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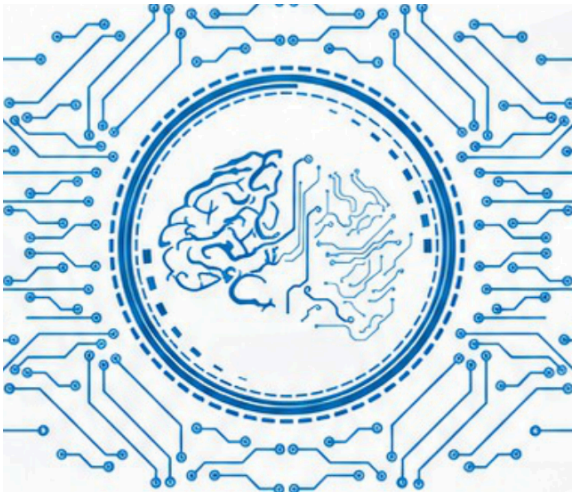
ARTIFICIAL INTELLIGENCE

Innovation in Education in a World of Constant Change

ABSTRACT BOOK

EDITORS

Doina David · Adela Moraru



23–24 November 2026

Târgu Mureș, Romania

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Editorial note

This volume brings together 111 abstracts arranged in seven scientific sections. The author index and the alphabetical subject index provide complementary routes to the contributions. Page references in both indexes point to the abstracts.

Editorial organisation

The abstracts are grouped into seven scientific sections. Within each section, contributions are ordered by the first author’s academic grade, then by institutional leadership role, and then alphabetically by surname within equivalent categories. Co-author order is preserved. This editorial arrangement does not constitute an assessment of the scientific quality of the contributions.

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Authors are responsible for the content, accuracy and originality of their abstracts, the appropriate citation of sources and adherence to applicable research ethics. The views expressed are those of the authors and do not necessarily reflect those of the editors or the organising institution.

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INTRODUCTION

On behalf of the "Dimitrie Cantemir" University of Târgu Mureș and the international partner institutions, we have the special honor to present the volume of abstracts of the second edition of the International Conference ***"Artificial Intelligence Innovation in Education in a World of Constant Change".***

The conference represents an international academic framework dedicated to interdisciplinary dialogue, exchange of ideas and dissemination of scientific research results, bringing together researchers, academics, specialists, professionals and students from various fields of activity and cultural spaces. Through the diversity of perspectives and scientific concerns, this event aims to contribute to the understanding of the profound transformations generated by technological evolution and their impact on education, research and contemporary society. We live in a period in which technological progress is fundamentally redefining the ways of producing, transmitting and capitalizing on knowledge. Artificial intelligence has long gone beyond the boundaries of theoretical research, becoming an active factor in economic, social, cultural and educational transformation. Its applicability in many fields of science opens up new horizons for research, facilitates the analysis of complex volumes of data, stimulates interdisciplinarity and creates opportunities for the development of innovative methods of investigation and learning.

In this context, university education and scientific research are facing a major challenge: that of harnessing the potential of artificial intelligence without losing sight of the human dimension of the educational act and the fundamental responsibility of the academic environment in the formation of critical thinking, creativity, intellectual autonomy and ethical conduct. It is not enough to integrate new technologies into educational processes, but it is essential to understand how they can contribute to improving the quality of education, developing the skills of the future and strengthening an academic culture based on knowledge, responsibility and innovation. The integration of artificial intelligence into the educational and scientific environment offers remarkable opportunities: personalizing learning, diversifying teaching strategies, expanding access to educational resources, streamlining research processes and developing new forms of academic collaboration. Equally, the use of these technologies raises complex issues regarding research ethics, data protection, academic integrity, authenticity of scientific contributions and user responsibility. These aspects require a critical and balanced approach, in which technological progress is permanently correlated with the fundamental values of education and research.

The theme of this year's conference invites the academic community to an in-depth reflection on the relationship between artificial intelligence, innovation and education, providing the opportunity to analyze both the benefits and prospects of technological development, as well as the limits and responsibilities associated with its use. At the same time, the conference encourages dialogue between different fields of research, promoting the exchange of experience, the development of interdisciplinary approaches and the identification of solutions adapted to the challenges of contemporary society. This volume of abstracts brings together the scientific contributions of the participants and reflects the thematic diversity, the rigor of research and the constant concern for identifying new directions of development in education, science and innovation. Each contribution represents an opportunity to deepen knowledge, to share research results and to stimulate new perspectives on the transformations that shape the future of society.

We express our conviction that the works gathered in this volume will be a starting point for valuable academic debates, new research initiatives and the strengthening of national and international scientific partnerships. At the same time, we hope that this academic meeting will contribute to the development of a vision on education in which artificial intelligence is not only a tool of technological progress, but also a means of supporting creativity, critical thinking and human development. We sincerely thank all the authors, participants, guests, members of the scientific and organizational committees, as well as partner institutions for their involvement, professionalism and contribution to the realization of this international scientific event. We invite you to discover the contributions gathered in this volume with intellectual openness, critical spirit and trust in the power of knowledge to shape the future.

"AI is fundamentally an applied technology that's going to serve our society." (Fei-Fei Li, 2016)

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TABLE OF CONTENTS

Editorial information....3
Introduction....4
Conference leadership....6
Scientific committee....7
Organising committee....12

LAW SECTION 21

1. Proving misuse of generative artificial intelligence in university assessment....22
Brîndușa Gorea, Natalia Saharov
2. The abuse of dominant position in the context of the new guidelines issued by the European Commission in 2026....23
Oana-Voica Nagy
3. Law No. 239/2025 and the transformation of the legal framework governing Romanian companies: Legal and economic implications and practical effects....24
Ioana-Raluca Toncean-Luieran
4. The need to amend the digital legislative framework to protect individuals, privacy and personal data....25
Cristina-Luiza Erimia, George Daniel Papari, Andra Seceleanu
5. Theoretical and practical aspects regarding the conditions and cases in which the preventive detention of the defendant may be ordered....26
Ioan Gârbuleț
6. A contrastive study of taxation terminology in Albanian and English: Term formation, conceptual relations, and translation equivalence....27
Artur Jaupaj, Arjan Shumeli, Merita Isaraj
7. The role of sports in criminology: Implications for the prevention and reduction of criminal behaviour....28
Nelu Dorinel Popa
8. The AI literacy obligation under the AI Act: Legal foundations and conceptual frameworks for the educational environment....29
Anca Bogdan
9. Adaptive learning systems - replacing learning styles with data-based personalisation....30
Alina Codreanu, Lina Buinovschi
10. Artificial intelligence and the personalisation of learning: Between educational innovation and legal responsibility....31
Alina Codreanu, Domnica Cozacenco
11. Legal and ethical responsibility of students in the use of artificial intelligence tools....32
Alina Codreanu, Silvia Goreacii
12. The role of artificial intelligence in the modernisation of the educational process: Opportunities and limits....33
Alina Codreanu, Anastasia Lupașcu
13. Electronic service of civil procedure documents....34
Ribana-Ileana Conț

14. Artificial intelligence literacy – a requirement of professional competence and diligence in notarial practice....35
Raluca-Ioana Hurubă
15. Regulating artificial intelligence in education: Legal challenges and safeguards under the European Union framework....36
Nicu-Darius Ilincuța, Andreea-Mihaela Ilincuța, Raina-Nicoleta Geamalinga
16. The future of lawyering in the era of artificial intelligence: A Romanian perspective and comparative study of European developments....37
Radu Iosof
17. False equivalence and conceptual gaps in legal English instruction....38
Anca Maria Slev
18. Particularities regarding the burden of proof in cases that have as their object the resolution of labour disputes....39
Lăcrămioara-Ionela Cojocariu
19. Artificial intelligence in criminal law education: The effects of ready-made answers on legal reasoning and critical thinking....40
Réka Fori-Kovács

PSYCHOLOGY SECTION 41

20. Beyond the score: Psychometric integrity and human oversight in AI-assisted psychological assessment....42
Sorina-Mihaela Bălan, Dana Rad, Gavril Rad
21. From digital portfolios to AI-assisted psychological assessment: A PRISMA-informed global evidence synthesis and a Romanian university case study....43
Sorina-Mihaela Bălan
22. Metacognition and professional reflection in the development of educational managers....44
Victoria Gonța, Ludmila Armașu-Canțîr, Aliona Lîsîi
23. From co-regulation to autonomy: Self-restraint and watchfulness in the development of self-control....45
Adela Moraru
24. Choosing wisely in a digital world: Attention, discernment, and the use of AI....46
Adela Moraru
25. AI challenges in scientific research....47
Nela Mircică
26. School motivation and learning strategies in students: Relationships and implications for psychopedagogical counselling....48
Andrei Cotruș, Anamaria Cristina Hambețiu, Patricia Izabela Varga
27. The evolution of foreign language learning anxiety over a semester in the English classroom....49
Anca Nemeș
28. When faith meets artificial intelligence: Rethinking psychological adaptation and education in chronic illness....50
Anca Mihaela Belu
29. Generative artificial intelligence and academic integrity: Psychological, ethical, and educational challenges in the training of future professionals....51
Doinița Bentu, Bianca-Ioana Garabet

30. Predictive behavioral analytics in early education: Mapping kindergarten temperament to social problem-solving modalities....52
Mónika Csibi, Sándor Csibi

31. Designing an AI-enhanced educational and early detection framework for emergency services staff: A comprehensive review....53
Sándor Csibi, Manuela György

32. Political psychology: A viable predictor of international reality and dynamics....54
Miruna-Mădălina Iancu

33. Beyond resilience: Adaptive creativity and cognitive flexibility in the development of future military professionals' psychological competencies in the age of artificial intelligence....55
Sorina Moldovan

34. Developing creativity in the age of generative artificial intelligence: From individual imagination to human–AI co-creation....56
Sorina Moldovan, Traian Moldovan

35. Artificial intelligence as a psychoeducational tool in psychotherapy: A literature review of current evidence and clinical implications....57
Florentina Larisa Neagu, Andra Seceleanu, Adrian Cristian Papari

36. Why are young people receptive to multipolar digital narratives? Psychological mechanisms of reception in an algorithmically curated information environment....58
Vasile-Gabriel Dincă

37. Accepting the impossibility of cure: An ACT intervention in a case of refractory Hodgkin lymphoma with a contraindicated second transplant....59
Anamaria Cristina Hambeţiu, Camelia Stanciu, Andrei Cotruş

38. Conscientiousness as a psychological resource associated with academic motivation in late adolescence....60
Laura Hânză

39. The pathology of greed between sin and psychological dysfunction: An integrative theological and psychodynamic perspective....61
Lucian-Constantin Ciohodaru

40. The influence of social networks on the body ideal in adolescents....62
Liviu-Ioan Neagoe

41. From artificial intelligence to human flourishing: The role of joy in lifelong learning and educational innovation....63
Raluca-Mihaela Bugariu

42. Personalizing anxiety management interventions for people with chronic diseases based on coping strategies using artificial intelligence....64
Maria Eugenia Martinovici, Valentin Florin Ciotea

DENTAL MEDICINE SECTION 65

43. AI-based predictive modelling for orthodontic relapse using objective retainer compliance data and patient-specific factors....66
Sorana-Maria Bucur

44. Artificial-intelligence-assisted assessment of sugar-free chewing gum efficacy in reducing dental plaque in schoolchildren using the Turesky modified Quigley–Hein index....67
Sorana-Maria Bucur, Paolino Gambino

45. Global trends in orthodontic malocclusion patterns across geographic regions: A narrative review....68
Sorana-Maria Bucur, Carmen Gâlea, Ramona-Flavia Rațiu

46. The epinephrine paradox in the era of artificial intelligence: Endogenous stress responses, pharmacological risks, and clinical decision support in patients with cardiovascular vulnerability....69
Carmen Gâlea, Sorana-Maria Bucur, Radu Mircea Sireteanu Cucui

47. Gut microbiota and major depressive disorder: Neurobiological interactions and therapeutic perspectives of the gut–brain axis....70
Carmen Gâlea, Sorana-Maria Bucur, Claudia Andreea Nistor

48. Spatial distribution of pharmaceutical residues in the aquatic environment in Romania....71
Carmen Gâlea, Sorana-Maria Bucur, Ramona-Flavia Rațiu

49. Assessment of IL28B rs12979860, ABCB11 rs2287622, and RNF7 rs16851720 genotypes as predictors of advanced liver fibrosis in patients with chronic hepatitis C....72
Elena L. Enache, Anca Sin, Liviu S. Enache

50. Teacher-student interaction during the teaching-learning process in LP classes in the disciplines histology and cytology and cell biology, first year dental medicine....73
Petru Vasile-Istrate

51. Effects of chairside adjustment and repolishing on Candida albicans biofilm and cleanability of denture base materials: An in vitro study....74
Dorin Ioan Cocoș, Ramona Diana Feier, Kamel Earar, Cristian Cojocariu

52. Pelargonium graveolens essential oil and geraniol in the management of oral candidiasis and denture stomatitis....75
Dorin Ioan Cocoș, Ramona Diana Feier, Kamel Earar, Cristian Cojocariu

53. Artificial intelligence in oral candidiasis care through image analysis and multidisciplinary clinical reasoning....76
Cristian Cojocariu, Ramona Diana Feier, Kamel Earar, Dorin Ioan Cocoș

54. Rebalancing the oral microbiome with probiotics in multidisciplinary candidiasis care....77
Cristian Cojocariu, Ramona Diana Feier, Kamel Earar, Dorin Ioan Cocoș

55. Targeting oral Candida biofilms with light in the era of antifungal resistance....78
Cristian Cojocariu, Ramona Diana Feier, Kamel Earar, Dorin Ioan Cocoș

56. Digital dentures and biocompatible polymers for adults with mental illness....79
Mioara Dârnea, Ramona Diana Feier, Roxana-Ionela Vasluianu

57. Supporting denture acceptance and social participation in adults with severe mental illness....80
Mioara Dârnea, Ramona Diana Feier, Roxana-Ionela Vasluianu

58. Multidisciplinary management of squamous cell carcinoma located in the lower lip: Case presentation....81
Laura Oltean, Gabriela Eniko Papp, Patricia Boga

59. Artificial intelligence in paediatric dentistry: The clinician versus the algorithm....82
Nunzia Sorrentino, Sorana-Maria Bucur

GEOGRAPHY SECTION 83

60. Artificial intelligence as a tool for education for sustainable development: From environmental data to responsible decision-making....84
Ramona-Flavia Rațiu, Maria Oroian

61. Generative artificial intelligence in sustainable tourism destination management: A comparative pilot study of evidence interpretation....85
Maria Oroian, Talita Pascu, Ramona-Flavia Rațiu

62. Critical thinking and geographic literacy in the age of AI: The Hârtibaci Plateau as a case study in higher education....86
Talita Pascu

63. Sustainable agritourism development through artificial intelligence: A case study of Deleni village, Mureș County....87
Adrian Torpan

64. The evolution of the Mureș riverbed from the 18th century to the present, within the municipality of Târgu Mureș....88
Vlad-Petru Săndulache, Kristof A. Attila, Radu Negru

ECONOMIC SCIENCES SECTION 89

65. Internationalisation and strategic partnerships as drivers of financial sustainability in private higher education....90
Sorana-Maria Bucur, Eleonora Laura Avram, Mihai Vodă

66. Sustainable evaluation of investment projects: Financial approaches and ESG criteria....91
Eleonora Laura Avram, Ioana Monica Horja, Smaranda Vancea

67. General-purpose artificial intelligence versus specialized educational technology: Sources of educational value and willingness to pay....92
Tatiana Bucos

68. AI-driven business decision optimisation: The impact of technology on pricing strategies and competitive behaviour....93
Ioana Monica Horja, Smaranda Vancea, Eleonora Laura Avram

69. Financial education – perspectives and challenges in developing the economic competencies of new generations....94
Alina Nicoleta Solovăstru

70. Integrating AI tools in university courses on internal audit and internal control: A competence-based teaching model....95
Violeta Gianina Dragotă, Tiberiu-Gabriel Dragotă

71. Artificial intelligence and innovation in Romania: Financing, digital skills and the AI adoption gap in a world of constant change....96
Smaranda Vancea, Ioana Monica Horja, Eleonora Laura Avram

72. The role of artificial intelligence and innovation in education....97
Cristian Drăgan, Ecaterina Mariana Suciu

73. Mystery shopping communication scenarios applied to virtual assistants in Romania....98
Andreea Ignat

74. Market structure, competition, and quality in Georgian higher education....99
Ani Kalandia

75. Artificial intelligence and the global trade war: Impact on the Albanian economy....100
Arjola Mitaj, Matilda Haxhiu

76. Artificial intelligence in economic education: Opportunities, challenges, and implications for students' professional competences in Albania....101
Mirtila Llukani, Drita Luzo

77. A comparative assessment of urban sustainability in Athens and Toronto: Development of a multidimensional indicator-based model....102
Georgios Karagiannis, Antoneta Polo, Dorjana Nano, Marco Valeri

78. Goodwill at home, holidays abroad: Economic patriotism and outbound travel in Albania....103
Era Hoxhaj, Arjan Shumeli, Erion Shehu

PROJECT QUALITY MANAGEMENT SECTION 104

79. Building a dental medicine faculty: Continuity, competence and community at "Dimitrie Cantemir" University of Târgu Mureș.... 105
Sorana-Maria Bucur, Sorina-Mihaela Bălan

80. From satisfaction to demonstrated learning outcomes: Triangulating stakeholder evidence for quality assurance in higher education.... 106
Sorina-Mihaela Bălan

81. Designing transferable environmental education: The EduAmb Erasmus+ project and the Romania mobility case study.... 107
Sorina-Mihaela Bălan, Ramona-Flavia Rațiu, Maria Oroian, Pablo Ponte Rodríguez, Jennifer Meléndez Luces, Ammar Albarri

82. Quality management in higher education at the "Dimitrie Cantemir" University of Târgu Mureș: Study on ensuring and continuously improving the quality of scientific education and research in the academic year 2025–2026, with prospects for the academic year 2026–2027....108
Doina David

83. Human–AI collaboration in learning outcomes-based curriculum design: An institutional quality management case study....109
Maria Oroian, Ramona-Flavia Rațiu, Sorina-Mihaela Bălan

84. The role of the university in improving the quality of teaching through the training of language and literature teachers....110
Sashenka Kamberi, Vjollca Rrapai

85. From AI deployment to measurable quality: A policy-aligned framework for quality management in higher education....111
Ayşe Şenay Koç, Murat Koç, Gürcan Demiroğları, Burcu Demirogları

86. Quality management in international cooperation projects: Challenges and best practices....112
Irma Gjolleshi

EDUCATIONAL SCIENCES 113

87. Principles of education in the works of Dimitrie Cantemir: Philosophical, moral and cultural foundations.... 114
Constantin Necula

88. Artificial intelligence in higher education: Enhancing learning autonomy or creating cognitive dependency?....115
Elena-Adriana Tomulețiu

89. Moore's laws and their implications for education....116
Marius M. Bălaș

90. The integration of artificial intelligence in human resource management....117
Mihaela Stoica

91. Artificial intelligence in language learning: Effects on learner proficiency, motivation, and autonomy 118
Ekaterine Vatsadze

92. Artificial intelligence in scientific research methodology: Opportunities, limitations and the development of critical thinking in higher education 119
Ramona-Flavia Rațiu, Maria Oroian

93. Training in algorithmic networks: A sociological perspective on artificial intelligence 120
Doina David, Călin Florea

94. Comparative analysis of English language curricula in Albanian higher education: Aligning national frameworks with European standards 121
Merita Isaraj, Arjan Shumeli, Artur Jaupaj

95. University policies on the use of generative artificial intelligence: A comparative analysis of guidelines adopted in the European area 122
Oxana Barbăneagră, Gabriela Gîndea

96. Artificial intelligence in higher education: Cognitive partner and/or cognitive surrogate? A new pedagogical framework for protecting and developing critical thinking in the age of AI 123
Călin Florea, Doina David

97. Beyond automated content generation: Human–AI collaboration in the development of university teaching materials 124
Maria Oroian

98. Adjectival suffixation in agricultural terminology: A contrastive morphological analysis of Albanian and English 125
Arjan Shumeli, Merita Isaraj, Festa Shabani

99. Definite article production and use under cross-linguistic influence 126
Eljana Kokalari, Valentina Boboli

100. Negotiating cultural identity in a multilingual EFL classroom: Intercultural communication among university students in Moldova 127
Lilia Petriciuc

101. Student needs in higher education: Academic, social, digital and institutional dimensions 128
Anila Xhumba

102. The competence paradox in AI-assisted education: Between illusions of knowledge, cognitive offloading, and young people's intellectual autonomy 129
Ramona Dună (Bratu), Bianca-Ioana Garabet

103. Leveraging artificial intelligence for assessing intercultural communicative competence within English language learning in Albania 130
Hristina Mallanezo

104. Parents between denial and acceptance of their children's neurodevelopmental difficulties. 131
Aida Sotiri, Loreta Mamani, Mimoza Carka

105. Artificial intelligence for quality education and sustainable regional development: A framework for enhancing social well-being and the inclusion of vulnerable groups 132
Maria-Magdolna Macula, Sorina-Mihaela Bălan

106. Artificial intelligence for identifying socio-educational needs in rural Romania: Opportunities and ethical challenges for integrated community services 133
Tatiana Moise

107. Artificial intelligence as a pedagogical mediator of emotional freedom in primary education: A value-based framework for social media literacy 134
Claudia-Elena Stoica

108. Artificial intelligence as a support tool for quality assurance in teacher evaluation in lower secondary education..... 135
Ioana-Ruxandra Văsii, Sergiu Baciu

109. The use of artificial intelligence in teaching chemistry at upper secondary level..... 136
Cristiana Chira

110. Lusotropicalism with a Chinese flavour: The heritagization of Macanese cuisine..... 137
Fabio De Leonardis, Lily Zhang

111. Can artificial intelligence reduce foreign language speaking anxiety?..... 138
Evionda Skëndi

Author index..... 139

Subject index..... 141

SCIENTIFIC SECTION 01

LAW SECTION

ABSTRACTS

Artificial Intelligence
Innovation in Education in a World of Constant Change

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1. Proving misuse of generative artificial intelligence in university assessment

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Abstract

Generative artificial intelligence (AI) can support learning while complicating the attribution of students' assessed work. The legal question is when evidence of AI involvement can justify the finding of academic misconduct and a sanction. Through doctrinal analysis of Romanian rules on university ethics and students' rights, informed by research on detector reliability and institutional guidance developed for a law faculty, this paper argues that suspected AI involvement becomes sanctionable misconduct only when a breach of a pre-established, communicated rule is substantiated through a fair procedure. The analysis distinguishes permitted assistance from substitution of the student's intellectual contribution and separates grounds for investigation from grounds for finding misconduct. Detector outputs are treated as indications requiring corroboration, not conclusive proof of unauthorized use or authorship. Drafts, sources and oral explanations may help establish how a work was produced; neither missing interaction logs nor difficulty explaining a passage is sufficient on its own. The proposed procedure combines notice of the allegation and applicable rule, access to the evidence, an effective opportunity to respond, human assessment by the competent university body, and a reasoned decision open to challenge. Sanctions must reflect established conduct, their seriousness and the circumstances of the case. The resulting framework locates responsibility for substantiating allegations with the institution and links academic integrity to foreseeable rules, evidential scrutiny and the student's right of defence.

Keywords: generative artificial intelligence; academic integrity; automated detection; evidence; right of defence; proportionality.

