTRACT
The integration of artificial intelligence (AI) in education represents a transformative technological approach that improves teaching and learning processes. Particularly in science, technology, engineering, and mathematics (STEM), where students are trained to tackle global issues, AI tools can significantly contribute to metacognitive skills. This study explores adolescent perceptions of AI, focusing on immediate thoughts upon hearing the term, as well as views on how AI could be applied to address needs or solve problems in areas like climate change, sustainability, and health. Furthermore, the study gathers recommendations on how AI could be integrated into STEM education to better prepare students for these challenges. Eight participants, aged 14–18, were interviewed. Data were subject to content analysis. A review of the existing research disclosed a lack of studies employing a similar research approach. A key theme that emerged is the need for increased integration of AI into education, with some participants suggesting the introduction of specific AI-focused courses or incorporating AI within existing subjects like mathematics. Participants also highlighted potential challenges, such as educators' insufficient AI knowledge and the need for early AI education starting from preschool. Robotics was discussed primarily as an area requiring significant budgetary support, with participants viewing robots as tools through which AI can address real-world problems, such as environmental cleanup. Participants also emphasized the importance of making AI education more engaging and accessible to capture student interest. We trust that the findings of this study will provide valuable insights for researchers interested in AI in education.

Keywords: Artificial intelligence, Climate change, Robotics, Sustainability, Teacher competence

AI PROMPT RUBRIC: VALIDITY AND RELIABILITY STUDY

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ABSTRACT
Artificial intelligence is defined as a computer's ability to perform high-level cognitive tasks such as reasoning, problem-solving, generalization, adaptation, language comprehension, and decision-making, in a manner similar to human behavior (Shidiq, 2023). The launch of ChatGPT in November 2022 highlighted the need to train individuals who can effectively interact with AI systems, particularly through prompt engineering. Prompt engineering is crucial for obtaining accurate outputs from AI and involves carefully structuring commands. In this study, a rubric was developed to teach 6th-grade students how to write prompts, and its validity and reliability were tested. This study will argue that mastering prompt writing can enhance learning and improve the effective use of AI in education.
In this research, a valid and reliable analytical rubric was developed for measuring 6th-grade students' prompt writing skills, following specific development steps: 1.The literature on ChatGPT and prompt engineering was reviewed, resulting in a rubric with 6 dimensions and 12 sub-criteria. 2. The draft rubric was revised based on feedback from 7 experts, achieving a CVR of 1.00, and the number of items increased to 14. 3. The rubric was piloted with 32 sixth-grade students from a private school in Istanbul. 4. Content validity was assessed by experts, factor analysis was conducted for construct validity, and Cronbach's Alpha was calculated for reliability; necessary adjustments were made. 5. The rubric was finalized based on statistical analyses.

In this work, statistical analyses led to the removal of four items from the initial 14-item rubric due to a common variance of <0.5. These items were related to examples, key terms, output alignment, and grammar. The revised rubric was found to have construct validity. Factor analysis showed that Dimension 1, with a Cronbach's Alpha of .889, and Dimension 2, with a Cronbach's Alpha of .762, both demonstrated internal consistency. Item 10, "using polite language," was removed as irrelevant.

Shidiq, M. (2023). The Use of Artificial Intelligence-Based ChatGPT and Its Challenges for The World of Education; From The Viewpoint of The Development of Creative Writing Skills. Proceeding of International Conference of Education, Society and Humanity. Vol. 01 No.01

Keywords: ChatGPT, artificial intelligent, K-12, prompt engineering, rubric

PILOT STUDY OF ASSESSMENT TOOLS FOR ENTREPRENEURSHIP SKILLS-SPECIFIC PEDAGOGICAL CONTENT KNOWLEDGE: AI AND PRESERVICE TEACHERS' PERFORMANCE