2. The abuse of dominant position in the context of the new guidelines issued by the European Commission in 2026

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Abstract

Although the abuse of a dominant position in competition law is not a new institution, it represents a current issue of European competition law. In 2026 the European Commission issued new guidelines regarding exclusionary conduct as a method of manifestation of a dominant position on the European single market. For the first time the exclusionary conduct's identification is included in one document. The guidelines are based on Article 102 of the Treaty on the Functioning of the European Union and are meant to protect fair and undistorted competition in the market and, implicitly, consumers, who are the final beneficiaries of products and services. The guidelines do not modify the provisions of the treaty or European Union case law but represent an instrument of application of Article 102. Therefore, this article will try to examine the implications of the guidelines for the interpretation and application of the prohibition of the abuse of a dominant position. We will focus on the criteria for identifying and assessing the exclusionary conduct of dominant undertakings and its effects on the competition. Also, a point of interest is the relation between the presumption, instituted by paragraph 155 of the guidelines, and the anticompetitive effects. Last but not least, we will analyse which of the presumptions instituted by the European Commission's guidelines can facilitate the identification of abusive conduct.

Keywords: abuse of dominant position; European Commission guidelines; exclusionary conduct; Article 102 TFEU.

3. Law No. 239/2025 and the transformation of the legal framework governing Romanian companies: Legal and economic implications and practical effects

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Abstract

This study analyses the legal and economic implications of Law No. 239/2025 on establishing measures for the recovery and more efficient use of public resources for commercial companies in Romania, focusing on the practical effects of the new mechanisms governing capitalisation, asset preservation and tax oversight. The relevance of the research is highlighted by subsequent legislative developments, particularly OUG No.13/2026, which amends the rules governing the transfer of shares in limited liability companies, as well as by the procedure adopted in October 2026 concerning the opposability of such transfers to the tax authority.

Through an analysis of statutory provisions and doctrinal opinions, the study examines the consequences of the new regulations for corporate decision-making. It considers minimum share capital requirements, restrictions on dividend distributions and the repayment of shareholders loans, the conversion of claims into share capital, and the conditions governing share transfers.

The study highlights that increasing share capital and improving balance-sheet indicators do not, in themselves, guarantee greater liquidity or an enhanced ability to meet payment obligations. Furthermore, measures designed to protect creditors and public revenue claims may create tensions with corporate autonomy and businesses financial needs. Accordingly, the effectiveness of the reform should be assessed in terms of the coherence and proportionality of the mechanisms introduced and their practical effects on the operation of commercial companies.

Keywords: commercial companies; share capital; net assets; transfer of shares; Law No. 239/2025.

4. The need to amend the digital legislative framework to protect individuals, privacy and personal data

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Abstract

In response to the increasingly pervasive presence of digital technologies within the Union's economy and social dynamics, the Union's digital legislation has gradually evolved in recent years to address emerging challenges and foster business opportunities within the EU.

Given the fundamental role of data in value creation within the digital economy, this article aims to examine the need for a coherent and unified regulatory framework for data availability and use —one that would streamline and consolidate existing regulations in this field.

Furthermore, this article explores scenarios in which the development of certain artificial intelligence (AI) systems and models may entail the collection of large volumes of data, potentially including personal data—as well as special categories thereof.

The recent proposal for a regulation on simplifying the digital legislative framework clarifies the role and responsibilities of the competent supervisory authorities and provides for the publication of a common list of circumstances in which a personal data breach is likely to result in a high risk to the rights and freedoms of a natural person.

Keywords: eU regulatory framework; digital legislation; personal data; rights and freedoms.

5. Theoretical and practical aspects regarding the conditions and cases in which the preventive detention of the defendant may be ordered

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Abstract

Pre-trial detention is the most severe and restrictive of all liberty-depriving preventive measures. Characterised as provisional and discretionary, it enables the competent judicial authority to order a defendant's detention for a legally specified term within designated facilities. This measure is applicable provided that the evidence establishes a reasonable suspicion that the defendant committed an offense, and that it is necessary to ensure the proper conduct of criminal proceedings, prevent the defendant from absconding from criminal investigation or trial, or preclude the commission of further offenses. The application of pre-trial detention remains exceptional, provisional, discretionary, and subsidiary.

Its conditions and grounds are governed by the provisions of Article 202, paragraphs 1–3, and Article 223, paragraphs 1 and 2 of the Code of Criminal Procedure. An analysis of these statutory provisions indicates that ordering pre-trial detention requires, first, satisfying the general conditions applicable to all preventive measures; second, meeting the specific conditions exclusive to pre-trial detention; and finally, establishing one or more statutory grounds expressly enumerated by the legislature.

While both general and specific conditions must be met cumulatively, the presence of just a single legally prescribed ground—alongside those conditions—suffices to satisfy either hypothesis for ordering the measure.

Keywords: pre-trial detention; defendant; evidence; general statutory conditions; specific conditions of detention; statutory grounds for detention.

6. A contrastive study of taxation terminology in Albanian and English: Term formation, conceptual relations, and translation equivalence

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Abstract

This study examines how selected taxation concepts are named and translated between Albanian and English, focusing on term formation, conceptual relations, and equivalence across legal and administrative contexts. The study adopts a concept-oriented framework informed by descriptive terminology and legal translation research. Its exploratory, document-based analysis draws on taxation documents and the published glossary of Albania's General Directorate of Taxes. Candidate examples are examined in terms of their form, conceptual relations, cross-language correspondence, and evidential status. The analysis identifies compounds and derived forms, such as tatimpagues (taxpayer), as well as multiword designations, such as tatim mbi të ardhurat (income tax). It also considers the distinction between shmangie tatimore (tax avoidance) and evazion fiskal (tax evasion), illustrating why surface similarity or dictionary pairings alone cannot establish legal equivalence. Definitions, jurisdiction, and institutional usage must also be compared. The examples reveal hierarchical, procedural, and agentive relations among tax concepts, while highlighting areas that require further verification, including the contextual use of tatim (taxation) and takes (tax) and proposed equivalents in international taxation. The findings are qualitative and illustrative. The available materials do not include a reproducible, source-by-source extraction log, item-level provenance, or coder-agreement data. Accordingly, the study does not present corpus-wide percentages or claimed lexical gaps from the draft as verified measurements. Its contribution is a transparent analytical framework and a bounded account of observed patterns, alongside a protocol for future research: use source-linked legal and administrative texts; document and deduplicate candidate terms; record definitions and jurisdiction; code equivalence independently; and resolve disputed cases with bilingual tax specialists. This approach can support more consistent translation and standardisation while preserving system-specific meaning.

Keywords: tax terminology; term structure; term formation; conceptual equivalence; terminology standardisation.

7. The role of sports in criminology: Implications for the prevention and reduction of criminal behaviour

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Abstract

Criminological research has shown that sports activities and programmes are an effective measure for crime prevention.

In this regard, there are numerous initiatives that have demonstrated, through concrete results, that organising and participating in sports have led to crime prevention, as individuals are thus distracted from delinquent behaviour because they are otherwise socially engaged.

Participation in sports is also frequently linked to various psychological factors, such as mental health, which is considered relevant to promoting desistance from criminal behaviour.

Other studies have documented complex interactions between delinquent behaviour and biological factors, finding that regular physical activity positively influences hormone production, which in turn reduces and inhibits violent behaviour, thereby decreasing aggression and violence.

In light of the arguments presented in this article, we advocate for the widespread implementation of sports programmes as crime prevention measures.

Keywords: sports programmes; initiatives; psychological implications; biological factors; crime prevention; crime control.

8. The AI literacy obligation under the AI Act: Legal foundations and conceptual frameworks for the educational environment

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Abstract

The rapid development of artificial intelligence (AI) systems and their integration into educational processes raise new challenges concerning digital competences, user responsibility, and compliance with applicable ethical and legal requirements. In this context, AI literacy has gained particular importance and is expressly addressed at EU level by Article 4 of Regulation (EU) 2024/1689 laying down harmonised rules on artificial intelligence (the AI Act).

This paper aims to examine the legal foundations of the AI literacy obligation, focusing on its implications for the educational environment and the role of technical conceptual understanding in promoting the responsible use of AI systems. The analysis draws on the European Commission's Guidelines on the Ethical Use of Artificial Intelligence and Data in Teaching and Learning for Educators, with particular emphasis on the sections addressing AI literacy, European digital competence frameworks, and the glossary of specialized terminology.

The research methodology combines legal and conceptual analysis of the relevant EU regulatory framework with an examination of European guidance documents. It considers the scope of Article 4 of the AI Act, identifies the main categories of stakeholders concerned by the obligation, and explores how terminological clarification can contribute to the development of the ability to understand, critically assess, and appropriately use AI systems in education.

The paper seeks to highlight the relationship between the legal obligation to promote AI literacy, the development of digital competences, and the establishment of an institutional culture of responsible AI use. Particular attention is paid to the distinction between legally binding requirements and non-binding guidance, as well as to the contribution of conceptual and terminological knowledge to the effective implementation of AI literacy measures in educational settings.

Keywords: artificial intelligence; AI literacy; AI Act; education; digital competences; terminology glossary; European Commission guidelines.

9. Adaptive learning systems - replacing learning styles with data-based personalisation

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Abstract

The permanent changes taking place in the world are modifying the pedagogical paradigm through Artificial Intelligence in Education (AIEd). For several decades, classical pedagogy promoted the concept of "learning styles," such as the Visual - Auditory - Kinesthetic (VAK) model, on which teaching personalisation was based. However, contemporary cognitive neuroscience has managed to systematically dismantle this approach, being labeled as a "neuromyth" that is not empirically validated and risks limiting the cognitive flexibility of students. The paper explores the transition from incipient pedagogical concepts directed towards modern data-based personalisation through Adaptive Learning Systems (ALS). The main objective of this study is to analyse how modern educational software uses data science and artificial intelligence to truly personalize the learning experience. By examining the structure of adaptive systems, especially the Student Model, the Domain Model, and the Pedagogical Model, the research demonstrates how algorithms track objective data in real time. These include metrics such as response time, error frequency, and cognitive load. By reviewing specialized literature and a comparative analysis of recent meta analyses, this study evaluates the efficiency of adaptive algorithms in real - time optimisation of students' academic performance. The studied elements indicate that data-based systems succeed in positively developing the "zone of proximal development," in accordance with the psycho-pedagogical theory put forward by researcher Vygotsky. In addition, the paper addresses critical contemporary challenges, including data privacy, algorithmic errors, and the evolution of the role of educators from sources of information into pedagogical mentors, meant to guide the heuristic path. Ultimately, this research concludes that replacing subjective learning styles with objective, real - time behavioural data is essential for achieving solid academic results. Moving beyond traditional myths, adaptive technologies offer an equitable and scientifically grounded basis for innovation in modern educational environments.

Keywords: adaptive learning systems; aied; learning styles; data-based personalisation; cognitive neuroscience; educational innovation.

10. Artificial intelligence and the personalisation of learning: Between educational innovation and legal responsibility

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Abstract

Artificial intelligence is transforming the educational process by offering the possibility of adapting content, learning pace, and teaching methods to the needs, level of preparation, and progress of each learner. The personalisation of learning can contribute to identifying learning difficulties, providing individualised feedback, and developing academic competencies. However, the integration of these technologies raises legal and ethical issues concerning the protection of personal data, the transparency of algorithmic decisions, the prevention of discrimination, the respect for copyright, and the maintenance of academic integrity. The aim of the research is to analyse the opportunities offered by artificial intelligence for the personalisation of learning and to examine the legal responsibilities associated with its use in education, with a view to identifying a balance between educational innovation and the protection of learners' rights. The research methodology is based on legal and conceptual analysis, the comparative method, and the synthesis of specialized literature and the relevant regulatory framework governing the use of digital technologies in the educational environment.

The findings of the analysis highlight that artificial intelligence-based systems can support the adaptation of educational materials, access to learning resources, and the monitoring of individual progress. At the same time, improper use may lead to excessive data processing, the perpetuation of algorithmic biases, dependence on automatically generated content, and difficulties in assigning responsibility for errors or violations of rights. The absence of clear institutional rules may exacerbate these risks and undermine trust in the educational process. In conclusion, harnessing the potential of artificial intelligence requires clear regulations, transparency, human oversight, and accountability on the part of institutions and users. The personalisation of learning must be carried out in compliance with fundamental rights and without replacing the pedagogical role of the teacher. Thus, artificial intelligence can support a more flexible and inclusive education, provided that innovation is accompanied by legal safeguards and the responsible use of technology.

Keywords: educational innovation; legal liability; academic integrity; personalisation of learning; legal responsibility.

11. Legal and ethical responsibility of students in the use of artificial intelligence tools

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Abstract

The rapid integration of artificial intelligence (AI) tools in higher education is instigating significant transformations in the educational landscape, affecting how students access information, engage in research activities, and produce academic papers. While these technologies present substantial opportunities for enhancing the learning experience and cultivating digital competencies, their application raises legal and ethical concerns regarding academic integrity, the authenticity of results, respect for intellectual property rights, and accountability for content generated with AI systems. This research aims to analyse the legal and ethical responsibilities of students in the context of utilizing artificial intelligence tools within academic activities. The study's objectives include identifying the primary risks associated with AI usage in education, evaluating the legal and ethical implications arising from this practice, and formulating recommendations for the responsible and transparent application of these technologies in the university setting. The research methodology relies on doctrinal and documentary analysis of specialized literature, pertinent regulations, and institutional policies concerning the use of artificial intelligence in education. Additionally, examples of academic practices related to AI utilisation are examined to identify applicable solutions for higher education institutions. The findings underscore that improper use of AI tools can lead to challenges in authorship attribution, verification of originality, and adherence to academic integrity standards. The analysis facilitates the development of practical recommendations, including the establishment of clear university policies, the declaration of AI tool usage in academic works, and the creation of training programmes focused on the ethical application of these technologies. In conclusion, leveraging the advantages of artificial intelligence necessitates upholding student accountability for the content produced and the establishment of institutional mechanisms that ensure a balance between technological innovation, legal obligations, and the fundamental values of university education.

Keywords: artificial intelligence; legal accountability; scholarly ethics; academic honesty; intellectual property rights; tertiary education.

12. The role of artificial intelligence in the modernisation of the educational process: Opportunities and limits

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Abstract

With the advent of artificial intelligence, human life has changed: technology has penetrated all fields, from medicine and manufacturing to everyday communication, and education is no exception. Today, AI is increasingly being introduced into the educational process, offering both opportunities and challenges. The purpose of the study is to determine the role of artificial intelligence in modernizing the educational process by identifying its capabilities and limitations. Research methods include a theoretical analysis of publications on this topic, a comparative analysis of existing approaches to the use of AI in education, as well as a generalization of practical experience in implementing intelligent systems in the educational process. The main features include the personalisation of learning: adaptive platforms tailor tasks to the pace and level of each student, which is especially useful for varying starting knowledge levels. AI automates the review of tests and trial assignments, freeing up the teacher's time for more meaningful work. It expands access to knowledge through interactive tutors, translators, and assistants that are available 24/7, and the technology creates additional opportunities for students with special needs. In addition, AI helps develop necessary digital skills; however, there are limitations, and the primary risk is the decline of independence and critical thinking: students may mechanically copy answers without understanding the core essence. AI is prone to errors by providing false information, but we are also talking about issues related to academic integrity, data confidentiality, and digital inequality. The human factor is very important: AI cannot replace pedagogical communication, emotional support, and the educational role of a teacher. Thus, artificial intelligence is capable of significantly modernizing education, but only through reasonable, ethical, and critical use. The key task is not to replace the teacher, but to complement them, fostering digital literacy and responsibility. As a result of the research, the problem will be elucidated - the lack of a balanced and ethical model for integrating AI into education, where technology complements rather than replaces the pedagogical process - and the conditions under which AI capabilities are realized without compromising critical thinking, academic integrity, and equal access to knowledge will be identified.

Keywords: educational process; opportunities; limits; legal responsibility; technologies.

13. Electronic service of civil procedure documents

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Abstract

This paper presents the legal regulation of electronic service of procedural documents in civil matters and judicial decisions, the limitations of the procedure and its deficiencies. Against the backdrop of the communications and innovations era, artificial intelligence became a working tool that is increasingly widely utilized, but this also can be used for malicious purposes. That's why there is a reluctance against its use and the maintenance of physical service of procedural documents, which generates inconvenience and delays regarding the procedural time frame. There are also divergent interpretations in judicial practice that require prior resolving the dispute, to request the High Court of Cassation and Justice to resolve the legal issue regarding the underlying dispute.

Keywords: procedural documents; legal regulation; electronic service; procedural time frame.

14. Artificial intelligence literacy – a requirement of professional competence and diligence in notarial practice

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Abstract

This article examines the relevance of artificial intelligence literacy duties to notarial practice under Article 4 of Regulation (EU) 2024/1689, as reformulated by Regulation (EU) 2026/1744. It distinguishes the duty to take measures supporting the development of AI literacy from any purported obligation to guarantee a predefined individual level of competence. Using systematic, comparative and purposive legal interpretation, the study discusses the concept of deployer, the scope of the provision, the relationship between technological literacy and legal expertise, and the personal nature of notarial functions. Particular attention is given to the risks arising from inaccurate AI outputs, fabricated legal authorities, disclosure of confidential information, unlawful personal data processing and uncritical automation of tasks requiring professional judgement. The article also examines the interaction between the AI Act, the General Data Protection Regulation and Romanian Law No. 36/1995, while cautioning against deriving an automatic civil or disciplinary liability regime directly from Article 4. Its central argument is that AI literacy is a contextual organisational duty where AI systems are used professionally, rather than a mandate to adopt artificial intelligence or a license to delegate legal assessment to automated tools. Accordingly, legal validity checks, assessment of parties' consent and responsibility for notarial acts must remain under effective human control. The study proposes differentiated training measures for notaries and support staff, internal approval rules for AI tools, source-verification procedures and proportionate records of training and incidents. It also argues that professional bodies can contribute through guidance and continuing education without imposing technologically uniform solutions on offices with different risk profiles. The original contribution lies in outlining a workable standard of technological prudence that preserves the independence of notarial functions, confidentiality and public trust while permitting responsible innovation.

Keywords: AI literacy; notary public; deployer; professional diligence; confidentiality; data protection; human oversight.

15. Regulating artificial intelligence in education: Legal challenges and safeguards under the European Union framework

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Abstract

The rapid integration of artificial intelligence (AI) into teaching, assessment and academic administration promises personalised learning and greater efficiency, yet it also raises significant legal questions concerning fundamental rights, accountability and trust. This paper examines the legal framework applicable to the use of AI in education within the European Union, with particular attention to the interplay between the Artificial Intelligence Act, the General Data Protection Regulation and national education and copyright law. The study aims to identify regulatory gaps and to assess whether current rules adequately protect students, educators and institutions.

The research adopts a doctrinal and comparative legal methodology, complemented by an analysis of policy documents and regulatory guidance. The findings indicate that educational AI systems used for admission, evaluation of learning outcomes or exam proctoring are treated as high-risk, which triggers requirements on risk management, data governance, transparency and human oversight, while emotion recognition in educational settings is largely prohibited.

However, the paper shows that important uncertainties persist regarding the allocation of responsibility between providers and deploying institutions, the processing of minors' data, automated decision-making affecting academic progression, and the ownership and permissible use of AI-generated or AI-assisted academic work. The paper concludes that effective regulation requires coordinated implementation across legal regimes, clear institutional policies, and investment in AI literacy for educators and learners. It argues that legal certainty and the protection of fundamental rights are not obstacles to innovation but preconditions for its sustainable and trustworthy adoption in education.

Keywords: artificial intelligence; education law; AI Act; data protection; algorithmic accountability; AI literacy.

16. The future of lawyering in the era of artificial intelligence: A Romanian perspective and comparative study of European developments

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Abstract

This study analyses the major changes brought by artificial intelligence (AI) to the daily work of lawyers, with a particular focus on the legal reality and laws in Romania, in accordance with the new European regulation (EU AI Act). The paper examines how the speed of technology blends with the mandatory professional ethics rules introduced by the new European regulation. In its qualitative methodological component, the research analyses official positions, current legislative projects, and specialized literature published on the main doctrinal platforms in Romania, while concurrently conducting a comparative analysis with the legislative frameworks of France, Spain, and Italy.. The study highlights that, although AI successfully takes over repetitive technical activities, the essential element of legal assistance — defined by moral discernment, direct civil liability, and axiological interpretation — remains a strictly human monopoly, which is, however, dependent on lawyers' ability to adapt to the changes in modern society caused by the development of artificial intelligence.

Keywords: artificial intelligence; future of lawyering; eU AI Act; draft bill b563/2026; uNBR; comparative analysis.

17. False equivalence and conceptual gaps in legal English instruction

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Abstract

The teaching of Legal English to Romanian law students presents significant challenges due to the conceptual and terminological differences between civil law and common law systems. Many English legal terms lack direct equivalents in Romanian legal discourse, leading to false equivalence, semantic confusion, and difficulties in comprehension. This paper examines the linguistic and conceptual gaps that arise in Legal English instruction, focusing particularly on common law terminology such as equity, trust, consideration, and tort.

The study explores how Romanian law students interpret and translate these terms and investigates the extent to which differences between legal systems affect vocabulary acquisition and legal understanding. Using a qualitative and quantitative approach, the research combines questionnaire data, vocabulary analysis, and student error analysis to identify recurring patterns of misunderstanding. The findings suggest that students frequently rely on literal translation strategies and assume functional equivalence between legal concepts that are, in reality, system-specific and culturally embedded.

The paper argues that effective Legal English instruction should move beyond traditional vocabulary memorization and incorporate comparative legal analysis, contextualized teaching methods, and conceptual explanation. By emphasising the relationship between language and legal culture, this study highlights the importance of interdisciplinary teaching strategies in improving legal vocabulary acquisition and communicative competence among Romanian law students. The research contributes to the fields of Legal English, English for Specific Purposes (ESP), comparative law, and legal translation studies, while also offering practical recommendations for curriculum development in legal language education.

Keywords: legal English instruction; false equivalence; linguistic and conceptual gaps.

18. Particularities regarding the burden of proof in cases that have as their object the resolution of labour disputes

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Abstract

The study is devoted to the analysis of the provisions of article 249 of the Code of civil procedure, which establishes that, in civil cases, the person who makes a claim before the court has the obligation to prove it. This rule in Romanian civil procedural law is known under the classic Latin adage „onus probandi incumbit actori". By way of exception from the common law in civil matters, article 272 of the Labor Code provides that "the burden of proof in labour disputes lies with the employer, who is obliged to submit evidence in his defence by the first day of appearance". With the idea of contributing to the improvement of the analysed legal regulations, where we considered it appropriate, we substantiated proposals de lege ferenda. Last but not least, we have not omitted the case law benchmarks with an impact on the burden of proof in labour dispute proceedings, such as, for example, decisions of the Court of Justice of the European Union, decisions of the Constitutional Court of Romania and decisions of some courts of appeal.

Keywords: civil procedure; labour law; conflict.

19. Artificial intelligence in criminal law education: The effects of ready-made answers on legal reasoning and critical thinking

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Abstract

The increasing use of generative artificial intelligence in higher education raises important questions about its impact on students' understanding of complex legal concepts and their ability to reason independently. These questions are particularly significant in criminal law, where the application of legal provisions requires more than the reproduction of statutory definitions: it demands the identification of the elements of an offence, the assessment of the perpetrator's mental state, and the correct legal qualification of criminal conduct.

This paper examines whether generative artificial intelligence can support students in developing criminal law reasoning or whether its use risks encouraging reliance on ready-made answers at the expense of independent legal analysis. The study focuses on the ability of AI tools to analyse hypothetical or real-life criminal cases, identify the relevant elements of criminal offences, distinguish between intentional and negligent conduct, and formulate legally justified conclusions.

The research adopts a doctrinal and conceptual approach, using criminal law problems to explore the potential strengths and limitations of AI-generated legal analyses. Particular attention is paid to the distinction between producing a plausible answer and demonstrating a sound understanding of the legal principles underlying that answer.

The paper argues that the educational value of artificial intelligence should not be measured solely by the correctness or apparent sophistication of its outputs, but also by its capacity to support students' independent legal reasoning. It proposes that the critical evaluation of AI-generated answers can be incorporated into criminal law teaching as a means of identifying legal errors, challenging assumptions, and encouraging students to justify their conclusions through legal argumentation.

The study contributes to the discussion on the responsible integration of artificial intelligence into higher education by highlighting the importance of preserving independent legal reasoning as a fundamental competence in the education of future legal professionals.

Keywords: artificial intelligence; criminal law; legal education; legal reasoning; critical thinking.

SCIENTIFIC SECTION 02

PSYCHOLOGY SECTION

ABSTRACTS

Artificial Intelligence
Innovation in Education in a World of Constant Change

23–24 November 2026 · Târgu Mureș, Romania



20. Beyond the score: Psychometric integrity and human oversight in AI-assisted psychological assessment

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Abstract

Artificial intelligence (AI) may accelerate psychological-test scoring and report production, yet fluent automated narratives do not establish valid score interpretation. This methodological study proposes an auditable framework for AI-assisted assessment in educational, clinical and organisational settings. A structured synthesis of psychometric standards, the 2025 EFPA Test Review Model, updated technology-based testing guidance, APA recommendations and research evidence informed seven decision gates: test suitability, data governance, score reproducibility, psychometric equivalence, subgroup fairness, qualified interpretation and post-deployment monitoring. A hypothetical screening example illustrates how apparently strong model discrimination may coexist with a low positive predictive value when prevalence is low. A prospective validation design is outlined using synthetic cases, independent raters, licensed-psychologist reference judgements and safety-oriented endpoints. The contribution is a transparent decision protocol and testable research agenda, not a validated clinical instrument. Human accountability, construct validity, documented uncertainty and equitable interpretation remain essential throughout assessment.

Keywords: psychological testing; psychometric validity; artificial intelligence; human oversight; algorithmic fairness; assessment governance.

21. From digital portfolios to AI-assisted psychological assessment: A PRISMA-informed global evidence synthesis and a Romanian university case study

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Abstract

Psychological assessment increasingly relies on digital tools and artificial intelligence (AI), making ethical, psychometric and data competencies essential in psychology curricula. This PRISMA-informed rapid evidence overview combines published meta-analyses, examples of psychology programmes from the United States and Europe, and a document-based case study of Applied Informatics in Psychology at "Dimitrie Cantemir" University of Târgu Mureș (2025–2026). Meta-analyses identify positive but heterogeneous effects of AI-supported learning, without establishing psychology-specific effects. The UDC course includes 4 ECTS, 28 lecture hours, 14 laboratory hours and a portfolio contributing 40% of the final grade. Portfolio tasks include data visualisation, online questionnaires, academic research and ethical reflection. As student-level portfolios and matched baseline–final assessments were unavailable, improvement in digital competence cannot yet be quantified. The paper proposes a rubric-based longitudinal evaluation and a safeguarded pathway for AI-assisted scoring and interpretation with synthetic cases, validity checks, fairness analysis and qualified human oversight. Technology proficiency alone cannot substitute for evidence-based psychological judgement.

Keywords: applied informatics in psychology; digital competence; electronic portfolios; generative artificial intelligence; psychometrics; higher education.

22. Metacognition and professional reflection in the development of educational managers

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Abstract

This study explores how metacognition and reflection on professional experiences contribute to the development of managers in educational institutions. The research examined how these managers analyse their decisions, utilize feedback, and learn from challenging situations or mistakes. A qualitative approach was employed, based on semi-structured interviews with managers from educational institutions, selected according to their professional experience and availability. The data were analysed thematically, focusing on identifying patterns such as monitoring one's own reactions, re-evaluating decisions, recognising areas for improvement, and planning changes in managerial practice. The results highlight systematic reflection as a valuable practice for professional learning and the adaptation of leadership behaviour. This study can inform the design of training programmes for educational managers by incorporating tools such as reflective journals, case studies, and mentoring. The research was conducted within the framework of the UPSC research sub-programme, "Models for utilizing neuroscience in personal development."

Keywords: metacognition; professional reflection; educational managers; professional development; experiential learning.

23. From co-regulation to autonomy: Self-restraint and watchfulness in the development of self-control

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Abstract

Self-control develops through interactions between emerging cognitive and emotional capacities, relationships, and opportunities to practise responsible choice. This theoretical article examines its development from childhood through adolescence, with implications for adult self-regulation. A narrative integrative review brings psychological literature on co-regulation, executive functions, emotion regulation, and internalisation into dialogue with selected texts from Orthodox Christian spirituality. The analysis distinguishes immediate compliance with external demands from the gradual development of an increasingly autonomous and flexible capacity to regulate behaviour. It considers how adult modelling, relational support, clear expectations, and age-appropriate participation in decisions may contribute to managing impulses, tolerating frustration, and pursuing meaningful goals. The spiritual discussion examines self-restraint, watchfulness, discernment, and the orientation of freedom towards the good, preserving their theological meanings and distinguishing them from psychological constructs. Particular attention is given to the developmental appropriateness of educational expectations and to the continuing role of relationships as autonomy increases. Everyday situations, including responding to frustration, persisting with difficult tasks, and ending digital activities, illustrate the practical questions addressed. The article proposes an interpretative framework linking regulatory capacities, educational support, and reflection on the purposes of action. Its educational implications are presented as literature-informed proposals rather than a validated intervention programme. The central argument is that education for self-control should cultivate both the capacity to regulate conduct and the ability to understand and assume responsibility for one's choices.

Keywords: self-control; co-regulation; developmental psychology; internalisation; educational practices; Orthodox Christian spirituality.

24. Choosing wisely in a digital world: Attention, discernment, and the use of AI

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Abstract

Digital self-control concerns both the regulation of immediate impulses and the deliberate choice of purposes for which technology is used. This narrative integrative review examines everyday digital temptations and generative artificial intelligence use through psychological research, cultural criticism, and selected reflections from Orthodox Christian spirituality. The psychological analysis considers strategies deployed before, during, and after a conflict between immediate attraction and personally meaningful goals, including environmental modification, attentional regulation, cognitive reappraisal, planning, and reflective monitoring. Cultural critiques of technological dominance and Orthodox reflections on the technologisation of life provide a framework for questioning how technological environments may influence users' priorities and criteria for evaluating their actions. Watchfulness, self-restraint, and discernment are examined in relation to intention, inner life, and personal relationships, without equating spiritual practices with psychological techniques. Generative AI provides a particular application: deciding when to seek assistance, which cognitive activities to delegate, how to verify outputs, and when to retain independent judgement. Cognitive offloading is not treated as inherently problematic; its implications are evaluated in relation to learning, task demands, and responsibility. The article proposes an educational framework organised around purpose, attention, verification, relational consequences, and stopping criteria. Illustrative applications include unplanned browsing, interruptions during concentrated work, and the uncritical acceptance of AI-generated responses. The proposed framework requires empirical evaluation. The central argument is that responsible digital self-control combines context-sensitive strategies with reflection on the ends technology serves, preserving opportunities for understanding, deliberate choice, and accountable action.

Keywords: self-control; digital temptations; artificial intelligence; metacognition; discernment; Orthodox Christian spirituality.

25. AI challenges in scientific research

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Abstract

The emergence of artificial intelligence (AI) presents both opportunities and challenges for scientific research. This paper considers how AI tools may be used efficiently and responsibly in research. In applied research, AI can accelerate literature reviews, documentation, and statistical processing. However, these practical advantages should not be confused with the intellectual work of interpreting results, drawing conclusions, and identifying appropriate solutions to a research problem. These responsibilities remain with the research team, whose understanding of the specific context enables it to evaluate alternatives and select approaches suited to the needs of the study. Although AI can facilitate access to recent information and suggest relevant sources, determining which information is most useful requires the researcher's critical judgement. AI should therefore support, rather than replace, scientific expertise. Scientific truth depends not on the tools used to investigate a problem, but on rigorous reasoning and the informed decisions of researchers with extensive experience in their fields.

Keywords: researcher; artificial intelligence; scientific truth.

26. School motivation and learning strategies in students: Relationships and implications for psychopedagogical counselling

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Abstract

School motivation and learning strategies are important dimensions of students' adaptation to educational requirements, influencing their involvement in school activities, perseverance in the face of difficulties and the use of personal resources. Understanding the relationship between these dimensions can help identify the factors that support learning and the vulnerabilities that can limit its effectiveness.

The present research aims to examine the relationship between school motivation and learning strategies in students, aiming to outline individual profiles of resources and difficulties associated with school activity. Strategies for organising and processing information, time management, focus of attention, preparation for assessments and use of study resources will be analysed, in relation to motivational involvement and anxiety towards assessment. Particular attention will be paid to how difficulty concentrating and low level of motivation are associated with the use of learning strategies.

The study will use a quantitative approach, with a cross-sectional and correlational design. The data will be collected through self-assessment, and the statistical analysis will follow the description of the variables investigated and the examination of the relationships between them. The interpretation will consider both the students' resources and the difficulties reported, in order to provide a balanced perspective on their learning experience.

Through its objectives, the research aims to provide benchmarks for identifying the needs for educational support and for substantiating psycho-pedagogical counselling interventions adapted to the particularities of the students. The practical implications are aimed at developing the skills of planning and organising the study, strengthening the autonomy in learning, managing the anxiety associated with the assessment and supporting the school motivation. At the same time, the study can support the collaboration between students, teachers, school counselors and parents in building ways to support active participation in the educational process.

Keywords: school motivation; learning strategies; anxiety about evaluation; self-regulation of learning; psychopedagogical counselling.

27. The evolution of foreign language learning anxiety over a semester in the English classroom

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Abstract

This study presents the final results of an investigation of the prevalence and impact of language learning anxiety among college-level English as a Second Language (ESL) students, using the Foreign Language Classroom Anxiety Scale (FLCAS) in a single group pre-test – post-test design. Fifty undergraduate participants from diverse backgrounds completed the FLCAS at the onset of the academic year, providing baseline data on their emotional responses to English language learning. The scale was applied again before the summer holiday, after 28 weeks of study. The research aims to analyse the results obtained in a group using primarily gamification teaching methods, as well as track the evolution of the scores in relation to the students' language performance, engagement, and academic motivation. Future research will look at comparing scores obrained by groups where different teaching methods and techniques are applied, looking to identify the combination of methods and resources best suited for reducing anxiety in a language learning context.

Keywords: ESL, language learning, anxiety, academic motivation, teaching method

28. When faith meets artificial intelligence: Rethinking psychological adaptation and education in chronic illness

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Abstract

Background: In a world increasingly shaped by artificial intelligence, understanding how faith influences psychological adaptation to chronic illness opens new perspectives for personalised patient education.

Methods: This study examines 77 patients with chronic diseases using three validated psychological instruments: Brief RCOPE, assessing positive and negative religious coping; the Acceptance of Illness Scale (AIS), measuring illness acceptance; and the Hospital Anxiety and Depression Scale (HADS), evaluating emotional distress. The study investigates associations between religious coping, illness acceptance, anxiety, and depression.

Innovation: Building on this psychological assessment, we propose an AI-assisted educational framework capable of integrating coping profiles, emotional vulnerability, and individual spiritual values into personalised psychoeducational strategies. The model aims to identify patients requiring additional support and adapt educational interventions to their psychological needs.

Conclusion: Religious coping may offer valuable insights into psychological adaptation to chronic illness. Combining validated psychological assessment with AI-supported education could transform patient-centred care by bridging technological innovation with human meaning, resilience, and spirituality.

Keywords: religious coping; artificial intelligence; chronic illness; brief RCOPE; illness acceptance; personalised patient education.

29. Generative artificial intelligence and academic integrity: Psychological, ethical, and educational challenges in the training of future professionals

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Abstract

The rapid integration of generative artificial intelligence into higher education is bringing about significant transformations in teaching, learning, and assessment processes, creating both opportunities for educational innovation and challenges related to academic integrity and the development of professional competencies. In this context, the use of artificial intelligence tools raises fundamental questions concerning the authenticity of academic performance, individual responsibility, cognitive autonomy, and adherence to ethical principles in education.

This paper aims to examine, from psychological and educational perspectives, the implications of generative artificial intelligence for students' academic behaviours, highlighting the individual and contextual factors that may encourage responsible use or, conversely, practices that conflict with the principles of academic integrity. Particular attention is given to the roles of academic motivation, self-regulated learning, moral reasoning, and self-efficacy in shaping students' attitudes and behaviours toward the use of AI tools.

Special emphasis is placed on the psychological mechanisms through which excessive reliance on generative technologies may contribute to reduced cognitive engagement, the externalisation of responsibility, and the development of forms of moral justification for unethical academic behaviours. At the same time, the paper highlights the opportunities offered by artificial intelligence for personalised learning, the promotion of critical reflection, and the development of digital competencies, provided that these technologies are used transparently and responsibly.

From an applied perspective, the paper proposes directions for improving educational practices in higher education through the integration of AI literacy, the development of self-regulation skills, and the strengthening of an institutional culture grounded in responsibility, transparency, and academic integrity.

The paper emphasises the need for a balanced educational approach in which generative artificial intelligence serves as a tool to support learning and professional development without replacing critical thinking, intellectual autonomy, and ethical responsibility, which are essential to the training of future professionals.

Keywords: generative artificial intelligence; academic integrity; ethical responsibility; self-regulated learning; cognitive autonomy; higher education.

30. Predictive behavioral analytics in early education: Mapping kindergarten temperament to social problem-solving modalities

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Abstract

Background: Early childhood temperament influences self-regulation and peer play dynamics, acting as a foundational mechanism for social competence. Empirical data mapping temperamental traits to conflict resolution strategies remains vital for designing adaptive educational frameworks.

Objective: This study investigates the associations between core temperamental dimensions—activity level, persistence of interest, contentment, and distress—and the specific modalities children adopt to resolve social problems.

Method: The sample included 110 Hungarian-speaking kindergarten children (aged 4–6) in Romania. The Social Problem Solving Test (SPSM) assessed conflict strategies across eight standard peer scenarios, while the Laboratory Temperament Assessment Battery (LABTAB) quantified behavioral reactivity and regulation.

Results: Lack of efficiency, telling, asking, and involving an adult for punishment were the most frequent problem-solving modalities. Girls demonstrated significantly higher total interest, contentment smiles, and trading strategies than boys. High activity and high interest correlated positively with verbal communication (telling) and authority appeal, showing no link to aggression. Conversely, participants characterized by low activity, low interest, low contentment, and lower sadness expression relied significantly more on physical aggression and trading-sharing, while rarely utilizing verbal telling or adult intervention. Higher anger intensities strongly predicted a lack of efficiency and physical aggression.

Conclusion: Early childhood social problem-solving is strongly rooted in temperamental reactivity, with aggression uniquely characterizing less active, high-anger profiles rather than highly active children. Understanding these distinct behavioral configurations provides critical data necessary to innovate highly targeted, adaptive social-emotional learning interventions and predictive behavioral observation models in early education.

Keywords: childhood temperament; early childhood education; predictive behavioral analytics; social problem-solving modalities.

31. Designing an AI-enhanced educational and early detection framework for emergency services staff: A comprehensive review

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Abstract

Background: Emergency frontline personnel (firefighters, paramedics, SMURD, and police officers) face routine exposure to high-level traumatic stress, leading to disproportionate rates of PTSD, severe burnout, and suicidal ideation. Traditional, reactive medical evaluations fail to capture these invisible occupational injuries, underscoring the urgent need to innovate staff training and move toward proactive, framework-driven education and early detection.

Objective: This review aims to aggregate the best global practices in occupational health monitoring and evaluate digital e-Health diagnostic screening metrics. By mapping these international structures, this study provides scalable pedagogical and clinical data to support the development of a tailored, actionable emergency responder educational and diagnostical programme applicable in Romania.

Methods: This study conducted a comparative analysis of successful global education, prevention, screening, and training programmes, specifically evaluating France's Brigade de Sapeurs-Pompiers de Paris, Germany's G31 system, Great Britain's National Emergency Briefing, the United States' World Trade Centre Health Programme and NFPA 1582 Standard, and Australia's Black Dog Institute protocols. Integrating structured screening and intervention protocols from these proven international models is critical for building psychological resilience. This approach establishes a sustainable, digitally and AI-enhanced framework for long-term occupational mental health education, screening, and surveillance.

Results: The identified international best practices, diagnostic metrics, and educational pathways are integrated into the framework of the Deep_AI research project. Based on this review data, we develop a cluster-randomised controlled trial (cRCT) curriculum. This framework utilizes digital, AI-informed, third-generation Acceptance and Commitment Therapy (ACT) modules combined with smart diagnostic tools specifically designed to educate staff, optimise early screening, mitigate acute distress, and prevent autolytic behaviour among first responders in a world of constant change.

Keywords: AI-enhanced educational framework; best practices; e-health screening.

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32. Political psychology: A viable predictor of international reality and dynamics

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Abstract

Ultimately, within the avatar of scientific knowledge, political psychology emerges as a recent, revealing and innovative field of study-one that brings about fundamental shifts within the modernist and applied spheres of psychology-.Given its profoundly and complex interdisciplinary nature, political psychology has- at least over the last decades of its existence- proven to be an extremely useful framework for examining political phenomena, offering a substantive perspective rooted in the deepest mechanisms of individual and group psychology. Undoubtedly and indisputably - regardless the perspective from which it is approached- political psychology reveals that at the root of all political endeavors and motivations, lies a serious of fundamental psychological mechanisms that must be identified and explained. Consequently, political psychology- or the science of governance-is so essential that statesmen ought not to dispense it. It is all the more significant given that it is build upon the study of individual psychology, upon the psychology of crowds and nations, and upon the lessons of history, thereby contributing substantially to the resolution of the international issues that arise daily. Political psychology, is without a doubt, more than just a modern trend within the field of psychology or a mere sub-discipline, rather it serves as an authentic scientific compass for the multi universe in which we live-and perhaps above all else, as the key regarding the resolution of all the problems we face-.

Keywords: political psychology, individual psychology, group psychology, international problems

33. Beyond resilience: Adaptive creativity and cognitive flexibility in the development of future military professionals' psychological competencies in the age of artificial intelligence

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Abstract

The increasing integration of artificial intelligence (AI) into military education raises important questions regarding the psychological development of future military professionals and their ability to adapt to complex, uncertain, and rapidly changing environments. While resilience and stress management remain essential components of military training, contemporary educational challenges also require cognitive flexibility, creative problem-solving, and independent judgement. This paper aims to examine the theoretical relationships between adaptive creativity, cognitive flexibility, and psychological resilience in AI-assisted military education, integrating perspectives from developmental psychology, creativity research, and military psychology. The study adopts a theoretical-conceptual approach, drawing on established psychological frameworks and contemporary literature concerning AI-supported learning, adaptive training, and professional competence development. The conceptual analysis explores the potential of AI-assisted educational simulations, personalised feedback, and scenario-based learning to support divergent thinking, emotional self-regulation, and flexible responses to unfamiliar situations. Particular attention is given to the developmental characteristics of emerging adulthood, when professional identity, self-efficacy, and autonomous decision-making continue to evolve. As its main theoretical contribution, the paper proposes a conceptual framework for adaptive creativity development in AI-assisted military education, integrating cognitive resources, emotional regulation, developmental characteristics, and reflective engagement with AI-generated feedback. The framework distinguishes between successful performance in technologically supported training environments and the sustained development of independent psychological competencies. The paper concludes that AI-assisted military education should prioritise not only resilience and task performance but also the development of creative autonomy, cognitive adaptability, and responsible decision-making, emphasising the importance of human-centred educational strategies.

Keywords: artificial intelligence; military psychology; adaptive creativity; cognitive flexibility; psychological resilience; military education.

34. Developing creativity in the age of generative artificial intelligence: From individual imagination to human–AI co-creation

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Abstract

The increasing integration of generative artificial intelligence (AI) into educational environments raises important questions about the development of human creativity, particularly regarding imagination, divergent thinking, and creative autonomy across developmental stages. This paper aims to examine the psychological implications of AI-assisted creative processes by integrating perspectives from developmental psychology, creativity research, and educational psychology. The study adopts a theoretical-conceptual approach, drawing on established psychological theories and contemporary research on generative AI in education. Particular attention is given to the sociocultural understanding of imagination, developmental perspectives on creative potential, and the psychological mechanisms underlying human-AI co-creation. The analysis highlights a central theoretical distinction between AI-assisted creative performance and the sustained development of individual creative capacities. While generative AI may facilitate idea generation, cognitive flexibility, and creative exploration, excessive reliance on algorithmically generated content may also constrain independent thinking, originality, and creative self-efficacy. As its main conceptual contribution, the paper proposes the Developmental Creative Mediation Model (DCMM), which integrates developmental characteristics, psychological resources, modes of AI interaction, and creative autonomy into a framework for understanding AI-mediated creativity. The model suggests that the educational value of generative AI depends not only on the quality of creative outcomes but also on individuals' active cognitive engagement and opportunities for independent creative development. The paper concludes by emphasising the importance of developmentally appropriate educational strategies that position AI as a supportive rather than substitutive tool in creative learning.

Keywords: generative artificial intelligence; developmental psychology; creativity development; creative autonomy; human–AI co-creation; educational innovation.

35. Artificial intelligence as a psychoeducational tool in psychotherapy: A literature review of current evidence and clinical implications

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Abstract

In the past few years, Large Language Models (LLMs) (eg. ChatGPT) have been increasingly consulted by people looking for mental health information, namely psychoeducation, or psychotherapeutic support. Psychoeducation serves as a core component of psychotherapeutic practice, fostering illness literacy, treatment engagement, and coping skills. This review synthesizes emerging empirical evidence on the informational quality, user perception, and clinical limitations of ChatGPT, as a psychoeducational tool in mental health practice.

The evidence highlights a divergence in evaluation: while readers rate ChatGPT-generated psychoeducation very favorably regarding clarity, accessibility, and perceived empathy, mental health professionals maintain a critical stance regarding clinical accuracy and risk management. Although LLMs generate generally relevant information on structured therapeutic topics, outputs consistently exceed general levels of public literacy. Furthermore, current models exhibit a pronounced bias toward cognitive-behavioural techniques while struggling with individualised case formulations, complex diagnostic boundaries, and severe crisis presentations.

In conclusion, ChatGPT demonstrates significant promise as a scalable, complementary resource for expanding access to psychoeducation. However, it cannot replace in-person individualised clinical evaluation, risk assessment, or the human therapeutic alliance. Establishing rigorous safety protocols and promoting AI literacy among clinicians are necessary prerequisites for responsible integration.

Keywords: ChatGPT; psychoeducation; psychotherapy; mental health.

36. Why are young people receptive to multipolar digital narratives? Psychological mechanisms of reception in an algorithmically curated information environment

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Abstract

Multipolar digital narratives challenge the legitimacy of the liberal international order and promote the idea of a world in which powers such as Russia or China play central roles. Unlike classical disinformation, they do not necessarily rely on false information, but on recontextualising events into an alternative, coherent and emotionally charged story about sovereignty, tradition and resistance to "Western hegemony". This paper aims to explain why young people aged 18–30 may be particularly receptive to such messages. The approach is theoretical and integrates several perspectives from social and political psychology. The first is dual-process theory, according to which content consumed rapidly, in short-form feeds, predominantly activates intuitive rather than analytical processing. The second is the Elaboration Likelihood Model, which explains persuasion through the peripheral route, via emotional, social and popularity cues. The third is framing theory, which shows how the presentation of an issue shapes its interpretation. These perspectives are complemented by the specificity of age: the period between 18 and 30 is considered decisive for the consolidation of political beliefs and identity. The analysis shows that recommendation algorithms, as a form of artificial intelligence, do not act as mere neutral channels. They amplify precisely the conditions under which these mechanisms become active: repeated exposure, emotional intensity and social confirmation within echo chambers. The result is a conceptual model of psychological vulnerability to multipolar narratives that distinguishes between cognitive, affective and identity-related factors. The paper argues that understanding these mechanisms is a necessary condition for effective prevention efforts aimed at stimulating analytical processing and developing young people's cognitive resilience.

Keywords: multipolar digital narratives; dual-process theory; persuasion; political identity; algorithmic curation; youth.