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ABSTRACT
This research aims to prepare and pilot-tested content representation (CoRe) and card-sorting activity (CSA) forms for identifying pre-service science teachers' entrepreneurship skills-specific pedagogical content knowledge (ES-PCK). Additionally, the research compares the accuracy and reasoning type of responses from pre-service teachers to these measurement tools designed for undergraduate education with those generated by ChatCPT, an artificial intelligence (AI) technology. In the initial phase of this qualitative research, CoRe (Loughran et al., 2006) and CSA (Friedrichsen & Dana, 2003) forms were adapted for skill specific. Among the data collection tools, the CoRe measures knowledge of curriculum, student understandings, teaching strategies, assessment, and CSA measures knowledge of goals and objectives for science teaching. An analytical rubric associated with the sub-dimensions was developed to evaluate the CoRe data. It was planned to use descriptive statistics and content analysis to analyze the CSA data. Consequently, the validity, reliability, and applicability of measurement tools to evaluate ES-PCK were tested with expert opinions and 4th-grade pre-service science teachers' responses. In the second stage of the research, according to the type of open-ended questions in the measurement tools, the performance of AI and pre-service teacher responses will be evaluated comparatively. Therefore, this research is significant for addressing ES-PCK and preparing skill-specific measurement tools to be used in teacher training programs. The research is also important for evaluating the performance of AI with skill-specific questions in the field of education.

Note: This research was conducted with the support of TÜBİTAK BİDEB-2218 Domestic Postdoctoral Research Fellowship Program (2022/2, 122C214).

Keywords: Card sorting activity, ChatCPT, Content representation form, Entrepreneurial skills, Pedagogical content knowledge

TEACHERS' USAGE AND COMPETENCES OF PRODUCTIVE ARTIFICIAL INTELLIGENCE

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ABSTRACT
This study aims to examine the usage and competence levels of teachers regarding productive artificial intelligence (PAI) technologies in educational environments. Specifically, it focuses on how teachers integrate PAI into various areas, from the production of teaching materials to student assessment processes, highlighting the potential of PAI in education. As part of the study, data were collected from 221 teachers working in different branches and levels across Türkiye through a survey.

The data collection tool used was the "Productive Artificial Intelligence as a Lifelong Learning Skill: Usage and Competence Scale," which analyzed teachers' frequency of PAI use, the purposes for which they used this technology (e.g., creating course content, analyzing student work, performing automatic assessments), their confidence in using this technology, and their experiences with technology use in education. Variables such as gender, branch, professional experience, and access to technological infrastructure were taken into account, and the obtained data were analyzed using t-tests, Analysis of Variance (ANOVA), and correlation analyses.

The results of the study indicated that teachers could use PAI technologies at a moderate level. However, this usage showed significant differences based on variables such as professional experience, branch, and access to technological infrastructure. In particular, it was found that teachers with more than 10 years of professional experience approached PAI technologies more cautiously, while younger teachers were more open to using PAI. Furthermore, it was observed that teachers used PAI more frequently for tasks like creating teaching materials and classroom assessments, but they faced a lack of sufficient support and training regarding the pedagogical integration of this technology.

These findings suggest that interaction between teachers and PAI technologies should be enhanced, and educational programs need to be strengthened to ensure teachers can effectively utilize this technology.

Keywords: Artificial Intelligence, Teacher competences, Usage of AI.

ARTIFICIAL INTELLIGENCE IN EDUCATION: THE USE OF ARTIFICIAL INTELLIGENCE IN ACADEMIC LIBRARIES

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ABSTRACT
The development of artificial intelligence technologies includes a variety of technologies that can be used to strengthen the role of academic libraries in education. This study focuses on using AI in academic libraries, particularly in researcher support services, content creation, and information literacy instruction. The study aims to examine how AI can be effectively integrated into academic libraries. The study's methodology is based on a review of existing literature and studies of AI solutions implemented in various academic libraries. The study examines the impact of AI-enabled content creation, chatbots, and similar technologies on information access and research processes. The findings show that these technologies contribute to user satisfaction by increasing efficiency in academic libraries. However, ethical and legal challenges have also been encountered. In conclusion, while integrating artificial intelligence into academic libraries has added value to research processes, it has also created the need for strategic planning and continuing education to sustain these processes.