37. Accepting the impossibility of cure: An ACT intervention in a case of refractory Hodgkin lymphoma with a contraindicated second transplant

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Abstract

Introduction. The medical refusal of a second stem cell transplant in a patient with progressive Hodgkin lymphoma radically changes the therapeutic frame: from a curative perspective to the long-term management of a chronic disease sustained by immunotherapy and chemotherapy. This transition exposes the patient to a specific psychological distress that generic supportive interventions address poorly. Acceptance and Commitment Therapy (ACT) offers a model suited to such situations, aimed not at eliminating suffering but at building psychological flexibility in the presence of irreversible medical limits.

Methods. We present the case of a 40-year-old woman with Hodgkin lymphoma, initially treated with chemotherapy and autologous hematopoietic stem cell transplantation. After disease progression, the medical team contraindicated a second transplant and recommended chronic treatment. The patient was referred to psycho-oncological counselling and psychotherapy for difficulties in accepting her new medical condition. The intervention was structured on the core ACT processes (acceptance, cognitive defusion, contact with the present moment, values clarification, committed action), complemented by elements from the literature on fear of cancer recurrence/progression (FCR). Pre-intervention assessments included HADS, AAQ-II, FCRI and FACT-G; post-intervention assessments are planned at the end of therapy.

Results. Therapy is ongoing; five sessions have been completed (context and creative hopelessness, acceptance in two sessions, general and FCR-specific cognitive defusion). Clinically, the patient shows increased tolerance of uncertainty about the course of the disease, greater willingness to address the topic of therapeutic limitation, fewer avoidance behaviours reported in self-monitoring, early signs of defusion from catastrophic thoughts, and a gradual reorientation toward meaningful values and activities compatible with the new medical context.

Conclusions. This case supports the clinical utility of ACT in psycho-oncology for patients facing "curative untreatability", where the therapeutic goal shifts from eliminating suffering to building a meaningful life in its presence.

Keywords: Hodgkin lymphoma; acceptance and commitment therapy; psycho-oncology; stem cell transplantation; psychological flexibility.

38. Conscientiousness as a psychological resource associated with academic motivation in late adolescence

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Abstract

Academic motivation is a fundamental component of student engagement in the educational process, associated with perseverance, goal orientation, and the capacity for self-regulation of learning behaviour. In late adolescence—a stage characterised by intensifying academic demands and the approaching transition to higher education or professional life—identifying individual psychological resources linked to motivation becomes particularly relevant. In this context, conscientiousness—a core personality dimension within the Big Five model—is distinguished by traits such as responsibility, self-discipline, organisation, and perseverance in achieving goals. The purpose of this research was to investigate the relationship between conscientiousness and academic motivation during late adolescence, aiming to highlight the relevance of this trait for understanding individual differences in school engagement. The study employed a quantitative, cross-sectional, correlational design, involving a sample of 87 twelfth-grade students (44 boys and 43 girls). Conscientiousness was assessed using the Five-Factor Personality Inventory (FFPI), while academic motivation was examined using the "Low Academic Motivation" scale from the School Motivation and Learning Strategies Inventory (SMALSI). The relationship between the variables was analysed by calculating the Pearson correlation coefficient. The results revealed a statistically significant, moderate, negative association between conscientiousness and low academic motivation ($r = -0.48$; $p < 0.001$). Thus, higher levels of conscientiousness were associated with lower levels of academic demotivation. The value of the coefficient of determination ($r^2 \approx 0.23$) indicates that approximately 23% of the variance is shared between the two variables. The findings highlight the relevance of conscientiousness as a psychological resource associated with sustaining academic motivation during late adolescence. While these results can be interpreted through the lens of self-regulation mechanisms, self-discipline, and goal orientation, they do not establish causal relationships. From an applied perspective, these findings suggest the value of developing psycho-educational interventions focused on organising learning, planning activities, monitoring progress, and strengthening perseverance, with the aim of supporting adolescents' academic engagement.

Keywords: conscientiousness; academic motivation; late adolescence; personality; self-regulated learning.

39. The pathology of greed between sin and psychological dysfunction: An integrative theological and psychodynamic perspective

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Abstract

Greed (filargyria – the love of silver, and gastrimargia in the extended patristic sense of avarice and accumulation) represents one of the most complexly structured behavioural and spiritual deviations of the human being. This paper proposes an interdisciplinary analysis, bringing into dialogue Orthodox moral theology and contemporary clinical psychology (psychoanalysis and cognitive-behavioural psychology). Through reference scriptural case studies—the Rich Fool, the Rich Man and Lazarus, the Unforgiving Servant, and the episode from the Acts of the Apostles concerning Ananias and Sapphira—the defence mechanisms of the Ego, the illusion of self-sufficiency, existential separation anxiety, and the distortion of the relationship with the Other are decoded. Furthermore, the paper analyses Moș Costache Giurgiuveanu from Enigma Otiliei (Otilia's Enigma) by George Călinescu.

Keywords: greed; avarice; psychopathology of hoarding; ascetic theology; defence mechanisms; existential anxiety.

40. The influence of social networks on the body ideal in adolescents

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Abstract

This paper investigates the influence of social networks on adolescents' body ideal. Since the early 2000s, the rapid expansion of the internet and social networks has been accompanied by a radical change in self-perception and the body ideal, with consequences for identity and personality. My hypothesis is that, compared with the early 1990s, when films and television series offered teenagers only a passive role in constructing the body ideal, adolescents today play an active role in its construction through increasingly intensive use of social networks. Addiction to social networks and immersion in a virtual reality that differs from objective reality will transform us as a species.

Keywords: body ideal; adolescents; social influence; social networks; virtual identity.

41. From artificial intelligence to human flourishing: The role of joy in lifelong learning and educational innovation

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Abstract

Artificial intelligence (AI) is changing how people learn at every stage of life, and most discussion of this change concerns efficiency and access to information. This paper asks a different question: what kind of experience does learning become when AI is part of it? Its purpose is to examine joy as a psychological resource in lifelong learning and in AI-supported educational innovation. The paper is conceptual. It draws on recent research in three areas (AI in education, positive psychology, motivation) and reads this literature from the combined perspective of psychology and coaching. The studies reviewed indicate that perceived autonomy and learning enjoyment mediate the link between students' attitudes toward AI and their engagement, that basic psychological needs deserve attention whenever AI enters an educational setting, and that wellbeing shapes how the creative potential of AI is realised. Joy is treated here as an experience that can accompany discovery and growth. Technology cannot produce it on demand, and it should never become a performance target. On this basis the paper proposes a conceptual model in seven elements, which leads from AI affordances to human flourishing by way of autonomy, learning enjoyment, engagement, reflection and creativity, and which pairs each element with a question for evaluating AI-supported learning. It also introduces the idea of joyful competence, the capacity to stay engaged with learning and to connect the development of competence with personal meaning. The main conclusion is that the educational value of AI depends on what it enables learners to experience and become, as well as on what it can do. Coaches and psychologists, like educators, therefore share a task: helping people use AI without giving up their agency. The model has not yet been tested empirically, and doing so is the next step.

Keywords: artificial intelligence; joy; human flourishing; lifelong learning; educational innovation; coaching.

42. Personalizing anxiety management interventions for people with chronic diseases based on coping strategies using artificial intelligence

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Abstract

Chronic diseases are frequently associated with elevated levels of anxiety, which may negatively affect patients' psychological well-being, quality of life, and ability to cope with the demands of long-term treatment. However, individuals with similar medical conditions may adopt different coping strategies and have distinct emotional support needs. This variability highlights the importance of developing personalised approaches to anxiety management.

This study aims to explore the potential of artificial intelligence (AI) to personalize anxiety management interventions for people living with chronic diseases, based on their coping strategies and individual psychological profiles. The proposed system will integrate information obtained through validated psychological assessment instruments, including measures of anxiety and coping strategies, to identify individual needs and select appropriate psychological support resources.

The system will combine a recommendation mechanism with an AI-based conversational component designed to present relevant resources, explain recommendations, and guide users toward evidence-informed coping techniques. Potential resources may include relaxation exercises, stress-management strategies, psychoeducational materials, and guidance on seeking professional psychological support. The framework is intended to be adaptable to different chronic conditions, including cancer, diabetes mellitus, cardiovascular diseases, and chronic respiratory disorders.

The research will investigate the feasibility of this personalised approach, the perceived relevance and usefulness of its recommendations, and the potential differences in recommendation patterns across coping profiles and chronic disease categories. Where appropriate, subsequent evaluation may examine changes in anxiety levels using validated assessment instruments and a controlled study design.

The proposed system is intended to complement, rather than replace, professional psychological and medical care. By integrating psychological assessment, personalised recommendations, and artificial intelligence, this research seeks to contribute to the development of accessible, individualised, and evidence-informed digital support for anxiety management in people living with chronic diseases.

Keywords: artificial intelligence; anxiety management; chronic diseases; coping strategies; personalised psychological support; digital health.

SCIENTIFIC SECTION 03

DENTAL MEDICINE SECTION

ABSTRACTS

Artificial Intelligence
Innovation in Education in a World of Constant Change

23–24 November 2026 · Târgu Mureș, Romania



43. AI-based predictive modelling for orthodontic relapse using objective retainer compliance data and patient-specific factors

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Abstract

Orthodontic relapse remains a major challenge that can compromise both functional and aesthetic outcomes after active treatment. This paper synthesizes current knowledge on the multifactorial causes of relapse, evidence-based preventive strategies, and contemporary management approaches, while presenting a novel artificial-intelligence model for early risk prediction. A prospective cohort of 162 patients who had completed fixed-appliance therapy was monitored for 24 months using Hawley retainers equipped with temperature-sensitive microsensors that objectively recorded daily wear time. Clinical relapse was quantified through standardised changes in arch length, overjet, overbite, and tooth rotation. Three machine-learning algorithms were trained on a feature set combining compliance metrics, treatment complexity, age at debond, and initial malocclusion severity. The Random Forest classifier achieved the highest performance on the held-out test set (accuracy 91.1 %, sensitivity 88.4 %, specificity 93.5 %, AUC-ROC 0.931). Mean daily retainer wear emerged as the strongest predictor, with an optimal threshold of approximately 12.2 hours associated with a substantially lower relapse rate. The model enables early identification of high-risk patients and supports personalised retention protocols. Integrating objective compliance monitoring with AI-driven risk stratification offers a practical pathway to improve long-term stability and reduce the need for re-treatment in orthodontic care.

Keywords: orthodontic relapse; artificial intelligence; random forest; retainer compliance; predictive modelling; SMART microsensors.

44. Artificial-intelligence-assisted assessment of sugar-free chewing gum efficacy in reducing dental plaque in schoolchildren using the Turesky modified Quigley–Hein index

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Abstract

Dental plaque reforms within minutes after toothbrushing, creating hygiene gaps that are particularly difficult to manage in school-aged children. This clinical study evaluated the short-term efficacy of a xylitol-containing sugar-free chewing gum in reducing plaque scores measured by the Turesky Modified Quigley–Hein Plaque Index (TMQHPI) and explored the potential of artificial intelligence (AI) tools for objective, automated scoring of plaque from intra-oral photographs. Twenty-five children aged 8–10 years (mixed dentition) chewed a standardised Orbit Watermelon gum for 10 minutes after plaque disclosure. Mean TMQHPI decreased from 3.42 ± 0.51 (moderate-to-poor hygiene) to 1.87 ± 0.43 (good hygiene), corresponding to a 45.3 % reduction ($p < 0.001$). The rapid mechanical and salivary stimulation effect of the gum was confirmed clinically. The same photographic data set is ideally suited for training convolutional neural networks capable of automatic TMQHPI scoring, thereby reducing inter-examiner variability and enabling large-scale, AI-supported monitoring of oral-hygiene interventions in paediatric populations. Sugar-free xylitol gum therefore represents both an effective adjunctive measure and a valuable source of annotated images for future AI models in paediatric dentistry.

Keywords: artificial intelligence; dental plaque; TMQHPI; sugar-free chewing gum; xylitol; paediatric oral hygiene; automated image analysis.

45. Global trends in orthodontic malocclusion patterns across geographic regions: A narrative review

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Abstract

Malocclusion represents a major oral health concern globally, ranking closely behind dental caries and periodontal conditions according to health organisations. Its reported occurrence varies widely among paediatric and adolescent groups, spanning approximately 35% to 90%. This narrative synthesis reviews epidemiological distributions of occlusal variations across diverse geographical cohorts. Literature searches across core medical databases identified studies evaluating sagittal, vertical, and transverse dental relationships in populations aged 7 to 20 years. Analysis of findings indicates that the Class I occlusal relationship remains the most predominant feature globally (ranging roughly from 36% to 92%), followed by Class II (4% to 42%) and Class III (1% to 18%) configurations. Vertical and transverse discrepancies showed significant variation: anterior dental crowding was the most prevalent intra-arch anomaly (reaching up to 81%), whereas spacing displayed wider variations (16% to 58%). Deep bite parameters demonstrated relative consistency, whereas open bite and crossbite distributions were highly population-dependent. These variations highlight the interplay between genetic predisposition, environmental influences, and functional habits unique to specific geographical regions. Understanding these regional variations provides valuable clinical foresight for public health planning and targeted orthodontic interventions.

Keywords: malocclusion prevalence; geographic distribution; angle classification; occlusal traits.

46. The epinephrine paradox in the era of artificial intelligence: Endogenous stress responses, pharmacological risks, and clinical decision support in patients with cardiovascular vulnerability

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Abstract

Purpose of the study: Epinephrine is an essential mediator of the physiological stress response and a life-saving medication in specific medical emergencies. However, excessive adrenergic activation and exogenous administration may contribute to tachyarrhythmias, myocardial ischemia, and hemodynamic instability. Thys study aims to analyse the epinephrine paradox in patients with cardiovascular vulnerability and pregnant women, while exploring the potential of artificial intelligence (AI) to support individualised benefit-risk assessment.

Methodology: A narrative review of the literature was conducted drawing on international cardiopulmonary resuscitation guidelines, anaphylaxis management recommendations, cardiology and obstetric guidelines, and publications addressing the applications of artificial intelligence in clinical medicine. The review examined the pathophysiological mechanisms of endogenous epinephrine secretion, the effect of pharmacological administration, major cardiovascular complications, and opportunities to integrate clinical data into clinical decision-support systems.

Results: The analysis highlights the context-dependent nature of epinephrine's effects. In anaphylaxis and cardiac arrest its therapeutic benefits justify administration according to recommended protocols, including in patients with pre-existing cardiovascular disease and pregnant women. In contrast, its use of an inotropic agent in cardiogenic shock requires a distinct approach, particularly during pregnancy. The literature on artificial intelligence suggests that integrating hemodynamic electrocardiographic, and clinical parameters may help identify risks and support medical decision-making. Nevertheless, the applicability of these tools to individualised epinephrine administration requires specific clinical validation.

Conclusions: The epinephrine paradox reflects the complex balance between life-saving effects and cardiovascular risks. Artificial intelligence could contribute to the development of personalised risk-assessment strategies without replacing clinical judgement or delaying life-saving interventions. Prospectives studies are needed to validate the safety and clinical utility of these systems.

Keywords: epinephrine; adrenaline; adrenergic response; artificial intelligence; cardiovascular risk; clinical decision support.

47. Gut microbiota and major depressive disorder: Neurobiological interactions and therapeutic perspectives of the gut–brain axis

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Abstract

Purpose of the study: To evaluate the relationship between gut microbiota, tryptophan metabolism, and neuroinflammation, and to assess the evidence supporting nutritional interventions as adjunctive therapeutic strategies for major depressive disorder

Methodology: A narrative review of scientific literature was conducted, focusing on randomised controlled trials, observational studies, and meta-analyses investigating the gut-brain axis, the mechanisms linking microbiota to depression, and the therapeutic potential of dietary interventions and probiotics.

Results: Evidence suggests that gut microbiota may influence brain function through neural, endocrine, and immune pathways. The activation of the kynurenine pathway under inflammatory conditions and the production of microbial metabolites, including short-chain fatty acids, may contribute to the pathophysiology of depression. The SMILES trial reported depression remission in 32,3% of participants, receiving a dietary intervention compared with 8% in the control group. Recent meta-analyses have also indicated a potential beneficial effect of probiotics on depressive symptoms, although results vary according to the populations studied and the interventions used.

Conclusions: Nutritional intervention and probiotics represent promising adjunctive approaches in the management of major depressive disorders. However, further research is needed to clarify the underlying mechanism, establish optimal intervention strategies, and confirm their clinical efficacy.

Keywords: major depressive disorder; gut microbiota; gut-brain axis; serotonin; probiotics; neuroinflammation.

48. Spatial distribution of pharmaceutical residues in the aquatic environment in Romania

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Abstract

Purpose of the study: Pharmaceutical residues are emerging contaminants that may affect aquatic ecosystems and contribute to antimicrobial resistance. This study aims to characterize the spatial distribution of major pharmaceutical classes reported in Romanian aquatic environments, identify potential contamination sources, and highlight environmental implications.

Methodology: The study is based on a review of scientific literature concerning pharmaceutical contamination in surface waters, wastewater treatment plant effluents, and costal environments. The analysis considers therapeutic classes, sampling location, reported concentration, environmental pathways, and analytical techniques, particularly liquid chromatography coupled with tandem mass spectrometry (LC-MS/MS).

Results: Major pharmaceutical classes of concern include non-steroidal anti-inflammatory drugs (diclofenac, ibuprofen, and naproxen), antibiotics (sulfamethoxazole, trimethoprim, and ciprofloxacin), antiepileptics (carbamazepine), and proton pump inhibitors (omeprazole). These compounds have been investigated in the Danube River Basin, including tributaries such as the Jiu, Olt, and Arges rivers, as well as in the costal waters of the Black Sea. Their distribution is associated with population density, pharmaceutical consumption, wastewater discharges, and treatment efficiency. Conventional treatment processes may not eliminate certain active pharmaceutical ingredients, allowing their persistence in receiving waters. Chronic exposure may pose ecotoxicological risks, depending on environmental concentration, compounds persistence, and the sensitivity of aquatic organisms.

Conclusions: The geographical assessment of pharmaceutical contamination highlights the need for systematic multi-residue monitoring, comparative analysis of regional datasets, and ecotoxicological risk assessments. Integrating analytical results into geographic information systems (GIS) could support the identification of potentially vulnerable areas. Improved wastewater treatment technologies coordinated monitoring programmers and appropriate pharmaceutical waste management are essential for reducing environmental contamination and protecting aquatic ecosystems.

Keywords: pharmaceutical residues; emerging contaminants; LC-MS/MS; ecotoxicological risk; GIS Romania.

49. Assessment of IL28B rs12979860, ABCB11 rs2287622, and RNF7 rs16851720 genotypes as predictors of advanced liver fibrosis in patients with chronic hepatitis C

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Abstract

Introduction. Chronic hepatitis C (CHC) is a major public health concern, affecting approximately 150 million people worldwide. In Western countries, it is the leading cause of end-stage liver disease and liver transplantation. Assessing the predisposition for rapid disease progression could be useful for tailoring patient monitoring, with the goal of early diagnosis and treatment of complications.

Materials and Methods. We developed a high-resolution melting (HRM) assay for the simultaneous determination of three gene polymorphisms associated with the development of advanced fibrosis in CHC patients: IFNL3 rs12979860, ABCB11 rs2287622, and RNF7 rs16851720. The assay was validated on blood samples from 130 CHC patients. Liver fibrosis was assessed in all patients, either by percutaneous liver biopsy or by a non-invasive fibrosis score (FibroTest/FibroMax). A predictive model for advanced fibrosis (stages F3–F4), based on patient genotype together with clinical and laboratory variables, was identified using multivariate logistic regression.

Results. Compared with Sanger sequencing, considered the "gold standard", our multiplex assay showed 100% accuracy, sensitivity, and specificity for the correct identification of IFNL3 rs12979860, ABCB11 rs2287622, and RNF7 rs16851720 genotypes. Simultaneous genotyping of the three genetic markers, combined with routine laboratory data, accurately identified patients with advanced fibrosis, with an AUROC of 0.869 (95% CI: 0.807–0.931). Homozygosity for the IL28B C allele and for the ABCB11 T allele, as well as an increasing number of RNF7 C and IL28B C alleles, provided additional predictive value compared with routine clinical and laboratory data ($p = 0.033$).

Conclusions. Reliable and cost-effective, the assay provides useful information for the clinical management of CHC, including the identification of patients at risk of rapid progression of liver fibrosis.

Keywords: chronic hepatitis c; liver fibrosis; genotyping; predictive algorithm.

50. Teacher-student interaction during the teaching-learning process in LP classes in the disciplines histology and cytology and cell biology, first year dental medicine

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Abstract

The aim of our study is to follow the way in which first-year students, Dental Medicine, "Dimitrie Cantemir" University of Târgu Mureș understand and adapt to the requirements of the learning process through practical acquisitions within the hours of Practical Works in the disciplines of Histology and Cytology, respectively Cell Biology. We followed the way in which students adapt to the rigors of learning methods by discovery, given that most of the students are foreigners, Italians.

The need for such a study is required by the multilingual structure of the students, the age difference, previous preoccupations and professions in the conditions of lessons that involve the handling of devices and the knowledge of working techniques specific to learning biology. As directions of the study, the students' good knowledge was pursued, their age, the schools they had previously graduated, their abilities to follow the teacher's explanations and demonstrations, to appropriate them, the skills to learn the correct use of the microscope, other devices in the laboratory, the degree of knowledge of the Romanian language as a language of instruction, the ability to write down information in Romanian fluently, to make drawings according to microscopic images, schemes.

The observations carried out over a course of 5 calendar years highlighted the students' adaptation to teaching and learning activities, in a multimedia system with lessons in the form of power points. Although over the years the number of students has varied, an increase in their quality has been observed by attracting Italian students who show real concerns for study and training, including those who have already graduated from other medical higher education institutions. The number of Romanian students has become higher in the last two years and to which has been added a number of students from the diaspora who speak both languages, becoming a reliable help for the teacher. They participate in the annual student conference, other scientific events, interact with students from high schools in the city.

Keywords: requirements; skills; quality; information; microscope.

51. Effects of chairside adjustment and repolishing on Candida albicans biofilm and cleanability of denture base materials: An in vitro study

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Abstract

Denture-related candidiasis is associated with *Candida albicans* colonization of prosthetic surfaces. Clinical adjustment may alter surface topography, while repolishing could influence microbial adhesion and cleaning. This study will assess the effects of adjustment and repolishing on C. albicans biofilm formation and removal from denture base materials. Specimens will be fabricated from heat-polymerized polymethyl methacrylate (PMMA), CAD/CAM-milled PMMA, and 3D-printed denture base resin. Within each material group, specimens will undergo one of three surface protocols: recommended finishing, simulated chairside adjustment, or adjustment followed by repolishing. Surface roughness will be measured before and after treatment. Specimens will be inoculated with a C. albicans suspension, and adhesion and biofilm burden will be quantified using colony-forming unit counts and a metabolic activity assay. A subset of colonized specimens will undergo mechanical brushing or immersion in a denture cleanser; untreated specimens will serve as controls. The primary outcomes will be biofilm burden after surface treatment and residual viable Candida after cleaning. Comparisons across materials, surface protocols, and cleaning methods will determine whether repolishing after adjustment reduces fungal retention and improves decontamination. The findings may inform clinical finishing and hygiene recommendations for dentures and help identify surface conditions that could contribute to clinically evident denture-associated stomatitis.

Keywords: Candida albicans; denture base materials; surface roughness; repolishing; denture stomatitis.

52. Pelargonium graveolens essential oil and geraniol in the management of oral candidiasis and denture stomatitis

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Abstract

Oral candidiasis, especially denture-associated stomatitis, remains a therapeutic challenge because Candida biofilms can persist on oral mucosa and prosthetic surfaces, while treatment failure and recurrence are common. *Pelargonium graveolens* essential oil and its major constituent geraniol have attracted interest as antifungal agents. This review summarizes evidence on their activity against oral Candida, with emphasis on antifungal mechanisms, biofilm control, formulation, safety, and clinical relevance. In vitro studies report inhibitory and fungicidal effects of geraniol against Candida isolates, including oral strains, and reduced biofilm activity on denture acrylic. A clinical study also reported improvement in denture stomatitis following topical application of a 1% P. graveolens oil gel. However, these findings are limited by differences in oil composition, test methods, Candida species, and outcome measures, as well as the scarcity of clinical trials. Geraniol and geranium oil should therefore be regarded as promising investigational adjuncts rather than established alternatives to standard antifungal therapy. Future research should standardise chemical characterisation and dosing, assess biofilm activity under clinically relevant conditions, evaluate mucosal tolerability and interactions with denture materials, and conduct randomised trials. Such work may clarify whether these natural products can provide a reproducible role in preventing or managing oral candidiasis and denture stomatitis.

Keywords: Pelargonium graveolens; geraniol; oral candidiasis; denture stomatitis; essential oils; biofilm.

53. Artificial intelligence in oral candidiasis care through image analysis and multidisciplinary clinical reasoning

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Abstract

Oral candidiasis requires clinical interpretation because white or erythematous lesions can resemble other mucosal disorders, while recurrence may reflect local reservoirs or systemic risk factors. This narrative review examines published photographic classification studies that include oral candidiasis and considers their implications for multidisciplinary care and dental education. Deep learning models can recognise patterns across several oral lesion categories, but reported errors show that other disorders may be incorrectly classified as candidiasis. Performance within a study dataset therefore does not establish reliable diagnosis in routine practice. Photographs also cannot determine Candida species, antifungal susceptibility, or the underlying cause of recurrence. A clinically useful approach would combine image assessment with symptoms, medication history, denture examination, and mycological investigation when indicated. Collaboration among oral medicine specialists, prosthodontists, microbiologists, and physicians remains necessary to interpret these findings and select treatment. In dental education, carefully curated cases could support training in differential diagnosis and recognition of situations requiring referral, provided that learners critically assess algorithmic suggestions. Priorities for research include independent external validation, patient-level separation of training and testing data, representative clinical populations, and prospective assessment of diagnostic errors. Artificial intelligence should currently be considered an investigational support tool whose educational and clinical value must be demonstrated beyond image classification accuracy.

Keywords: oral candidiasis; artificial intelligence; deep learning; differential diagnosis; multidisciplinary care; dental education.

54. Rebalancing the oral microbiome with probiotics in multidisciplinary candidiasis care

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Abstract

Oral candidiasis develops within a complex microbial community shaped by salivary function, denture use, medication exposure, and host susceptibility. This narrative review critically examines probiotic interventions as potential adjuncts to multidisciplinary care, focusing on randomised clinical studies in older adults and denture wearers. Trials of selected probiotic strains have reported reductions in high oral Candida counts, while studies combining probiotics with antifungal agents have described improvements in selected clinical and microbiological outcomes. These findings support further investigation of microbial modulation, but they do not establish a uniform treatment effect. Reduced Candida carriage in an asymptomatic participant is not equivalent to resolution of symptomatic infection, and benefits observed with one strain or formulation cannot be assumed for another. Interpretation is further limited by variation in delivery methods, intervention duration, participant characteristics, and follow-up after discontinuation. Integrating this approach into care would require collaboration among dentists, clinical microbiologists, pharmacists, and physicians to assess product composition, patient suitability, and concurrent treatment. Probiotics should not displace established antifungal therapy or correction of local and systemic predisposing factors. Future studies should prioritise clinical cure, recurrence, oral function, and safety rather than fungal counts alone. A microbiome-oriented strategy is promising, but routine recommendations require reproducible, strain-specific evidence and clinically meaningful outcomes.

Keywords: oral candidiasis; oral microbiome; probiotics; Candida colonization; denture wearers; multidisciplinary care.

55. Targeting oral Candida biofilms with light in the era of antifungal resistance

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Abstract

Persistence of Candida on oral mucosa and denture surfaces complicates the management of oral candidiasis and encourages investigation of local adjunctive treatments. This narrative review evaluates antimicrobial photodynamic therapy within a multidisciplinary approach, drawing on clinical studies of oral candidiasis and denture stomatitis. The technique combines a photosensitizer with light of an appropriate wavelength to generate reactive oxygen species that damage microbial structures. Clinical investigations report reductions in Candida counts and improvements in mucosal inflammation, including when photodynamic therapy is combined with conventional antifungal treatment. However, protocols differ in photosensitizer concentration, light delivery, treatment frequency, and follow-up duration. A recent exploratory randomised trial supported the feasibility and tolerability of chairside treatment but was too small to establish comparative efficacy. These limitations prevent a consistent recommendation for routine replacement of antifungal medication. Clinical translation requires coordination between oral medicine, prosthodontics, microbiology, and photonics to address both mucosal infection and prosthetic reservoirs. Denture hygiene, correction of local trauma, and management of predisposing conditions remain essential components of care. Future trials should standardise irradiation parameters, document adverse effects, distinguish clinical resolution from microbiological reduction, and assess recurrence after treatment. Current evidence supports further evaluation of photodynamic therapy as an adjunct, with particular attention to reproducibility, patient acceptability, and sustained clinical benefit.

Keywords: oral candidiasis; photodynamic therapy; Candida biofilms; denture stomatitis; antifungal resistance; multidisciplinary care.

56. Digital dentures and biocompatible polymers for adults with mental illness

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Abstract

Digital denture fabrication offers opportunities to individualize removable prosthetic care, but its value for adults with mental illness depends on both material safety and everyday usability. This narrative review appraises primary laboratory studies of denture polymers and clinical comparisons of digital and conventional complete dentures, examining their relevance to psychiatric care. Evidence from general edentulous populations is distinguished from direct evidence in patients with mental illness. Comparative studies show that resin formulation and manufacturing conditions influence mechanical behaviour, surface characteristics and chemical release. Laboratory testing has not demonstrated a uniform biocompatibility advantage for digital materials, and findings from one resin cannot be generalized to all milled or printed products. Clinical trials report variable patient experience: some identify comparable satisfaction and oral health-related quality of life, whereas others favor conventional dentures for comfort, stability or ease of cleaning. Digital workflows may reduce clinical visits in selected settings, but these findings do not demonstrate superior outcomes in psychiatric populations. For these patients, prosthesis selection should also consider salivary symptoms, involuntary orofacial movements and the support needed for cleaning and follow-up. We propose material-specific selection with validated manufacturing protocols, careful finishing and clinical assessment of mucosal tolerance, coordinated with mental health care when necessary. Future comparative studies should combine measures of chemical and biological safety with repair requirements; sustained denture use and patient-reported function. Digital innovation can support individualised prosthetic care but claims of improved biocompatibility or psychosocial benefit require material-specific and population-specific clinical evidence.

Keywords: digital dentures; denture base polymers; biocompatibility; three-dimensional printing; mental illness; patient-reported outcomes.

57. Supporting denture acceptance and social participation in adults with severe mental illness

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Abstract

Removable prosthetic rehabilitation in adults with severe mental illness requires attention to everyday denture use, access to care and personal recovery goals. This narrative review examines how psychosocial support can be integrated into prosthetic treatment to address barriers to acceptance and participation. Selected primary studies of dental access and oral health promotion are considered alongside reports of prosthetic rehabilitation in patients with psychiatric disorders. Findings are interpreted according to study design and applicability to edentulous patients. A randomised feasibility trial suggests that individual navigation support can facilitate dental attendance, while behavioural interventions have improved oral hygiene outcomes in psychiatric settings. These findings do not establish improved denture acceptance or social participation, and some oral health trials excluded edentulous individuals. Prosthodontic case reports describe the feasibility of adapting removable dentures for patients with involuntary orofacial movements, but provide limited evidence for broader clinical practice. We propose a coordinated pathway involving the prosthodontist and mental health team, with caregiver involvement when appropriate and agreed by the patient. The pathway combines communication adapted to individual needs, shared treatment goals, assessment of salivary symptoms and motor function, and practical support with denture maintenance. Psychiatric diagnosis alone should not determine treatment eligibility or assumptions about decision-making capacity. Prospective evaluation should measure sustained denture use, comfort, chewing and speech alongside oral health-related quality of life and social participation. Integrating psychosocial support with prosthetic care offers a clinically reasoned approach whose effects on functional and recovery outcomes require direct evaluation.

Keywords: removable dentures; severe mental illness; denture acceptance; psychosocial support; social participation; multidisciplinary care.

58. Multidisciplinary management of squamous cell carcinoma located in the lower lip: Case presentation

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Abstract

Spinocellular carcinoma (SCC) is the second most common skin neoplasia. Although it has a predictable evolution in most cases, certain localisations or pathological associations increase the risk of local aggression and metastasis. Presentation of the case: We present the case of a 67-year-old male patient who presented to our service for an ulcerative, bleeding lesion located on the lower lip for 6 months. From the patient's history we note chronic UV exposure, chronic tobacco use and hypertension. The clinical examination revealed an ulcerated tumour, bleeding, firm, size of 2/3 cm, hard, painless, fixed on the deep planes, located in the lower lip, dentition with active carious lesions and root debris, deposits of supragingival/subgingival tartar, bad breath. Diagnosis and Treatment: Surgical excision of the lower lip lesion was performed, histopathological examination confirming the diagnosis of keratinized, moderately differentiated, excised spinocellular carcinoma in healthy tissue. The remaining defect required reconstruction with bilateral Karapandzic flaps. The postoperative development was favourable. The patient underwent an oncological review, being recommended to complete investigations by computed tomography - with no secondary (metastatic) lesions detected on imaging. Conclusions: This case emphasises the importance of correlating clinical dermatological suspicion with prompt histopathological examination. Aggressive surgical management in the initial stages ensures a high rate of healing and prevents invasive or metastatic complications. Long-term monitoring remains essential due to the risk of local relapse.

Keywords: squamous cell carcinoma; surgical excision; biopsy.

59. Artificial intelligence in paediatric dentistry: The clinician versus the algorithm

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Abstract

Paediatric dentistry is undergoing a quiet transformation as artificial intelligence (AI) enters daily clinical practice, offering support in diagnosis, prevention, and communication with families. This paper critically examines the situations in which AI can genuinely assist the paediatric dentist and those in which it risks creating unrealistic expectations. The analysis is based on 25 scientific articles published predominantly between 2018 and 2026, selected from PubMed/MEDLINE. The most promising applications concern computer-assisted interpretation of radiographs for caries detection, automated cephalometric analysis, identification of anomalies such as infraocclusion of primary molars, and caries-risk stratification. However, most studies are retrospective, rely on heterogeneous data sets, and do not demonstrate that AI actually improves children's oral health. The central message is clear: AI does not replace the clinician. It can highlight a suspicious area, signal a risk, organise information or support communication, yet the clinical decision remains the responsibility of the professional. In children, whose dentition changes rapidly and whose cooperation is variable, the value of AI lies in human–technology collaboration rather than in the automation of care.

Keywords: artificial intelligence; paediatric dentistry; caries detection; deep learning; clinical decision support; human–AI collaboration.

SCIENTIFIC SECTION 04

GEOGRAPHY SECTION

ABSTRACTS

Artificial Intelligence
Innovation in Education in a World of Constant Change

23–24 November 2026 · Târgu Mureș, Romania



60. Artificial intelligence as a tool for education for sustainable development: From environmental data to responsible decision-making

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Abstract

The increasing integration of artificial intelligence (AI) into education creates new opportunities for developing geographical thinking, environmental awareness, and decision-making skills in the context of sustainable development. Geography education plays a significant role in understanding the complex relationships between natural resources, human activities, and territorial development, providing an interdisciplinary framework for addressing contemporary sustainability challenges.

This paper explores the potential of AI-assisted learning in geography education for sustainable development, focusing on the interpretation of environmental and socioeconomic data and the evaluation of alternative development scenarios. Sovata, a well-known tourist destination in Transylvania, Romania, is proposed as a case study due to its distinctive natural heritage, salt lakes, biodiversity, and tourism-related development pressures.

The study proposes an educational framework combining geographical inquiry, environmental data interpretation, and AI-assisted scenario analysis. Learners are encouraged to investigate the interactions between tourism development, ecosystem conservation, and local community needs, critically evaluate AI-generated information, and formulate evidence-based recommendations for sustainable territorial management.

Particular attention is given to the importance of critical thinking, data reliability, and human responsibility in AI-supported decision-making.

The paper aims to demonstrate how integrating artificial intelligence into geography education can support a transition from descriptive knowledge towards problem-solving, interdisciplinary understanding, and responsible action. The proposed approach may contribute to developing innovative educational practices aligned with the Sustainable Development Goals.

Keywords: artificial intelligence; geography education; sustainable development; environmental data; critical thinking; sustainable tourism; Sovata; decision-making.

61. Generative artificial intelligence in sustainable tourism destination management: A comparative pilot study of evidence interpretation

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Abstract

Sustainable tourism destination management depends on interpreting scientific evidence in the environmental, social and geographical contexts in which interventions are implemented. Generative artificial intelligence (AI) can make research findings easier to access, but the reliability of its interpretations deserves scrutiny.

This exploratory pilot examines how three AI systems interpret evidence from published evaluations of tourism-management interventions. Three studies were selected from an evidence and gap map comprising 76 independent evaluations. They investigate free public transport for overnight visitors in Switzerland, visitor-noise reduction in a protected area in the United States, and short-term rental regulation in Vienna. Nine AI-generated responses were assessed against the original articles using criteria covering factual accuracy, distinctions between measured and inferred outcomes, methodological uncertainty, geographical context and management recommendations.

The initial qualitative comparison found that all three systems reproduced the main interventions and key numerical findings. However, their conclusions differed in how cautiously they translated results into claims about sustainability. In particular, one system sometimes treated modelled emissions savings, expected ecological benefits or suggested market responses as demonstrated outcomes. The other two generally retained clearer distinctions between measured effects and wider implications. These observations are preliminary; numerical scores require independent human review.

The findings suggest that accurate reporting of statistics does not, by itself, ensure reliable interpretation for destination management. AI-assisted synthesis may be useful for identifying relevant evidence, provided that researchers and practitioners verify source claims, preserve geographical context and distinguish observed changes from broader sustainability outcomes.

Keywords: generative artificial intelligence; sustainable tourism; destination management; evidence interpretation; geographical context; human validation.

62. Critical thinking and geographic literacy in the age of AI: The Hârtibaci Plateau as a case study in higher education

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Abstract

The rapid spread of generative artificial intelligence (AI) tools has changed the way students search for, interpret and use geographic information. While these tools offer fast and accessible answers, they may also produce inaccurate, generalized or outdated information, especially for less documented regions. This paper proposes a simple, replicable teaching approach aimed at developing critical thinking and geographic literacy in higher education, using the Hârtibaciului Plateau (Romania) as a case study. The approach consists of comparing AI-generated descriptions of the region's demographic trends and rural tourism potential with official statistical data, scientific literature and field observations. Students are guided to identify inaccuracies, omissions and bias, and to reformulate the information using verified sources. The paper discusses the educational benefits of this exercise, including improved source evaluation, stronger analytical skills and more responsible use of AI, as well as its limitations. It also outlines recommendations for geography and tourism educators who wish to integrate AI tools into their courses without reducing students' autonomy. The proposed model can be adapted to other regions and disciplines, contributing to a balanced and reflective integration of AI in education.

Keywords: artificial intelligence; critical thinking; geographic literacy; rural tourism; higher education.

63. Sustainable agritourism development through artificial intelligence: A case study of Deleni village, Mureş County

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Abstract

The core concept of this article is to propose an integrated model for sustainable agritourism development in the village of Deleni (Ideciu de Jos commune, Mureş County). As a "dead-end" (terminal-point) rural settlement, the village is geographically isolated and free from the pollution typically associated with transit traffic. This study demonstrates how spatial isolation can be transformed from a socioeconomic disadvantage into a strategic tourism asset, drawing upon the paradigms of recreational tourism and Community-Based Tourism (CBT), while leveraging Artificial Intelligence (AI) technologies. The paper examines the utilisation of five distinct tourism resources available within the village area. The theoretical and practical focus lies in the integration of "invisible" AI tools: systems for the acoustic and visual monitoring of wildlife (Eco-AI); multilingual virtual assistants—powered by Large Language Models (LLMs)—to provide guidance via WhatsApp; predictive marketing algorithms tailored to specific market niches; and specialized tools for optimizing tourism-related market operations. The findings indicate that the synergy and coexistence between the local community and non-invasive AI technologies facilitate the preservation of vernacular architecture and enhance the economic viability of traditional cultural ecosystems, all while maintaining the area's ecological balance.

Keywords: sustainable agritourism; artificial intelligence (eco-AI); Deleni; Via Transilvanica; vernacular routes; local gastronomic points.

64. The evolution of the Mureş riverbed from the 18th century to the present, within the municipality of Târgu Mureş

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Abstract

This paper examines the geomorphological dynamics of the Mureş River, within the Târgu Mureş Municipality, over a period of more than two centuries (18th century – present). The main objective is to identify the impact of human interventions on the natural watercourse, employing a methodology based on comparative cartographic analysis and GIS techniques. By analysing the Josephinian and Franciscan Surveys alongside recent topographic maps and satellite images, the process of channel rectification and the reduction of the sinuosity index were quantified. The results highlight that the catastrophic floods of 1970 represented a turning point that led to the radical systematization of the river, transforming it from an anastomosing channel into an anthropized channel type with low sinuosity.

Keywords: channel dynamic; sinuosity index; Mureş river.

SCIENTIFIC SECTION 05

ECONOMIC SCIENCES SECTION

ABSTRACTS

Artificial Intelligence
Innovation in Education in a World of Constant Change

23–24 November 2026 · Târgu Mureș, Romania



65. Internationalisation and strategic partnerships as drivers of financial sustainability in private higher education

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Abstract

Private higher education institutions face increasing pressure to maintain financial stability while investing in teaching quality, research capacity, infrastructure, and student support. Internationalisation and strategic partnerships are often presented as routes to institutional growth, but their financial effects depend on context, implementation, and how costs and benefits are distributed. This narrative review discusses five connected mechanisms: international student recruitment, cross-border academic partnerships, externally funded research, research visibility, and institutional reputation. International students can diversify enrolment and generate tuition and local economic activity, although recruitment also entails marketing, student support, compliance, and retention costs. Joint programmes and mobility agreements can broaden educational opportunities, while research partnerships may provide access to competitive funding, specialist facilities, and new expertise. International co-authorship is often associated with greater citation visibility, but citation metrics and rankings are imperfect proxies for educational quality or financial performance. Likewise, inclusion in bibliographic databases should be understood as a marker of journal selection and discoverability, not as a guarantee of institutional excellence or commercial success. The review proposes an integrated approach in which universities assess internationalisation through financial, academic, educational, and ethical indicators rather than enrolment or ranking targets alone. Sustainable internationalisation requires transparent costing, reciprocal partnerships, sound governance, and reinvestment in the academic mission.

Keywords: internationalisation; private universities; financial sustainability; international students; research partnerships; university reputation; higher education management.

66. Sustainable evaluation of investment projects: Financial approaches and ESG criteria

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Abstract

This paper aims to analyse how investment decisions can be substantiated by integrating traditional financial indicators with environmental, social, and governance criteria. The methodology used is based on documentary research and conceptual analysis, considering indicators such as net present value, internal rate of return, investment payback period, and profitability index, correlated with ESG factors relevant to the assessment of long-term impact. The contribution of the paper consists in highlighting the need for an integrated approach that goes beyond a strictly financial evaluation and supports a more responsible selection of investment projects. Its relevance to sustainability lies in directing capital toward projects that generate not only economic profitability, but also positive effects on the environment, society, and corporate governance.

Thus, the paper supports the importance of evaluating investments from both a financial and sustainable perspective, adapted to the requirements of the current economy.

Keywords: investment evaluation; investment projects; sustainability; ESG criteria.

67. General-purpose artificial intelligence versus specialized educational technology: Sources of educational value and willingness to pay

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Abstract

The availability of general-purpose generative artificial intelligence challenges the value proposition of specialized educational technology: when students can obtain explanations, practice questions, and feedback through a single conversational interface, what makes a dedicated educational product worth paying for? This study aims to identify the sources of additional educational value offered by specialized tools and examine how these attributes influence students' willingness to pay. Focusing on higher education, it distinguishes content generation from support for a coherent learning process through curriculum alignment, verified content, guided feedback, and progress monitoring. The proposed research combines a comparative analysis of general-purpose artificial intelligence assistants and specialized educational tools with a discrete choice experiment among university students. The comparative analysis will examine functionality, pedagogical support, and pricing, while the experiment will estimate preferences and willingness to pay for selected product attributes. Trust and prior experience with artificial intelligence will be examined as potential influences on these choices. The analytical framework separates convenience and perceived educational value from demonstrated learning effectiveness, preventing purchasing preferences from being interpreted as evidence of improved learning. By connecting educational product design with economic theories of differentiation and consumer choice, the study seeks to explain which forms of specialization can sustain a credible value proposition alongside general-purpose tools. Its central proposition is that competitive differentiation should be assessed through the educational structures, verifiability, and supporting artificial intelligence, rather than through the presence of generative functionality alone.

Keywords: generative artificial intelligence; educational technology; product differentiation; perceived educational value; willingness to pay; higher education.

68. AI-driven business decision optimisation: The impact of technology on pricing strategies and competitive behaviour

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Abstract

This paper analyses how artificial intelligence (AI) is reshaping business administration by automating and optimizing strategic decisions, with a particular focus on pricing policies and competitive dynamics. In a global economy defined by constant change, the use of dynamic pricing algorithms and predictive market analysis models is no longer just a competitive advantage, but a necessity for corporate survival. The study explores, on one hand, the economic benefits of AI—such as price personalisation, real-time elasticity, and profit optimisation—and, on the other hand, the emerging risks related to algorithmic collusion and the distortion of fair competition. From an educational perspective, the paper proposes a modern methodological approach for teaching these concepts within economic disciplines, highlighting the importance of developing hybrid skills in future managers, who must balance data analytics with business ethics and corporate governance.

Keywords: dynamic pricing; competitive behaviour; business administration; economic education.

69. Financial education – perspectives and challenges in developing the economic competencies of new generations

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Abstract

Financial education has become an essential component of preparing young generations for the economic challenges of contemporary society. This paper explores the perspectives and challenges involved in developing financial competencies among students and young adults. It highlights the importance of understanding financial concepts, managing personal budgets, saving, investing, and making responsible financial decisions. The study emphasizes the role of educational institutions in promoting financial literacy through practical learning activities and real-life economic examples. Furthermore, it examines the influence of digitalization and technological innovation on financial behavior and access to financial information. Developing economic competencies can contribute to greater financial independence, responsible consumption, and long-term economic well-being. The paper argues that integrating financial education into formal learning environments is essential for building a financially informed and resilient generation.

Keywords: financial education, financial literacy, economic competencies, young generations, financial decision-making, financial responsibility.

70. Integrating AI tools in university courses on internal audit and internal control: A competence-based teaching model

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Abstract

Generative artificial intelligence (AI) is entering the professions for which universities train students, including internal audit and internal control. Yet courses in these disciplines rarely specify how AI tools should be used to build, rather than replace, professional competences. This paper proposes a competence-based teaching model for integrating AI tools into university courses on internal audit and internal control. The study follows a conceptual, design-oriented approach. From professional frameworks and course learning outcomes, it derives five competences shared by the two disciplines - risk analysis, assessment of controls and compliance, evidence-based verification, structured professional writing, and ethical judgement - and links each to specific uses of AI tools. The model has three levels: understanding what AI can and cannot do in the discipline; applying AI tools to realistic tasks; and critically evaluating, verifying and documenting AI outputs. For each level, the paper proposes learning activities, assessment criteria and rules for declared use of AI. Its application is illustrated with two tasks on a fictional procurement process: an audit of a sample of purchase orders and the design of a risk-and-control matrix. Secondary survey data on the use of AI by students and professionals provide the context. The model has not yet been tested empirically; a student questionnaire and an assessment rubric, to be applied in internal audit and internal control courses, are presented for that purpose. The main contribution is a transferable framework that keeps professional judgement at the centre of learning and treats AI as a support tool. The paper argues that effective use of AI depends on prior disciplinary knowledge and that assessment should reward analysis and verification rather than the production of text.