Keywords: Academic libraries, Artificial Intelligence, Chatbots, Content creation, User Experience

A NEW METHOD IN EDUCATION: ARTIFICIAL INTELLIGENCE

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ABSTRACT

The aim of this study is to investigate how artificial intelligence, as a part of technology, affects education and what kinds of contributions it provides to individuals' learning. The descriptive survey model, which is one of the qualitative research approaches, has been used as a method. Artificial intelligence technologies have become an important element that we frequently use unconsciously in our daily lives, bringing about a profound change in people's lives. The deep transformation created by technology in every aspect of life has also raised significant expectations for transformation in the teaching and learning processes (Akgün, 2019). The increasing digital transformation in educational environments has positively influenced students' perspectives on technology and helped them gain more motivation for their classes (Sarsıcı & Çelik, 2019). The development of AI-based systems has not only transformed the human profile in education but has also fundamentally changed the structure and functioning of education itself. Today, thanks to AI applications, effective use of big data resources allows for the creation of personalized educational programs, individual performance tracking, preparation of lesson content, and determination of teaching methods. These innovations have improved the quality of education and made learning processes more effective (Karaca & Telli, 2019). Modern technologies, especially virtual reality and gamification, encourage students' active participation in the educational process, making it more dynamic and interactive (Kuprenko, 2020). Furthermore, some artificial intelligence applications gamify teaching methods, enabling teachers to manage their classrooms more effectively (İşler & Kılıç, 2021). AI is becoming a useful tool for parents of children with disabilities. Advanced AI systems allow children to interactively communicate with their parents, while also enabling these children to enhance their exploration, learning, and problem-solving skills alongside entertainment (Richter, 2018). While the literature indicates that some AI applications are used in the field of education, it has been observed that these applications are not utilized effectively enough according to expectations. Considering the advantages provided by artificial intelligence, it is suggested that there are potential benefits to implementing AI-based education more effectively in practice (Timms, 2016: 711).

Keywords: Artificial intelligence, Educational sciences, Technology

A VIEW OF SPORTS TRAINING FROM THE METAVERSE WORLD

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ABSTRACT
The purpose of this study; It is an investigation of how metaverse technology, which is a part of artificial intelligence technology, affects the sports education of individuals and what kind of contributions it makes to the education of individuals. As a method, descriptive scanning model, one of the qualitative research approaches, was used. The concept of the Metaverse is generally considered the next-generation internet paradigm that allows people to interact and operate in an alternative world in a virtual reality environment. This concept refers to a realistic virtual platform where users can interact with other users through avatars in an immersive 3D environment. It offers an environment where people can play games, work and socialize through the virtual world. Thanks to virtual reality and augmented reality technologies, there are also significant developments in sports education. These technologies can make learning and teaching processes more effective. By making sports competitions more realistic and exciting, it attracts more attention from the audience, increases the popularity of sports and enables it to reach larger audiences. At the same time, Metaverse offers the opportunity to bring people together and increase interaction by making sports events more social. A strong relationship has been established between metaverse and sports in many areas such as new training techniques, training of referees, athletes and coaches, tactical and technical studies, sports marketing, and skill learning. In this way, athletes and coaches can work more effectively, fans can have better experiences, and the sports industry can become more innovative in general.

Keywords: Metaverse, Sports training, Technology

ARTIFICIAL INTELLIGENCE IN EDUCATION: A BIBLIOMETRIC ANALYSIS

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ABSTRACT
The aim of the study is to examine 4935 scientific researches on artificial intelligence in the field of education indexed in the Web of Science (WoS) database between 1981-2024 by bibliometric analysis method. The results of the analysis are given with VOSviewer program. The findings of the study showed that the most common year of the studies was 2023. Most of the studies on this subject are articles and papers. English and Spanish were the most frequently cited languages. The results show that Gwo-Jen Hwang, Melissa Bond and Olaf Zawacki-Richter are the top three most cited authors in the subject area. "Artificial intelligence" and 'chatGPT' are frequently used keywords. Hong Kong University of Education and Carnegie Mellon University are the top two institutions with the most published researchers. Springer Nature, IEEE and Taylor & Francis are the top publishing journals respectively. The USA has the highest number of cross-country linked publications. Researchers will be able to identify internationally important sources, authors, institutions and countries in the light of the findings of this study. Since keyword analysis helps to identify the most current and most studied topics in the field, it will provide practicality for researchers to customize their research topics. It is thought that this study will guide researchers who want to work in the field and increase their knowledge. The research topic has been analyzed in the WoS database and it may be recommended to analyze bibliometrically in other databases such as Scopus.

Keywords: Artificial intelligence, Artificial intelligence in education, Bibliometric analysis, Intelligent learning systems, VOSviewer

EVALUATING THE PERFORMANCE OF ARTIFICIAL INTELLIGENCE IN MATHEMATICS EDUCATION: A FOCUS ON CHATGPT-4'S HANDLING OF PROPORTIONAL REASONING PROBLEMS

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ABSTRACT
The integration of Artificial Intelligence (AI) into solving mathematical problems has demonstrated significant potential in enhancing students' learning outcomes and overall performance. Despite these advantages, AI tools, such as ChatGPT-4, are not without limitations. These tools can still produce conceptual and arithmetic errors that may mislead users and hinder their understanding of mathematical concepts. This paper aims to critically analyse such errors in order to enhance the effectiveness of AI applications within the context of mathematics education. Specifically, the study explores the capabilities of ChatGPT-4 in addressing proportional reasoning problems, a common area where students frequently encounter difficulties and make errors.

In this research, ChatGPT-4 was presented with 10 commonly encountered questions that involve misconceptions related to proportional reasoning. The results indicate that the AI successfully answered the majority of these questions, achieving a 70% accuracy rate. Additionally, the AI was able to provide detailed explanations for its solutions, which suggests a strong potential for aiding in the instructional process. Furthermore, ChatGPT-4 demonstrated the ability to correctly interpret visual content in some of the problems, accurately identifying the inputs required to arrive at the correct solution. This ability highlights the AI's capability to engage with more complex problem types that involve visual reasoning. However, the study also found that ChatGPT-4 made similar mistakes as students when confronted with problems requiring deeper reasoning and understanding of underlying concepts. These errors were particularly evident in questions designed to test common misconceptions in proportional reasoning. The AI's performance in these areas mirrors the struggles students face, indicating that while AI can replicate correct procedures, it may still fall short in areas requiring nuanced reasoning and conceptual clarity.

In conclusion, while ChatGPT-4 exhibits considerable promise in the realm of mathematics education, particularly in problem-solving, these findings underscore existing limitations regarding the handling of misconceptions.

Improving the AI's contextual understanding and enhancing its flexibility in problem-solving are essential steps toward developing more robust educational tools. Such improvements will better support students' learning experiences and ensure that AI tools can serve as effective aids in mathematics education, ultimately leading to improved learning outcomes.

Keywords: Artificial intelligence (AI), ChatGPT-4, Math education, Problem-solving, Proportional reasoning

THE GPT SERIES FROM PAST TO FUTURE AND THE USE OF THE GPT IN EDUCATION

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ABSTRACT
The use of artificial intelligence in education has become widespread in recent years and various artificial intelligence tools are used. In this research, GPT models, one of the artificial intelligence tools used in education, were examined. GPT was first developed in 2018. The second model of GPT, GPT-2, includes a larger data set and thus performs more tasks. In another developed version, GPT-3, the data set used was increased and more consistent results were provided. The next model, GPT-3.5, is similar to GPT-3, but it is emphasized to work without errors for languages other than English. Similarly, language commands have been improved in GPT-4. In addition, more complex tasks have been emphasized in GPT-4. There are also different versions of GPT-4. The developed versions of GPT-4 are named as GPT-4Turbo, GPT-4o mini and GPT-4o. In these improved versions, features such as faster operation, accepting both text and visual input, being more affordable and having more advanced cognitive abilities have been added. With these improved features, the use of artificial intelligence in education has also become easier and more accessible. Artificial intelligence has been used for various purposes in education. GPT is used for purposes such as supporting education systems, for evaluation and feedback, developing lesson plans and course materials or monitoring student development, etc. It is seen that the use of GPT in education is beneficial in terms of determining low student participation, developing smart learning systems and providing individual learning opportunities to students, and also increasing student motivation.

Keywords: Artificial intelligence, Education, GPT

DETERMINING THE COGNITIVE STRUCTURES OF PROSPECTIVE SCIENCE TEACHERS REGARDING THE CONCEPT OF ARTIFICIAL INTELLIGENCE VIA WORD ASSOCIATION TEST

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Ministry of National Education, Kayseri, Türkiye.