Keywords: artificial intelligence; internal audit; internal control; competence-based teaching; higher education.

71. Artificial intelligence and innovation in Romania: Financing, digital skills and the AI adoption gap in a world of constant change

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Abstract

Artificial intelligence is increasingly reshaping business processes, investment decisions and innovation strategies, yet its adoption remains highly uneven across European economies. This study examines Romania's business AI adoption gap within the European Union, focusing on the role of digital skills, human capital, financing conditions and innovation capacity in an economic environment characterised by rapid technological change. The research combines harmonised secondary data from Eurostat, the Community Innovation Survey and the European Investment Bank Investment Survey. A comparative analysis is conducted across the 27 EU Member States, complemented by a more detailed assessment of Romania's position relative to the EU and selected Central and Eastern European economies. The empirical approach combines benchmarking, gap analysis, Pearson and Spearman correlations, and exploratory cross-country regression models. The results reveal a substantial AI adoption gap: Romania records the lowest level of enterprise AI use in the EU and ranks among the lowest-performing Member States in ICT human capital, employee ICT training and business innovation. The cross-country analysis indicates significant positive associations between AI adoption and ICT skills development, with employee ICT training displaying a stronger relationship with AI adoption than the mere presence of ICT specialists. Business innovation capacity is also strongly and positively associated with AI adoption. The findings suggest that Romania's AI adoption gap should not be viewed as an isolated technological deficit, but as part of a broader structural challenge involving skills development, digital readiness, investment capacity and firms' ability to innovate. The study highlights the importance of integrated policies linking continuous digital education, business investment and innovation support to strengthen AI readiness and competitiveness in a rapidly changing European economy.

Keywords: artificial intelligence; AI adoption; digital skills; innovation; business financing; Romania.

72. The role of artificial intelligence and innovation in education

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Abstract

Artificial intelligence (AI) is transforming education systems, creating opportunities for innovation alongside pedagogical and ethical challenges. This paper examines the role of AI in education through a review of recent scholarly literature, education policy documents, and examples of good practice. It considers key applications, including personalised learning through adaptive systems, intelligent tutoring, support for teachers in lesson planning and assessment, and the development of digital competences and critical thinking. The review indicates that AI can support pedagogical innovation when its use is guided by clear educational objectives, appropriate teacher training, and ethical safeguards for data protection and academic integrity. At the same time, excessive reliance on technology and unequal access to digital resources may reinforce existing educational disparities. The paper concludes that effective integration of AI requires a balanced, learner-centred approach in which technological innovation strengthens, rather than replaces, the essential educational role of teachers.

Keywords: artificial intelligence; educational innovation; personalised learning; digital competences; ethics; digital transformation.

73. Mystery shopping communication scenarios applied to virtual assistants in Romania

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Abstract

Over the past decade, we have witnessed a radical transformation in the way organisations choose to communicate with their customers. What was once an exclusively human dialogue, mediated at most by a telephone receiver, has rapidly evolved into a complex network of algorithms and automated responses. Digitalisation is no longer merely an option for modern companies, but an essential condition for survival in the marketplace.

In the race towards digitalisation and lower operating costs, organisations tend to sacrifice communication quality. I therefore considered it essential to look beyond the marketing promises of technology providers and analyse the actual impact of these systems on the end user.

The central research tool is mystery shopping, also known as the mystery customer method. This technique was adapted to the specific characteristics of the online environment. I designed several interaction scenarios, ranging from routine requests to unusual or urgent situations and cases involving a high degree of ambiguity. The objective was not simply to obtain a response from the virtual assistants being tested, but to map the interaction pathway precisely: response time, the relevance of the proposed solution, the ability to interpret context and, crucially, the point at which the system acknowledges its technical limitations and transfers the interaction to a human agent.

Keywords: mystery shopping; virtual assistants; customer communication; digital transformation; human –AI collaboration.

74. Market structure, competition, and quality in Georgian higher education

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Abstract

This study examines how market structure, access, and barriers to entry shape competitiveness and quality in Georgia's higher education sector. It applies a mixed-methods approach, combining quantitative analysis of institutional data from 2017 to 2025 with semi-structured expert interviews. The quantitative analysis covers market-structure indicators and capacity utilization and uses ordinary least squares (OLS) regression models to examine institutional enrollment outcomes. The findings indicate that the Georgian higher education market is highly fragmented and geographically concentrated, with persistent structural oversupply alongside a small number of selective and efficient institutions. Regression results suggest that admission selectivity and public ownership have the strongest associations with institutional success measured by enrollment. Expert interviews further indicate that dependence on tuition revenue encourages enrollment-oriented competition across much of the sector, rather than competition based on educational quality. This pattern is also evident among accredited institutions, where accreditation may function primarily as a compliance requirement rather than as an instrument for continuous quality improvement. The study highlights the importance of considering market incentives, institutional capacity, and regulatory implementation when assessing the relationship between competition and quality in Georgian higher education.

Keywords: higher education market; market structure; enrollment-based competition; quality assurance; oversupply; Georgia

75. Artificial intelligence and the global trade war: Impact on the Albanian economy

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Abstract

According to IMF data for 2025, Albanian exports to the US accounted for approximately 0.3% of GDP. Furthermore, in 2024, exports of goods to the EU represented 71.7% of Albania's total exports, while imports from China constituted at only 10.9%, with 51.4% of imports originating from the EU. This implies that the direct impact of US tariffs on the Albanian economy is relatively limited, though indirect effects could be more significant.

In this paper, we aim to address the following research question: how does the trade and tariff war between the US and China affect the competitiveness of the Albanian economy, and to what extent can artificial intelligence serve as a tool to mitigate risks and capitalize on new economic opportunities? The paper will include data and a statistical analysis covering the 2016–2026 period. The quantitative analysis will focus on data such as the value of exports, imports, and foreign investments, as well as the use of AI within Albanian businesses. The primary sources for the secondary data include national and international institutions, such as INSTAT, the International Monetary Fund, World Trade Organisation, and the OECD. There are five main channels through which a global trade war could impact Albania: exports and the manufacturing industry; import prices; the competitiveness of Albanian enterprises; foreign investment and European integration and tourism and digital services.

This paper aims to examine the extent to which AI can assist Albanian businesses in improving productivity, reducing costs, identifying new export markets, and strengthening their competitive position. Finally, the study intends to propose public policy recommendations that support digital transformation, trade diversification, and Albania's economic resilience in front of global uncertainty.

Keywords: artificial intelligence; trade war; Albanian economy; international trade; digital transformation.

76. Artificial intelligence in economic education: Opportunities, challenges, and implications for students' professional competences in Albania

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Abstract

Artificial intelligence (AI) is increasingly transforming higher education and the skills required in the modern labour market. In economic education, AI-based tools offer new opportunities to support learning, improve access to information, develop analytical thinking, and strengthen students' digital competences. However, their integration also raises concerns regarding academic integrity, critical thinking, data privacy, and students' dependence on automated systems.

This paper aims to examine the opportunities and challenges associated with integrating artificial intelligence into economic education in Albania, with particular attention to students' professional competences and preparation for the labour market. The study adopts a qualitative, exploratory approach based on a review of relevant academic literature and an analysis of potential applications of AI in teaching and learning economic and management-related subjects.

The analysis focuses on how AI tools may support personalised learning, practical problem-solving, case-study development, and the acquisition of digital skills relevant to contemporary economic activities. At the same time, it considers the importance of responsible AI use, academic integrity, and the role of university educators in guiding students towards independent judgement and critical evaluation of AI-generated information.

The paper argues that AI should be approached as a complementary educational resource rather than a substitute for teachers or students' independent thinking. Its effective integration requires appropriate digital competences, clear ethical guidelines, and teaching strategies that combine technological innovation with practical learning experiences.

The study aims to contribute to the discussion on the responsible integration of AI into economic higher education in Albania and to identify directions for future research and educational practice.

Keywords: artificial intelligence; economic higher education; digital competences; Albania.

77. A comparative assessment of urban sustainability in Athens and Toronto: Development of a multidimensional indicator-based model

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Abstract

Assessing urban sustainability is a complex methodological challenge that requires considering environmental pressures, sustainable mobility characteristics, and circular approaches to urban resource management. This study aims to develop and apply a multidimensional quantitative model to compare urban sustainability in Athens and Toronto, using 2025 as the reference year. Selecting two cities with distinct spatial, demographic, and functional characteristics allows examination of whether a common assessment framework applies across different urban systems. The proposed model comprises nine indicators grouped into three core dimensions: Environmental Quality, Sustainable Mobility, and Circular Economy. The environmental dimension is represented by ambient concentrations of $PM_{2.5}$, NO_2, and O_3. Sustainable mobility is assessed through the proportion of accessible fixed-rail transit stations and the share of fully electric buses in the active public transport fleet. The circular economy dimension encompasses residual or landfilled municipal waste per capita, separately collected recyclable materials per capita, separately collected organic waste per capita, and recycling and separate-collection performance. The methodological approach harmonises indicators expressed in different units of measurement and with different impact directions, then transforms them into comparable dimensionless scores. The model first aggregates the individual indicators into dimension-level scores, then combines them into an overall Urban Sustainability Index (USI). The model's comparative application seeks not only to assess the relative performance of the two cities but also to identify the factors underlying the observed differences. The proposed framework provides a transparent, reproducible tool for benchmarking urban systems and can support policy development to improve environmental quality, advance sustainable mobility, and accelerate the transition to more circular patterns of urban development.

Keywords: urban sustainability; urban sustainability index; multidimensional assessment; Athens; Toronto; environmental quality.

78. Goodwill at home, holidays abroad: Economic patriotism and outbound travel in Albania

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Abstract

This study examines economic patriotism, price consciousness, and holiday preferences among Albanian residents. It analyses aggregate results from a Google Forms survey of 460 respondents conducted during the second half of 2025. Six five-point items measured support for domestic tourism, two measured price consciousness, one assessed willingness to pay more for a comparable holiday abroad, and one recorded outbound leisure travel in the previous 12 months. The results indicate that support for domestic tourism was substantial but conditional. Agreement that holidaying in Albania supports the domestic economy reached 72.4%, but fell to 47.3% when framed as a moral obligation. Price was the strongest concern: 84.4% said holiday cost mattered to them, while 71.3% reported less willingness to travel abroad when costs were high. Nevertheless, 65.2% said they would pay more for a comparable holiday abroad, and 78.6% took an outbound leisure trip in the previous year. Results show economic support, price awareness, and outbound orientation coexisting in the sample, but cannot show whether the same respondents held these views. The paper calls this pattern “soft economic patriotism” -valuing domestic tourism’s contribution without treating a domestic holiday as a personal duty. It concludes that converting goodwill into bookings requires competitive value, clear pricing, reliable service, and distinctive experiences rather than moral appeals. The findings provide a basis for further respondent-level research on perceived value, price sensitivity, and destination choice in Albania.

Keywords: Albania; domestic tourism; outbound tourism; economic patriotism; price consciousness; willingness to pay.

SCIENTIFIC SECTION 06

PROJECT QUALITY MANAGEMENT SECTION

ABSTRACTS

Artificial Intelligence
Innovation in Education in a World of Constant Change

23–24 November 2026 · Târgu Mureș, Romania



79. Building a dental medicine faculty: Continuity, competence and community at “Dimitrie Cantemir” University of Târgu Mureș

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Abstract

The establishment of the Faculty of Medicine at “Dimitrie Cantemir” University of Târgu Mureș represents a significant evolution in the institution’s multidisciplinary identity. Building on the long-standing tradition of the “Dimitrie Cantemir” Post-Secondary School of Dental Technology (founded in 1992), the Dental Medicine study programme received provisional authorization in 2017. Structured over six years and 360 ECTS credits, the programme integrates fundamental sciences, preclinical simulation, laboratory work and supervised clinical practice. Modern preclinical laboratories, dental simulation facilities, digital equipment and two university dental clinics form a continuous learning pathway from technical skill to clinical responsibility. Partnerships with private clinics, municipal hospitals and the Mureș County School Inspectorate strengthen both practical training and community engagement. International academic networks across Europe and beyond further enrich student and staff mobility. This institutional narrative highlights how continuity, competence-based education and social responsibility converge to shape a contemporary dental faculty committed to professional excellence and patient-centred care.

Keywords: dental medicine education; simulation-based learning; clinical training; institutional development; community engagement; internationalisation.

80. From satisfaction to demonstrated learning outcomes: Triangulating stakeholder evidence for quality assurance in higher education

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Abstract

Quality assurance in higher education becomes more informative when institutional procedures are connected to perceived learning outcomes, graduate transitions and external stakeholder feedback. This study examines "Dimitrie Cantemir" University of Târgu Mureș through a descriptive, single-institution case study combining four institutional surveys with quality-assurance and inclusion documents. The consent-eligible samples comprise 198 current students and 108 graduates; additional datasets include 12 employers and 75 prospective teachers or teaching-role respondents. Descriptive statistics and exploratory Spearman correlations were computed for the current-student responses. Students rated career preparedness highly (mean 4.68/5; 94.4% scoring 4–5), while graduates rated professional-competence development 4.61/5 (92.6% scoring 4–5). Of the graduates responding, 97 reported employment in Romania or abroad; this respondent percentage is not an institutional employment rate. Employer assessments of practical competences averaged 4.67/5, but the small, sector-skewed sample restricts generalisation. Only 17.3% of prospective teachers rated current learning materials 4–5 for adaptation to Generations Alpha and Z. Students' perceived career readiness correlated with perceived curriculum relevance (ρ =.737) and theory–practice balance (ρ =.703), without establishing causality. The study proposes an evidence-to-action architecture that triangulates perceptions with directly assessed learning outcomes, placements, graduate follow-up, inclusion measures and documented curricular decisions. The central contribution is an operational model for moving from positive feedback to accountable, measurable and student-centred quality enhancement.

Keywords: quality assurance; learning outcomes; student-centred learning; graduate employability; stakeholder feedback; higher education.

81. Designing transferable environmental education: The EduAmb Erasmus+ project and the Romania mobility case study

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Abstract

EduAmb – Environmental Education in Schools (Erasmus+ KA210-YOU, 2025–2027) connects partners from Spain, Romania and Bulgaria to promote sustainability education, youth participation and European cooperation. This paper examines the project design and its Romanian Work Package 2 mobility, hosted by "Dimitrie Cantemir" University of Târgu Mureș on 14–18 September 2026. A qualitative descriptive case study draws on the mobility programme, project documents, workshop materials and evaluation instruments. The five-day meeting involved 16 participants and integrated the Sustainable Development Goals and GreenComp with toolkit co-design, place-based learning in Târgu Mureș and Sovata, and an Environmental Education Video Challenge. International teams connected local environmental observations with educational storytelling and discussed the adaptation of resources for schools and youth organisations. Quality-assurance activities addressed peer feedback, ethical communication, learning outcomes, documented revisions and preparation for partner piloting. The analysis identifies a learning cycle linking observation, co-creation, formative assessment, revision and planned local implementation. The Romanian mobility illustrates how international cooperation can support experiential sustainability learning when educational innovation is accompanied by transparent quality criteria, inclusion and traceable evidence. As local piloting is ongoing, the paper presents process-level insights rather than claims of long-term educational impact.

Keywords: EduAmb; environmental education; Erasmus+ mobility; quality management.

82. Quality management in higher education at the "Dimitrie Cantemir" University of Târgu Mureș: Study on ensuring and continuously improving the quality of scientific education and research in the academic year 2025–2026, with prospects for the academic year 2026–2027

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Abstract

Quality management in higher education is a complex process, oriented towards ensuring and continuously improving educational, scientific, administrative and institutional activities. In the context of the transformations in the European and national university environment, universities are called upon to develop efficient quality assurance systems, capable of responding to the demands of students, the labour market, the academic community and society. This paper analyses quality management in higher education, with applicability to the "Dimitrie Cantemir" University of Târgu Mureș, starting from the institutional development directions and the scientific research activity described for the academic year 2025–2026. The main components of the quality management system are addressed, the relationship between education and research, the development of teachers' and students' skills, the evaluation of results, academic collaborations, digitalization and compliance with the principles of ethics and integrity. The paper highlights the importance of an integrated approach, in which periodic evaluation, the use of performance indicators, the involvement of education beneficiaries and the application of corrective measures contribute to strengthening the quality-based organisational culture. Finally, recommendations are made for the academic year 2026–2027, with the objective of developing a coherent, transparent and measurable results-oriented institutional quality management system.

Keywords: quality management; higher education; quality assurance; institutional evaluation; scientific research; academic performance; continuous improvement; "Dimitrie Cantemir" University of Târgu Mureș.

83. Human–AI collaboration in learning outcomes-based curriculum design: An institutional quality management case study

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Abstract

Quality assurance in higher education increasingly requires institutions to demonstrate how graduate profiles, learning outcomes, teaching activities and assessment are coherently connected. Developing and maintaining this alignment across study programmes is a demanding institutional task. Generative artificial intelligence (AI) offers practical support, but its contribution needs to be examined alongside established academic responsibilities and quality assurance procedures.

This paper examines an institutional initiative to strengthen curriculum development processes at a Romanian university. The initiative involved preparing a methodological guide for the formulation and alignment of learning outcomes, together with shared tools to support the revision of study plans and course descriptions in relation to the requirements of the Romanian Agency for Quality Assurance in Higher Education (ARACIS).

Using an exploratory qualitative case study approach, the paper analyses the guide, curriculum alignment matrices and selected examples of AI-assisted drafting and revision. It considers how common methodological criteria supported document consistency, made relationships between programme- and course-level learning outcomes more transparent and helped identify issues requiring academic review.

The case illustrates the usefulness of AI for structuring complex documentation, proposing alternative formulations and drawing attention to possible inconsistencies. It also reveals limits in the interpretation of regulatory requirements, disciplinary terminology and the educational relevance of proposed changes. These tasks required repeated verification and decisions by academic staff.

The study highlights the importance of integrating AI assistance into an institutionally coordinated quality management process, with clear methodological guidance, traceable revisions and human responsibility for final decisions. Its contribution is a practice-informed account of the conditions under which AI can support curriculum quality assurance without being treated as an independent source of academic or regulatory authority.

Keywords: generative artificial intelligence; quality management; curriculum design; learning outcomes; higher education; quality assurance.

84. The role of the university in improving the quality of teaching through the training of language and literature teachers

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Abstract

The development of reading skills is one of the major challenges facing contemporary education systems, particularly in the context of the rapid development of digital technologies and artificial intelligence (AI). The results of Albanian students in the PISA 2022 assessment highlighted the need to strengthen reading competencies and promote teaching practices that foster comprehension, interpretation, reflection, and critical evaluation of information. In this context, teachers' professional development and their ability to integrate digital technologies and AI into the teaching process are essential for improving the quality of education.

This paper aims to examine the role of "Eqrem Çabej" University in enhancing teaching quality through the professional training of Albanian language and literature teachers, with particular emphasis on the development of reading competencies and the pedagogically appropriate use of digital technologies and AI. The study adopts a descriptive and analytical approach, focusing on the objectives and content of the training module, the professional competencies it seeks to develop, and the practical activities designed to support the implementation of effective reading strategies. Attention is given to teaching approaches that encourage active student engagement, in-depth text comprehension, reflection, and critical evaluation of information, as well as the responsible integration of AI into educational practices.

The paper highlights the importance of cooperation between universities and educational institutions in supporting teachers' continuous professional development and promoting innovative, student-centred teaching practices. Assessing the impact of teacher training on students' reading achievement requires reliable empirical evidence and systematic evaluation. The study underlines the university's potential contribution to improving teaching quality and preparing teachers to respond effectively to the challenges of contemporary education.

Keywords: university; professional development; teacher training; teaching quality; artificial intelligence.

85. From AI deployment to measurable quality: A policy-aligned framework for quality management in higher education

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Abstract

The prevalence of artificial intelligence (AI) in higher education (HE) requires quality management (QM) approaches beyond successful deployment of technology. The European Commission's 2026 report on Gen-AI in HE addresses issues concerning student engagement, learning outcomes, academic performance and integrity. UNESCO's 2023 guidance emphasises the use of AI in a human-centred, ethical, and pedagogically validated manner. The EU AI Act classifies certain AI applications used in HE as "high-risk," while the 2025 guidelines from the European Association for Quality Assurance in Higher Education (ENQA) highlight transparency, human oversight, and continuous evaluation.

Drawing on a comparative synthesis of these documents, this theoretical study aims to develop a project QM framework grounded in international policy. The proposed framework consists of three core functions aligned with the project life cycle: Quality planning encapsulates the definition of educational objectives, risk classification, stakeholder requirements, and pre-established acceptance criteria. Quality assurance covers pedagogical validation, assessments of accessibility and algorithmic bias, data governance, and documented human oversight. Quality control encompasses monitoring, incident examination, corrective actions, and re-evaluation.

The study proposes measurable indicators. These include the level of predetermined learning outcomes achieved, the completion of documented risk assessments, the results of accessibility testing, the percentage of AI-supported decisions subjected to human oversight, the response time to students and academic staff, and the percentage and duration of corrective actions. Rather than relying solely on satisfaction surveys, it is envisioned that these indicators be evaluated in alignment with project-specific objectives and verified through auditable records.

The proposed framework should be considered as a model to be tested, rather than an empirically validated measurement tool. The paper identifies educational effectiveness, awareness of legislation and regulations, traceability of decisions, and continuous improvement as the core criteria for evaluating the quality of AI-related projects in HE.

Keywords: artificial intelligence; higher education; project quality management; quality assurance; quality indicators; AI governance.

86. Quality management in international cooperation projects: Challenges and best practices

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Abstract

Internationally funded projects are characterised by the involvement of multiple institutional partners who collaborate on the planning and implementation of activities to achieve shared objectives. While this collaboration offers opportunities to exchange experience and expertise, it also increases the complexity of the implementation process, requiring effective coordination, clear objectives, realistic indicators, and high quality standards.

Key challenges include inter-institutional coordination including the internal administrative procedures of individual partners—which can cause delays in decision-making and the execution of activities; and ineffective communication, which may lead to misunderstandings, overlapping responsibilities, and deviations from the work plan.

In this context, the development and implementation of a quality management framework are essential. This should include the establishment of dedicated structures to ensure the timely adoption of preventive measures for risk identification and management, as well as mechanisms for monitoring and verifying results. It should also entail periodic reporting by all partners regarding progress, performance, and the achievement of the planned milestones. Data collection for this study will be based on structured questionnaires, which will be completed by our partners engaged in ongoing and finalized projects.

The study aims to highlight the importance of quality management for the success and sustainability of projects, as well as to provide concrete recommendations—based on best practices—for improving quality management in international projects.

Keywords: quality management; effective coordination; risk identification; monitoring; reporting.

SCIENTIFIC SECTION 07

EDUCATIONAL SCIENCES

ABSTRACTS

Artificial Intelligence
Innovation in Education in a World of Constant Change

23–24 November 2026 · Târgu Mureș, Romania



87. Principles of education in the works of Dimitrie Cantemir: Philosophical, moral and cultural foundations

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Abstract

Our study seeks to identify and analyse the main principles of education that can be drawn from the philosophical, literary, historical and encyclopaedic works of Dimitrie Cantemir (1673–1723), one of the representative figures of premodern Romanian culture. Although he did not produce a systematic treatise on pedagogy, his writings express a complex understanding of the intellectual, moral and spiritual formation of the human person. The study examines the relationship between knowledge and virtue, the role of reason in guiding conduct, the importance of moral education, the value of interdisciplinary study, the formative function of history and the significance of intercultural dialogue. The analysis draws primarily on The Divan, or the Wise Man's Dispute with the World, The Hieroglyphic History, The Description of Moldavia, The Chronicle of the Antiquity of the Romano-Moldo-Wallachians and A Short Compendium of the Entire Teaching of Logic. From the perspective of the history of educational thought, Cantemir's works reveal an educational model in which the development of intellectual faculties is inseparable from the cultivation of virtues and the acceptance of individual and communal responsibility. The study argues that the originality of this conception lies in bringing together the Christian moral tradition, philosophical rationality, humanist erudition and openness to cultural diversity. It also discusses the limitations of a retrospective pedagogical interpretation, in order to avoid attributing contemporary educational concepts to an author belonging to a distinct historical context.