ABSTRACT
Artificial intelligence is called the branch of science and engineering that deals with computer programs that perform tasks similar to human intelligence. Artificial intelligence, which is used for different purposes in different disciplines, is also used in the field of education. In this study, it was aimed to determine the cognitive structures of science teacher candidates regarding the concept of artificial intelligence through a word association test. For this purpose, a word association test was applied to a total of 162 teacher candidates studying in the first, second, third and fourth grades. The phenomenological design of the qualitative research method was used in this study. This study was conducted with 162 volunteer teacher candidates studying in the science teaching department of a state university located in the Central Anatolia Region. In this study, the word association test (WAT) was applied as the data collection tool. Science teacher candidates were asked the question "List five concepts that come to your mind when you say artificial intelligence." Descriptive analysis was used in the analysis of the data obtained from the word association test. As a result of the research, it was seen that science teacher candidates most associated the concept of artificial intelligence with the concepts of robot, convenience, technology, ChatGPT and smart assistant.

Keywords: Artificial intelligence. Science teacher candidates, Word association test

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TRAININGS

CUSTOMIZABLE AI-POWERED LEARNING PLATFORM: AKILLI EĞİTİM ASİSTANI

Ekrem Tekin
The Blue Red

CONTENT

The Akıllı Eğitim Asistanı (AEA) is a groundbreaking customizable AI platform designed to revolutionize the educational experience for both educators and students in universities and schools. This platform integrates advanced technologies such as speech recognition, text-to-speech, and voice interaction to provide a seamless and interactive learning environment. AEA allows educators to upload their teaching materials into the system, enabling the AI to be trained specifically on the content relevant to their courses. This personalization ensures that students receive precise and contextual assistance at any time of the day.

One of the standout features of AEA is its continuous availability. Students can engage with the AI 24/7, asking questions either through text or voice, and receiving instant, accurate responses. This round-the-clock support enhances student learning by providing immediate help outside of traditional classroom hours. Additionally, AEA's interaction and support system includes the ability to handle both written and spoken queries, making it accessible to a wide range of learning preferences. AEA also excels in monitoring and reporting student progress. By analyzing student interactions, the AI identifies areas where students struggle and generates reports for educators. These insights enable teachers to adapt their teaching strategies to better meet the needs of their students, ultimately improving educational outcomes. Furthermore, the platform is designed with user-friendly interfaces and creative document options to simplify the learning process. The mobile application, tailored for university students, not only optimizes access to course materials but also enhances academic and social communication among students and faculty. Features such as customizable AI assistants, feedback-driven continuous development, and support for multiple languages and themes ensure that AEA is a versatile and robust tool for modern education.

In summary, Akıllı Eğitim Asistanı offers a comprehensive solution to personalize and enhance the educational experience, fostering a more efficient and supportive learning environment for all users.

Language:Turkish
Duration:40 Minutes

QUALITATIVE DATA ANALYSIS WITH DATABEEG (AI SUPPORTED)

Fırat Yılmaz - Ezgi Pasin
Databeeg

CONTENT

Introduction to Qualitative Analysis: Learn the fundamentals of qualitative research and its significance.

Hands-On Experience: Get familiar with leading qualitative analysis tools, including Databeeg AI-driven software that can streamline data processing.
Coding and Theming: Understand how to code data effectively and identify key themes using Databeeg AI assistance.

Interpreting Results: Learn to interpret AI-generated insights and incorporate them into our research.

Who Should Attend: This training is ideal for anyone involved in research, data analysis, or project evaluation.

Language:English
Duration:60 Minutes

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STATISTICS

EDUCCON 2024 STATISTICS

Statistics by country of the presenters/speakers announced in the EDUCCON 2024 program:

Country	Presenter
Türkiye	18
USA	4
India	3
Bangladesh	2
Romania	2
South Korea	2
Germany	1
Italy	1
Netherlands	1
Pakistan	1
Poland	1
Spain	1
TOTAL*	37*

** 30 papers + 7 invited speeches*

Percentage of the presenters/speakers by country:

Country	Percentage
Türkiye	48.65
Other Countries	51.35