Keywords: Dimitrie Cantemir; history of education; philosophy of education; moral education; reason; virtue; humanism; encyclopaedism; interdisciplinarity; cultural identity.

88. Artificial intelligence in higher education: Enhancing learning autonomy or creating cognitive dependency?

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Abstract

The rapid integration of generative artificial intelligence into higher education is transforming how students access information, construct knowledge, and engage in learning activities. While AI-powered tools offer significant opportunities for personalised learning and academic support, their increasing use raises important questions about students' cognitive independence, critical thinking, and self-regulated learning.

This paper aims to investigate the relationship between generative AI use and learning autonomy among university students, focusing on the potential tension between cognitive support and cognitive dependency.

The proposed study adopts an exploratory mixed-methods approach, combining a student questionnaire with a comparative educational activity examining different modes of AI-assisted learning. Particular attention is given to the distinction between passive reliance on AI-generated answers and reflective AI use that encourages questioning, critical evaluation, and metacognitive engagement.

The study seeks to develop a conceptual framework distinguishing passive, collaborative, and reflective forms of AI use in higher education. By examining how different patterns of interaction with AI relate to students' independent learning processes, the research aims to identify pedagogical conditions that may support cognitive autonomy.

The paper contributes to current debates on AI-driven educational innovation by emphasising that the educational value of artificial intelligence depends not only on technological capabilities but also on how these technologies are integrated into teaching and learning practices.

Keywords: artificial intelligence; higher education; learning autonomy; cognitive dependency; critical thinking; metacognition; self-regulated learning.

89. Moore's laws and their implications for education

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Abstract

The rapid improvement in the performance of electronic technologies, identified by Gordon Moore in 1965 and known as Moore's Law, revealed a pattern of exponential development that was soon observed across most areas of human activity. This pattern illustrates the continuous expansion of the body of knowledge that education systems must select, organise and transmit. These systems are increasingly unable to keep pace with exponential growth. Adverse consequences for higher education include declining educational quality and even student attrition. This paper discusses three approaches to improving the effectiveness of higher education, drawing on engineering education: greater emphasis on top-down approaches that complement traditional bottom-up methods; greater use of visual methods of knowledge representation; and, above all, the decisive adoption of artificial intelligence (AI). A top-down approach begins with a system's function and overall architecture before progressively introducing its components and the necessary details. This perspective, characteristic of systems engineering, can reduce knowledge fragmentation and make technical disciplines more accessible within mass higher education, while preserving advanced pathways for research and elite training. The need to clarify the relationship between mass education and advanced academic study is also discussed. Visual knowledge representation is a fundamental mode of human expression and communication, compatible with complex systems of any kind and with AI. Finally, AI fundamentally enhances and accelerates cognitive processes and strengthens the teacher–student relationship. Its use nevertheless requires the verification and validation of outputs. Improving teaching effectiveness is imperative and should rely on reorganising content around core concepts, relationships between components and relevant applications, while maintaining academic standards.

Keywords: Moore's law; knowledge representation; top-down approach; systems engineering; artificial intelligence.

90. The integration of artificial intelligence in human resource management

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Abstract

Artificial intelligence is no longer just a scientific concept or a field reserved for advanced research; it has become an active presence in everyday life, influencing the ways in which we work, communicate, learn, and create knowledge. Artificial intelligence is spreading in the world of work, and its integration into human resource management is a key direction for the sustainable development of organisations. The development and implementation of AI-based adapted MRU models is becoming a key factor for success; it's no longer just a strategic option, but a fundamental necessity to ensure long-term viability and growth. The purpose of the article is to point out important methods and aspects regarding the use of AI in professional recruitment, in the employee onboarding process, in training processes tailored to employees' individual needs, and in employee retention by identifying early signs of declining job satisfaction and allowing proactive management interventions. The article's conclusions highlight the usefulness of using AI in human resources management activities.

Keywords: artificial intelligence (AI); human resources management; recruitment; onboarding; training; retention.

91. Artificial intelligence in language learning: Effects on learner proficiency, motivation, and autonomy

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Abstract

The rapid development of artificial intelligence (AI) has transformed language education, introducing tools such as intelligent tutoring systems, chatbots, automated writing evaluation, and adaptive learning platforms. This study aims to examine how AI-supported instruction influences foreign language learners' proficiency, motivation, and autonomy, and to identify the pedagogical challenges associated with its integration. The research is situated in the broader context of digital and technology-enhanced language learning, where personalised and immediate feedback is increasingly valued in both formal and informal settings.

A mixed-methods design was employed. Quantitative data were collected through pre- and post-tests and a structured questionnaire administered to university-level English learners, who were divided into an experimental group using AI-based tools and a control group receiving conventional instruction over one academic semester. Qualitative data were gathered through semi-structured interviews and learner reflection journals, and were analysed thematically.

The findings indicate that learners in the experimental group achieved significantly greater gains in writing accuracy, vocabulary acquisition, and speaking fluency than those in the control group. Participants also reported higher levels of motivation, reduced anxiety, and greater willingness to practice outside the classroom, largely owing to instant feedback and low-pressure interaction. Moreover, AI tools fostered learner autonomy by enabling self-paced and individualised study. However, concerns emerged regarding overreliance on automated corrections, limited cultural and pragmatic sensitivity, inconsistent feedback quality, and issues of data privacy and academic integrity.

The study concludes that AI can serve as an effective complement to, rather than a replacement for teacher-led instruction. Its benefits are maximised when integrated within a balanced pedagogical framework that includes teacher guidance, critical digital literacy training, and clear ethical guidelines. Further longitudinal research is recommended to assess long-term learning outcomes across diverse learner populations.

Keywords: artificial intelligence; language learning; learner autonomy; motivation; adaptive feedback; educational technology.

92. Artificial intelligence in scientific research methodology: Opportunities, limitations and the development of critical thinking in higher education

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Abstract

The rapid integration of artificial intelligence (AI) into higher education is transforming the ways students access information, formulate research questions, and develop scientific reasoning. While AI-powered tools offer opportunities to support research methodology education, their increasing accessibility also raises concerns regarding critical thinking, academic integrity, and the reliability of AI-generated information.

This paper proposes an educational framework for integrating generative AI into the teaching of scientific research methodology, with particular reference to first-year dental medicine students. The study focuses on essential stages of the research process, including the formulation of research questions, hypothesis development, literature evaluation, and the identification of methodological limitations.

A comparative educational activity is proposed, involving research tasks completed through conventional approaches and with AI assistance. Students' performance will be assessed using criteria related to methodological accuracy, source reliability, critical evaluation, and the ability to justify research decisions.

The paper aims to explore whether AI-assisted learning can contribute to the development of scientific reasoning rather than merely accelerating the production of academic content. Particular attention is given to the role of educators in promoting responsible AI use and maintaining students' intellectual autonomy.

The proposed framework may provide a practical foundation for integrating artificial intelligence into research methodology courses across different academic disciplines.

Keywords: artificial intelligence; research methodology; higher education; critical thinking; dental education; scientific reasoning; academic integrity.

93. Training in algorithmic networks: A sociological perspective on artificial intelligence

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Abstract

The integration of Artificial Intelligence (AI) into education represents a major sociotechnical transformation, with implications for the relationships between educational institutions, teachers, students, and the processes of knowledge production and transmission. This paper proposes a sociological perspective on the use of algorithmic systems in education, moving beyond approaches focused exclusively on technological efficiency and personalised learning. The analysis examines how AI influences pedagogical authority, educational practices, and decision-making mechanisms, highlighting the role of power relations, institutional norms, and social inequalities in shaping the effects of this technology. Furthermore, it critically addresses the risks associated with the use of algorithms, particularly the reproduction of existing inequalities, the reduction of teachers' professional autonomy, and the reinforcement of data-driven forms of control. From this perspective, AI is conceptualized not merely as a tool for optimizing the educational process, but also as a sociotechnical actor that contributes to the reorganization of educational practices, relationships, and institutional structures. The paper emphasises the need for a critical and responsible approach to the integration of AI into education, grounded in algorithmic transparency, equity, institutional accountability, and the preservation of the central role of human agency in the pedagogical process.

Keywords: artificial intelligence; sociology of education; algorithms; social inequalities; pedagogical authority; sociotechnical transformation.

94. Comparative analysis of English language curricula in Albanian higher education: Aligning national frameworks with European standards

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Abstract

As Albania integrates into the European Higher Education Area through the Bologna Process, aligning academic frameworks with European benchmarks and international language proficiency guidelines is essential.

This paper presents a comparative analysis of English language department curricula in Albanian universities against European standards. By using the mixed-methods design, the study combines qualitative content analysis of course syllabi with the gathered data from surveys and questionnaires delivered to department heads, curriculum coordinators and academic staff of the relevant departments. The collected data are systematically benchmarked against four core criteria: ECTS credit distribution, CEFR exit competencies (C1/C2), European quality assurance guidelines and outcome-based syllabus design.

Results show clear structural convergence in credit allocation and credit transfers for core linguistic and literature modules. However, survey data reveal key institutional disparities in practical language teaching methodologies, digital humanities and computer-assisted language learning integration and market-oriented transferable skills.

These variations largely stem from uneven development opportunities and differing levels of institutional resources across public universities. Because departments interpret European guidelines differently, graduates leave with unequal practical teaching and digital skills, making it harder for them to transfer credits or study abroad through European exchange programmes and creating noticeable gaps in graduate preparedness for international academic and professional environments

The paper provides actionable recommendations for department heads, curriculum developers and policy makers to standardise curriculum evaluations and ensure full alignment with European higher education standards.

Keywords: English language & literature; computer-assisted language learning; CEFR competency benchmarks; ECTS allocation; syllabus evaluation.

95. University policies on the use of generative artificial intelligence: A comparative analysis of guidelines adopted in the European area

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Abstract

The rapid spread of generative artificial intelligence tools in higher education has compelled European universities to regulate their use in learning, assessment and research. In the absence of specific legislation, institutional responses have mainly taken the form of internal guidelines and regulations adopted under university autonomy. This article offers a comparative analysis of these documents. It uses as a benchmark the orientations formulated at European and international level by UNESCO, the European Commission, the European University Association and the Russell Group. The sample includes guidelines of universities in Belgium, the Netherlands, France, the United Kingdom and Luxembourg, as well as regulations adopted in Romania and the Republic of Moldova. Based on a common analytical grid, the study proposes a typology of university policies: restrictive, conditionally permissive, delegated and integrative. The findings show a shift from initial bans towards models centred on transparency, author responsibility and the adaptation of assessment. The obligation to disclose AI use is emerging as the common element of most guidelines. In Romania, regulation remains fragmented and is carried out mainly at university or faculty level. In the Republic of Moldova, the Framework Regulation on Academic Integrity adopted in 2026 requires institutions to develop internal rules. On this basis, the article formulates recommendations on the minimum content of an institutional guideline adapted to universities in the Republic of Moldova.

Keywords: generative artificial intelligence; university policies; academic integrity; institutional guidelines; comparative analysis; Republic of Moldova.

96. Artificial intelligence in higher education: Cognitive partner and/or cognitive surrogate? A new pedagogical framework for protecting and developing critical thinking in the age of AI

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Abstract

Artificial intelligence (AI) is one of the most important technological transformations currently influencing higher education systems. The emergence of generative artificial intelligence models, such as ChatGPT and other systems based on Large Language Models (LLMs), has fundamentally altered the relationship between students, teachers, and knowledge production processes. While these technologies offer significant opportunities for personalizing learning, developing metacognition, and facilitating academic collaboration, their uncontrolled use can lead to decreased cognitive autonomy, reliance on automated tools, and assessments of one's own skills. This paper analyses the fundamental tension between two perspectives on artificial intelligence in education: AI as a cognitive partner and AI as a cognitive substitute. The central argument is that the educational impact of artificial intelligence is not determined exclusively by the technological performance of the tools used, but especially by the pedagogical intentionality that governs their integration. Thus, the same technology can stimulate critical thinking when used for exploration, argumentation and reflection, but it can affect cognitive development when it dominates the student's fundamental intellectual processes. Based on the recent literature on artificial intelligence in education, critical thinking and digital literacy, the paper proposes the AI-Enhanced Critical Thinking Education (AI-CTE) conceptual framework, focused not on the exclusive development of technical skills for the use of AI, but on the preservation and amplification of human cognitive capacities. The proposed framework includes three progressive dimensions: (1) Artificial intelligence and the transformation of the way knowledge is produced in the humanities; (2) Artificial intelligence, critical thinking and interpretation of the past: epistemological challenges for history and sociology; (3) Algorithmic bias and the problem of technological neutrality. The paper argues that the main objective of university education in the era of artificial intelligence should not be to prepare students to compete with a form of intelligence different from human intelligence, but to develop those cognitive, ethical and creative skills that allow the responsible use of intelligent technologies.

Keywords: artificial intelligence; higher education; critical thinking; metacognition; AI literacy; digital ethics; generative models of artificial intelligence.

97. Beyond automated content generation: Human–AI collaboration in the development of university teaching materials

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Abstract

Generative artificial intelligence (AI) has become increasingly accessible to university teachers, offering practical support for preparing lectures, developing learning activities and designing assessment materials. Yet the ease with which these tools produce academic content raises questions about its accuracy, pedagogical relevance and suitability for different educational contexts.

This paper explores the process of human–AI collaboration in the development and revision of university teaching materials, drawing on experiences from courses in tourism and sustainable development. The research adopts an exploratory qualitative approach, examining successive versions of selected educational resources, including course materials, presentations and applied learning activities.

The analysis focuses on how initial AI-generated suggestions were reviewed, questioned and progressively refined through academic intervention. Particular attention is given to recurring difficulties such as excessive fragmentation of content, insufficient conceptual depth, inappropriate terminology, factual inaccuracies and inconsistencies between learning outcomes, teaching activities and assessment.

The examined development process suggests that AI can facilitate content organisation and provide useful starting points for educational design. At the same time, substantial academic intervention may be required to ensure disciplinary accuracy, appropriate levels of complexity and meaningful connections between theoretical knowledge and practical applications.

The paper discusses the implications of these observations for university teaching, particularly the importance of critical evaluation, subject expertise and pedagogical judgement when working with generative AI. It proposes a structured approach to human–AI collaboration that places responsibility for the quality of teaching materials with the academic staff who design and use them.

Keywords: generative artificial intelligence; university teaching; educational resources; human–AI collaboration; pedagogical design; academic judgement.

98. Adjectival suffixation in agricultural terminology: A contrastive morphological analysis of Albanian and English

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Abstract

This study undertakes a systematic contrastive morphological analysis of adjectival suffixation in agricultural terminology across Albanian and English. Drawing on a purpose-built bilingual corpus of 379 adjectival forms (180 Albanian; 199 English) distributed across six thematic sub-domains: soil and land management, crop cultivation, animal husbandry, irrigation and water resources, agro-chemicals, and agro-economics, the study maps the productive suffix inventories of both languages, identifies convergent and divergent morphological strategies, and situates the findings within a broader cross-linguistic frame that additionally highlights the influence of Italian and Turkish on selected suffixal patterns. Corpus data reveal that Albanian relies predominantly on native suffixes (principally -or/-ore, -shëm/-shme, -ues/-uese), which account for 62.2% of adjectival formations, while English displays a stronger preference for Greek- and Latin-derived derivational morphemes (-al/-ial, -ous/-ious, -ic/-ical), which together constitute 60.8% of the corpus. Convergence is most pronounced in internationally borrowed scientific terms sharing Greek- and Latin-derived roots (e.g. organik / organic, hidraulik / hydraulic), where suffix correspondence reaches 84.3% of shared-root pairs. Divergence is characterised by gender-marking obligations in Albanian, the productive extension of the relational suffix -or to agentive functions, and the absence of a direct Albanian parallel to the English participial adjective in -ed. Statistical analysis confirms that suffix-category distribution differs significantly between the two languages. The findings have implications for bilingual agricultural lexicography, terminological standardisation in Albanian, and language pedagogy.

Keywords: adjectival suffixation; agricultural terminology; Albanian morphology; contrastive linguistics; derivational morphology; terminological analysis; word formation.

99. Definite article production and use under cross-linguistic influence

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Abstract

The present study demonstrates cases of the use of grammatical articles in Greek by Albanian-speaking learners aged 16–18. The study is motivated by continuous observation and systematic collection of learner data, with particular attention to cross-linguistic influence from Albanian. Since Greek and Albanian differ in the realization and distribution of grammatical gender and articles, learners may transfer patterns from their first language (L1) when producing Greek. Data were collected through individual, face-to-face interviews incorporating both controlled elicitation and spontaneous production tasks. Participants were asked to complete and produce Greek sentences requiring the use of definite articles across masculine, feminine, and neuter nouns, in both singular and plural contexts. The findings reveal recurrent patterns of non-standard article use that suggest substantial L1-to-L2 cross-linguistic influence. The results highlight the importance of treating article acquisition not simply as a matter of memorizing individual forms, but as a complex process involving semantics, morphology, syntax, lexical knowledge, and cross-linguistic influence. Systematic exposure to nouns together with their articles, combined with contextualized sentence production, may therefore contribute to more accurate acquisition of the Greek article system among Albanian-speaking learners.

Keywords: cross-linguistic influence; Albanian L1; Greek L2; grammatical articles; language contact; semantics.

100. Negotiating cultural identity in a multilingual EFL classroom: Intercultural communication among university students in Moldova

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Abstract

While intercultural communication is often examined in the context of international student mobility, less attention is given to intercultural encounters within nationally diverse student populations. This study explores the relationship between cultural identity and intercultural communication among students in a Moldovan university language classroom. It focuses on students from different ethnic and linguistic backgrounds and examines how they perceive, express, and negotiate aspects of their cultural identity through interaction with their peers. Particular attention is given to the role of language, cultural perceptions, communication difficulties, and strategies for managing intercultural differences.

The study adopts a mixed-methods approach, combining questionnaire data with selected semi-structured interviews. The findings are expected to provide insights into how students experience cultural diversity in the classroom, how they negotiate differences in everyday communication, and what factors may facilitate or hinder intercultural understanding. The study also seeks to identify pedagogical practices that can help language educators transform cultural diversity into a resource for language learning and intercultural competence.

Keywords: cultural identity; intercultural communication; intercultural competence; linguistic diversity; higher education classroom.

101. Student needs in higher education: Academic, social, digital and institutional dimensions

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Abstract

Contemporary higher education is facing significant changes related to digital transformation, changes in the labour market, diversification of the student population and increasing demands for quality and inclusiveness. Today, the labour market moves and changes at a rapid pace, as a result, the needs and expectations of students and their families not only change, but are constantly searching for ways to increase the quality and improve the knowledge that time requires. In this context, identifying and addressing students' needs constitutes a fundamental element for improving the quality of the university experience and academic results. This article aims to theoretically analyse the main needs of students in higher education, grouping them into academic, pedagogical, social, emotional, digital, financial and institutional dimensions. The article is based on a review of contemporary literature and an analysis of international reports on higher education. The article argues that these dimensions should not be treated separately but as part of an integrated system of student support. Universities need to move from a standardisation approach towards a more student-centred, inclusive and student-oriented model.

Keywords: students; higher education; student needs; well-being; institutional support; technology; inclusion.

102. The competence paradox in AI-assisted education: Between illusions of knowledge, cognitive offloading, and young people's intellectual autonomy

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Abstract

The integration of generative artificial intelligence (AI) in education is redefining the relationship between access to information, cognitive effort and the development of young people's intellectual autonomy. Although the literature highlights the potential of AI tools to facilitate personalised learning, immediate feedback and the resolution of academic tasks, questions persist about the extent to which these benefits translate into sustainable cognitive skills.

The paper proposes a critical review of the scientific literature on the relationship between the use of generative artificial intelligence, cognitive offloading, metacognitive calibration and learning autonomy among adolescents and young adults.

The analysis aims to identify the mechanisms by which AI assistance can support understanding and critical thinking or, on the contrary, can favor the overestimation of one's own skills and functional dependence on technological support. The proposed methodology consists of a scoping review, using studies with a focus on the literature published in the period 2022-2026.

The originality of the approach lies in the integration of three theoretical perspectives, cognitive externalisation, metacognition and self-regulation of learning, into a conceptual framework of the "paradox of AI-assisted competence". It distinguishes between the efficiency of performing tasks with technological support, the subjective perception of learning and the ability to independently apply knowledge.

The paper aims to identify the gaps in current research and to formulate directions for the development of educational practices in which artificial intelligence functions as a tool to stimulate reflection, not as a substitute for reasoning.

Keywords: generative artificial intelligence; education; cognitive offloading; metacognition; cognitive autonomy.

103. Leveraging artificial intelligence for assessing intercultural communicative competence within English language learning in Albania

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Abstract

This study addresses the pedagogical and institutional challenges of evaluating the intercultural dimension within English language learning in Albania, specifically exploring the integration of Artificial Intelligence (AI) tools. While international guidelines explicitly mandate the integration of cultural awareness, assessing these soft skills objectively remains a complex task in local practice. Grounded in Michael Byram's Intercultural Communicative Competence (ICC) model, this research investigates how AI-driven platforms and automated text analysis can assist language educators in measuring multi-dimensional cultural traits. Methodologically, this paper employs a conceptual framework analysis and a review of contemporary educational assessment strategies within the Albanian framework. The study models alternative assessment instruments such as AI-assisted reflective portfolios, natural language processing (NLP) checklists, and automated criterion-referenced rubrics. These digital tools are examined to determine their practical implementation in monitoring qualitative shifts in students' cultural empathy. The discussion highlights that traditional structural and linguistic parameters remain a primary focus within current frameworks. However, there is room to further support intercultural development through alternative classroom methods. The paper argues for a pedagogical exploration of AI-supported formative tools to better understand the reflective process of language learning. Conclusively, this study offers practical suggestions for English language educators. It provides useful insights for designing structured evaluation criteria to monitor the intercultural growth of students in contemporary classrooms. These criteria help teachers effectively monitor the intercultural growth of students, preparing them for an ever-changing world.

Keywords: artificial intelligence; intercultural assessment; CEFR; formative evaluation; educational sciences; Albania.

104. Parents between denial and acceptance of their children's neurodevelopmental difficulties

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Abstract

Parental denial or acceptance of children's neurodevelopmental difficulties can influence timely support and educational inclusion. This study examined parents' attitudes towards developmental difficulties among children aged 3–11 and explored how social, emotional, and school-related factors shape acceptance in Gjirokastër, Albania. A mixed-methods design combined structured questionnaires completed by 136 preschool and primary school teachers and 32 parents with a qualitative component involving semi-structured parent interviews. Descriptive statistics and thematic analysis were used to examine perceptions and experiences. Among surveyed parents, 57% reported denial or non-acceptance, 28% partial acceptance, and 15% full acceptance of their child's difficulties. In addition, 62% of teachers reported initial parental rejection or disbelief when developmental concerns were communicated, while only 18% experienced immediate cooperation. Qualitative findings highlighted fear of social stigma, minimisation of difficulties by extended family members, differences in parental responses, and reluctance to seek professional assistance. Although 59% of parents reported regular communication with teachers, only 52% viewed the school as a partner in their child's inclusion. These findings suggest that acceptance is shaped not only by individual emotional responses but also by family dynamics and the quality of institutional communication. The study underscores the need for non-stigmatising dialogue, structured school–family collaboration, and clear pathways to early assessment and support.

Keywords: parental denial; neurodevelopmental difficulties; parental acceptance; school–family collaboration; inclusive education.

105. Artificial intelligence for quality education and sustainable regional development: A framework for enhancing social well-being and the inclusion of vulnerable groups

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Abstract

Against the backdrop of accelerated digital transformation and the goals set out in the 2030 Agenda, artificial intelligence (AI) is viewed as an emerging factor capable of supporting inclusive education, human capital development, and the reduction of regional socio-economic disparities. The benefits of utilizing AI depend on the presence of favourable conditions regarding access to digital infrastructure, skill levels, participation in education, and the degree of social inclusion. In this context, this paper aims to analyse the role of artificial intelligence in supporting the sustainable socio-economic development of regions, with a focus on vulnerable groups and its contribution to achieving the Sustainable Development Goals.

The research explores the relationships between region-specific structural challenges, AI-driven educational innovation, educational inclusion, human capital formation, and social well-being. To this end, a composite index, the Artificial Intelligence Readiness and Inclusion Index (AIRI)—is proposed, constructed from indicators that reflect digital readiness, digital skills, educational attainment, and socio-economic inclusion. To evaluate development outcomes, a Regional Social Well-being Index (RSWI) is proposed, which integrates relevant dimensions of social well-being, such as employment, education, lifelong learning, the risk of poverty, long-term unemployment, and the NEET phenomenon.

The research combines a review of specialized literature with quantitative methods for constructing composite indices, utilizing Principal Component Analysis (PCA). The relationship between the two indices is investigated using an econometric panel data model at the NUTS 3 regional level.

The paper proposes an analytical framework that connects the technological, educational, and social dimensions of regional development, offering a perspective applicable to assessing progress toward achieving SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities), and SDG 11 (Sustainable Cities and Communities.

Keywords: artificial intelligence; sustainability; educational inclusion; regional social well-being; human capital; SDGs.

106. Artificial intelligence for identifying socio-educational needs in rural Romania: Opportunities and ethical challenges for integrated community services

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Abstract

Rural educational disadvantage requires an understanding of the connections between schooling, household circumstances, access to healthcare, and local institutional capacity. This conceptual and methodological paper explores how artificial intelligence could support the identification and interpretation of socio-educational needs in rural Romania within an integrated community services approach.

Situated within a doctoral research agenda on rural socio-educational needs, the paper proposes a framework for combining researcher-led qualitative content analysis with AI-assisted processing of community assessment documents and intervention plans. Potential applications include organising heterogeneous information, identifying recurring educational needs, and examining connections between documented vulnerabilities and proposed support measures. Particular attention is given to barriers to school participation, access to educational support, and cooperation between educational, social, and health professionals.

The proposed framework comprises four stages: preparing and de-identifying documents; developing a context-sensitive coding scheme; using AI to suggest thematic classifications and document comparisons; and validating outputs through researcher review and consultation with community professionals. Its methodological contribution is a structured workflow that preserves traceability between source material, analytical categories, and interpretations.

The paper examines risks associated with incomplete administrative data, algorithmic bias, unsupported inferences, and the underrepresentation of community perspectives. It argues that responsible use requires data minimisation, transparent documentation, explicit treatment of uncertainty, and meaningful human oversight.

The central proposition is that AI-assisted analysis may support educational needs assessment when embedded in participatory research and interdisciplinary collaboration. The framework provides a basis for subsequent empirical testing of its analytical usefulness and limitations in rural community settings.

Keywords: artificial intelligence; rural education; socio-educational needs; community assessment; integrated services; research ethics.

107. Artificial intelligence as a pedagogical mediator of emotional freedom in primary education: A value-based framework for social media literacy

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Abstract

Generative artificial intelligence (AI) is entering schools quickly, and with it comes a question that is technological, pedagogical and moral at once: can intelligent tools help children become more emotionally autonomous without taking the place of human relationships or exposing them to digital risks? This conceptual paper grows out of my doctoral research on developing pupils' emotional freedom through the pedagogical use of social networks. It proposes a framework for primary education in which the teacher stays in charge. I define emotional freedom as a capacity that is still developing in a child: to recognise and accept emotions, to choose among flexible ways of regulating them, and to express feelings and needs honestly, safely and respectfully, without leaning too heavily on other people's approval. The synthesis draws together work on emotional competence, self-determination theory, emotion regulation, social-emotional learning, digital rights and human-centred AI governance. The framework has four linked dimensions (cognitive-reflective, axiological-affective, self-regulatory, and socio-communicative/digital) and a six-stage teaching cycle built on fictional online situations. AI has a narrow role: the teacher uses it to prepare age-appropriate scenarios, alternative responses and reflection questions. Pupils do not have to open a public social media account or use generative AI themselves. I also set out observable indicators, a plan for later evaluation and the safeguards needed to protect children. What the paper offers is a theoretically grounded pedagogical design, not proof that it works. My conclusion is that AI can widen a teacher's options for guided emotional reflection, but only if human judgement, children's rights, data minimisation and developmentally suitable participation are treated as fixed conditions.

Keywords: emotional freedom; artificial intelligence; primary education; social media literacy; emotional self-regulation; digital citizenship.

108. Artificial intelligence as a support tool for quality assurance in teacher evaluation in lower secondary education

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Abstract

Ensuring the quality of teacher evaluation is essential for improving educational practice and supporting teachers' professional development in lower secondary education. Artificial intelligence (AI) offers tools that may help organise evaluation evidence, identify patterns and support more consistent feedback; however, its use also raises concerns about transparency, fairness, data protection and algorithmic bias. This paper aims to examine how AI can support, rather than replace, established quality assurance principles in teacher evaluation. Using a theoretical and analytical approach, the paper reviews relevant research and international guidance on AI in education, teacher competencies and educational quality. It considers key dimensions of a quality-oriented evaluation process, including the clarity and validity of criteria, consistency of professional judgement, transparency of decisions, formative feedback and opportunities for continuous professional learning. On this basis, the paper outlines principles for the responsible use of AI in teacher evaluation, grounded in human oversight, accountability, fairness, explainability and protection of personal data. The approach positions AI as a complementary decision-support tool, not as an autonomous evaluator or a substitute for professional expertise. The paper argues that any implementation should be aligned with institutional standards and accompanied by ethical safeguards and further empirical validation. This approach connects digital innovation with the broader goal of strengthening quality assurance in lower secondary education.

Keywords: artificial intelligence; teacher evaluation; quality assurance; lower secondary education; professional development.

109. The use of artificial intelligence in teaching chemistry at upper secondary level

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Abstract

The integration of Artificial Intelligence (AI) into chemistry education at upper secondary level offers significant opportunities to modernise teaching and learning, making scientific concepts more accessible, interactive and relevant to students' needs. This paper explores the pedagogical potential of AI in chemistry teaching, focusing on the development of scientific inquiry, digital literacy, critical thinking and problem-solving skills.

The proposed approach identifies five main areas of AI integration: visualisation of chemical structures and processes, virtual experiments and simulations, personalised learning and assessment, development of scientific inquiry skills, and connections between chemistry and real-world challenges, particularly environmental protection and sustainability. Digital applications such as ChatGPT, Gemini, Canva AI, PhET, MolView, Kahoot! and Quizizz provide opportunities to enrich classroom activities, support differentiated instruction and facilitate formative assessment.

A methodological guide for teachers is presented, offering practical examples of AI integration into chemistry lessons for Grades 9–12. It includes lesson-planning frameworks, learning objectives, suggested digital tools, classroom activities, ready-to-use AI prompts and assessment instruments. The proposed activities address topics such as atomic structure, covalent bonding, chemical reactions, hydrocarbons, chemical equilibrium, reaction rates and environmental chemistry.

The expected impact is considered at three levels: students, teachers and the school. For students, AI-supported learning can improve conceptual understanding, motivation, scientific reasoning and digital competences. For teachers, it can stimulate innovation in teaching practices, resource development and interdisciplinary collaboration. At institutional level, it can contribute to building an innovative learning organisation that promotes digital transformation and sustainable education.

The paper also highlights challenges related to scientific accuracy, unequal access to technology, data privacy and academic integrity. It emphasises that AI should complement, rather than replace, teachers' expertise, students' independent reasoning and practical laboratory experiments.

Ultimately, responsible AI integration can contribute to more engaging, inclusive and inquiry-based chemistry education, preparing students to become critical, creative and scientifically literate citizens.

Keywords: artificial intelligence; chemistry education; upper secondary education; digital learning; scientific inquiry; sustainable education.

110. Lusotropicalism with a Chinese flavour: The heritagization of Macanese cuisine

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Abstract

Chinese cuisine is considered a patchwork of several regional cuisines. Besides these established regional culinary identities, however, a newcomer has recently emerged: Macanese cuisine. The Macanese are a small community made up of the descendants of intermarriages between Portuguese settlers and Asian women in colonial-era Macau; they have developed a specific identity of their own, one of whose main markers is their cookery. Confined in family kitchens until the 1980s, Macanese cuisine began to gain popularity in the 1990s and since the 2000s has become a relevant cultural phenomenon, to the point of being included in the list of national intangible heritage of China. Macanese restaurants and bakeries have been opening in several Chinese cities, cookbooks have been churned out in large numbers and TV shows are praising its uniqueness. In other words, Macanese cuisine has become the object of intense heritagization, i.e. the transformation of local cuisine into something «typical». But why is this happening, and what are the discourses and ideologies that are being mobilized in this heritagization process? Using a Multimodal Critical Discourse Analysis framework, this paper will try to answer this question by analysing how a CCTV documentary film, Crunch and Munch in Macau, represents Macanese cuisine. We will argue that this process is the result of efforts both by the Macanese themselves, aimed at preserving their cultural legacy and distinctiveness (that many feared would be lost after the handover of Macau to China) and by the Macau government, which supports this cuisine to mark the city's distinctiveness, promote cultural and gastronomic tourism as an alternative to gambling, and reinforce a narrative of Macau and its history as a 'place of harmonious coexistence between East and West' that this cuisine is particularly suitable to embody and that draws, paradoxically, on Portuguese colonial ideology.

Keywords: heritagization; macanese cuisine; documentary; china; lusotropicalism; mCDA.

111. Can artificial intelligence reduce foreign language speaking anxiety?

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Abstract

The growing use of Artificial Intelligence (AI) in education has introduced innovative opportunities for foreign language learning, particularly in developing speaking skills. Speaking anxiety is one of the most common barriers faced by students learning a foreign language, often reducing participation, confidence, and oral performance. Fear of making mistakes and negative evaluation can limit students' willingness to communicate and hinder language development.

This study investigates the role of AI-based speaking tools in reducing foreign language speaking anxiety among university students learning English as a Foreign Language (EFL). It focuses on students' perceptions and experiences with AI-powered applications that provide real-time feedback, personalised support, and opportunities for repeated speaking practice in a low-pressure environment. Unlike traditional classroom interactions, these tools enable learners to practice speaking without the fear of immediate social judgement.

Using a quantitative research approach, data will be collected through structured questionnaires administered to university students who have experience with AI-assisted language learning tools. The study examines the relationship between AI tool usage, speaking anxiety, confidence, and willingness to communicate.

The findings are expected to demonstrate that AI-supported learning environments can reduce speaking anxiety, increase learner confidence, and improve oral communication skills. The study contributes to the literature on educational technology and offers practical implications for integrating AI into foreign language teaching in higher education.

Keywords: artificial intelligence; foreign language anxiety; speaking anxiety; EFL; speaking performance; higher education.

Author index

Page references lead to the abstracts.

A

Albarri, Ammar 107
Armaşu-Canţîr, Ludmila 44
Avram, Eleonora Laura 90–91, 93, 96

B

Baciu, Sergiu 135
Bălan, Sorina-Mihaela 42–43, 105–107, 109, 132
Bălaş, Marius M. 116
Barbăneagră, Oxana 122
Belu, Anca Mihaela 50
Bentu, Doinița 51
Boboli, Valentina 126
Boga, Patricia 81
Bogdan, Anca 29
Bucos, Tatiana 92
Bucur, Sorana-Maria 66–71, 82, 90, 105
Bugariu, Raluca-Mihaela 63
Buinovschi, Lina 30

C

Carka, Mimoza 131
Chira, Cristiana 136
Ciohodaru, Lucian-Constantin 61
Ciotea, Valentin Florin 64
Cocoş, Dorin Ioan 74–78
Codreanu, Alina 30–33
Cojocariu, Cristian 74–78
Cojocariu, Lăcrămioara-Ionela 39
Conţ, Ribana-Ileana 34
Cotruş, Andrei 48, 59
Cozacenco, Domnica 31
Csibi, Mónika 52
Csibi, Sándor 52–53

D

Dârnea, Mioara 79–80
David, Doina 108, 120, 123
De Leonardis, Fabio 137
Demirogları, Burcu 111
Demiroğları, Gürcan 111
Dincă, Vasile-Gabriel 58
Drăgan, Cristian 97
Dragotă, Tiberiu-Gabriel 95
Dragotă, Violeta Gianina 95
Dună (Bratu), Ramona 129

E

Earar, Kamel 74–78
Enache, Elena L. 72
Enache, Liviu S. 72
Erimia, Cristina-Luiza 25

F

Feier, Ramona Diana 74–80
Florea, Călin 120, 123
Fori-Kovács, Réka 40

G

Gâlea, Carmen 68–71
Gambino, Paolino 67
Garabet, Bianca-Ioana 51, 129
Gârbuleţ, Ioan 26
Geamalinga, Raina-Nicoleta 36
Gîndea, Gabriela 122
Gjolleshi, Irma 112
Gonța, Victoria 44
Gorea, Brîndușa 22
Goreacii, Silvia 32
György, Manuela 53

H

Hambeţiu, Anamaria Cristina 48, 59
Hânză, Laura 60
Haxhiu, Matilda 100
Horja, Ioana Monica 91, 93, 96
Hoxhaj, Era 103
Hurubă, Raluca-Ioana 35

I

Iancu, Miruna-Mădălina 54
Ignat, Andreea 98
Ilincuța, Andreea-Mihaela 36
Ilincuța, Nicu-Darius 36
Iosof, Radu 37
Isaraj, Merita 27, 121, 125

J

Jaupaj, Artur 27, 121

K

Kalandia, Ani 99

Kamberi, Sashenka 110
Karagiannis, Georgios 102
Koç, Ayşe Şenay 111
Koç, Murat 111
Kokalari, Eljana 126
Kristof, A. Attila 88

L

Lîsîi, Aliona 44
Llukani, Mirtila 101
Lupaşcu, Anastasia 33
Luzo, Drita 101

M

Macula, Maria-Magdolna 132
Mallanezo, Hristina 130
Mamani, Loreta 131
Martinovici, Maria Eugenia 64
Meléndez Luces, Jennifer 107
Mircică, Nela 47
Mitaj, Arjola 100
Moise, Tatiana 133
Moldovan, Sorina 55–56
Moldovan, Traian 56
Moraru, Adela 45–46

N

Nagy, Oana-Voica 23
Nano, Dorjana 102
Neagoe, Liviu-Ioan 62
Neagu, Florentina Larisa 57
Necula, Constantin 114
Negru, Radu 88
Nemeş, Anca 49
Nistor, Claudia Andreea 70

O

Oltean, Laura 81
Oroian, Maria 84–85, 107, 109, 119, 124

P

Papari, Adrian Cristian 57
Papari, George Daniel 25
Papp, Gabriela Eniko 81
Pascu, Talita 85–86
Petriciuc, Lilia 127
Polo, Antoneta 102
Ponte Rodríguez, Pablo 107
Popa, Nelu Dorinel 28

R

Rad, Dana 42
Rad, Gavril 42
Raţiu, Ramona-Flavia 68, 71, 84–85, 107, 109, 119
Rrapai, Vjollca 110

S

Saharov, Natalia 22
Săndulache, Vlad-Petru 88
Seceleanu, Andra 25, 57
Shabani, Festa 125
Shehu, Erion 103
Shumeli, Arjan 27, 103, 121, 125
Sin, Anca 72
Sireteanu Cucui, Radu Mircea 69
Skëndi, Evionda 138
Slev, Anca Maria 38
Solovăstru, Alina Nicoleta 94
Sorrentino, Nunzia 82
Sotiri, Aida 131
Stanciu, Camelia 59
Stoica, Claudia-Elena 134
Stoica, Mihaela 117
Suciu, Ecaterina Mariana 97

T

Tomuleţiu, Elena-Adriana 115
Toncean-Luieran, Ioana-Raluca 24
Torpan, Adrian 87

V

Valeri, Marco 102
Vancea, Smaranda 91, 93, 96
Varga, Patricia Izabela 48
Văsii, Ioana-Ruxandra 135
Vasile-Istrate, Petru 73
Vasluianu, Roxana-Ionela 79–80
Vatsadze, Ekaterine 118
Vodă, Mihai 90

X

Xhumba, Anila 128

Z

Zhang, Lily 137

Subject index

Page references lead to the abstracts.

A

Academic integrity 22, 31–32, 51, 95, 115, 119, 122–122, 129
Academic motivation 49
Acceptance and commitment therapy (ACT) 59
Adaptive learning 30–31, 118
Adjectival suffixation 125
Adolescence 55, 58, 60, 62, 126
Adrenaline (epinephrine) 69
Agritourism 87
AI Act 29, 35–37, 111
AI literacy 29, 35–36, 123
Albania 27, 93, 100–101, 103, 121, 125, 126, 130
Algorithmic accountability 35–36, 42, 58, 111, 120
Anxiety 48, 50, 64, 138
Artificial intelligence 136
Artificial intelligence, assessment 22, 42–43, 52, 75, 130, 135
Artificial intelligence, clinical applications 52, 56, 63, 65–66, 68, 71, 75, 81
Artificial intelligence, educational applications 29–33, 40, 50, 54–55, 62, 81, 83, 85, 91, 94, 96, 100, 104, 108, 110, 114, 117–118, 122–123, 129–130, 132, 134–135, 138
Artificial intelligence, ethics and governance 22, 25, 29, 31–32, 35–37, 42, 46–47, 50, 84, 110, 114, 121–122, 133
Artificial intelligence, generative 22, 43, 50, 55–56, 84, 91, 108, 114, 121–123, 129
Artificial intelligence, human oversight 35–36, 42–43, 65, 81, 84, 110, 122–123
Artificial intelligence, organisational applications 84, 92, 94–95, 99, 108, 110, 116
Assessment validity 22, 42–43, 130, 135
Athens 102
Authorial responsibility 22, 32, 47, 51, 122

B

Biocompatibility 79
Biofilms 74–75, 77–78
Body image 62
Business financing 90–91, 93, 96

C

Candida albicans 74–78
Caries detection 82
Case studies 43, 59, 81, 84, 86, 105, 107, 109
CEFR (Common European Framework of Reference for Languages) 121, 130
Channel dynamics 88
ChatGPT 57
Chemistry education 136
Childhood temperament 52
Chronic illness 50, 59, 64, 72
Circular economy 102
Civil procedure 26, 34, 39
Clinical decision support 66, 69, 72, 76, 82
Clinical training 73, 82, 105
Co-regulation 45
Cognitive autonomy 45–46, 51, 56, 115, 123, 129
Cognitive dependency 115, 123, 129
Cognitive flexibility 46, 55
Cognitive offloading 115, 123, 129
Commercial companies 24
Community engagement 79, 83, 86, 104, 106, 131–133
Competition in higher education 99
Competitive behaviour 93
Conscientiousness 60
Consumer willingness to pay 92, 103
Contrastive linguistics 27, 38, 125, 126
Cooperation projects 90, 107, 111–112
Creativity 55–56, 124
Crime prevention 28
Criminal law and legal reasoning 26, 28, 40
Critical thinking 40, 46, 57, 83, 85, 114, 118, 122, 129
Cultural identity 114, 127, 130, 137
Curriculum design 109, 121, 124
Customer communication 98

D

Data protection and privacy 25, 35–36, 118
Decision-making 42, 46, 66, 69, 72, 82, 84, 93
Deleni 87
Dental education 73, 82, 105, 119
Dental plaque 67
Denture stomatitis 74–75, 78
Dentures and prosthetic rehabilitation 74–75, 77–80
Depression 70
Digital citizenship 46, 134
Digital competence 29, 43, 96–97, 101, 128

Digital literacy 136
Digital portfolios 43, 130
Digital transformation 33, 96–98, 100, 117, 128
Dimitrie Cantemir 114
Dominant position, abuse of 23

E

Early childhood education 52
Economic competences 94
Economic education 93, 95, 101
Economic patriotism 103
ECTS credits 121
EduAmb project 107
Educational inclusion 128, 131–133
Educational management 44, 106, 128, 135
Educational markets 99
Emotion regulation 52
Emotional regulation 45–46, 48, 134
Employability 101, 106, 128
Environmental education 84, 107
Environmental quality 71, 84, 102, 107
Erasmus+ mobility 107
ESG criteria 91
European higher education 29, 36–37, 121–122
Evidence interpretation 22, 42–43, 47, 85, 119

F

Financial decision-making 94
Financial education 94
Financial literacy 94
Financial sustainability 90–91
Foreign language anxiety 49, 118, 138
Foreign language learning 38, 117, 120, 124, 126–127, 130, 138

G

Gamification 49
Geographic literacy 84, 86
Geographical information systems (GIS) 71, 88
Georgia 99
Geraniol 75
Greed and avarice 61
Greek grammatical articles 126
Group psychology 54
Gut–brain axis 70

H

Hârtibaci Plateau 86
Hepatitis C 72
Higher education 99
Higher education quality assurance 104–105, 107–108, 110, 120–121, 135
History of education 114
Hodgkin lymphoma 59
Human flourishing 63
Human resource management 117
Human–AI collaboration 42, 55, 65, 81, 97, 108, 122–123

I

Inclusion, vulnerable groups 80, 131–133
Institutional development 90, 105, 108, 128
Intercultural communication 114
Intercultural communication and competence 127, 130
Interdisciplinarity 114
Internal audit and internal control 95
International relations 54
Internationalisation 90, 105, 107, 112, 121–122
Investment evaluation 91, 93, 96

J

Joy 63

K

Knowledge representation 116

L

Labour disputes 39
Language curricula 110, 121
Language learning 49
Learning autonomy 51, 56, 60, 115, 118, 123, 129
Learning outcomes 30, 106, 109, 111, 118, 121
Learning strategies 30, 44, 46, 48, 60
Learning styles 30
Legal accountability 25, 29, 31–32, 35–37
Legal English 27, 38
Legal profession and notarial practice 29, 35, 37
Lower lip carcinoma 81

M

Malocclusion 68
Mental health 50, 53, 57, 59, 64, 70, 79–80
Metacognition 44, 46, 48, 51, 115, 123, 129
Microbiome and microbiota 70, 77
Military psychology and education 55
Moldova 122, 127
Moore’s law 116
Moral education 114
Motivation 48, 51, 60, 63, 118
Multidisciplinary clinical care 59, 69, 75–78, 80–81

Mureș River 88
Mystery shopping 98

N

Neurodevelopmental difficulties 131
Notarial practice 35

O

Oral candidiasis 74–78
Oral hygiene 67, 74, 77, 80, 82
Orthodontic relapse 66
Orthodox Christian spirituality 45–46, 61

P

Paediatric dentistry 67, 82
Parental acceptance 131
Patient-reported outcomes 50, 79–80
Pelargonium graveolens 75
Personalisation of learning 30–31, 97, 118
Pharmaceutical residues 71
Philosophy of education 114
Photodynamic therapy 78
Political identity and digital narratives 58
Political psychology 54
Predictive modelling 66, 72
Preventive detention 26
Pricing strategies 93, 103
Primary education 134
Probiotics 70, 77
Professional development 44, 51, 101, 110, 135
Project quality management 107, 111–112
Psychoeducation and psychotherapy 57, 59, 64
Psychological assessment 42–43, 53
Psychological resilience 55

Q

Quality assurance 99
Quality indicators 106, 108, 111, 135

R

Reflective practice 44, 46, 123
Religious coping 50
Research ethics and methodology 42–43, 47, 84, 101, 118, 133
Risk management 35, 66, 69, 72, 111–112, 133
Rural education and tourism 86–87, 132–133

S

School–family collaboration 131
Scientific inquiry 136
Scientific reasoning and truth 42–43, 47, 119
Secondary education 136
Self-control 45–46
Self-regulated learning 45–46, 50–51, 59, 114, 117, 125
Simulation-based learning 105
Social inequalities 120, 128, 131–133
Social media literacy 46, 58, 62, 134
Social participation 80, 127, 131
Social problem solving 52
Speaking anxiety 138
Sports and criminology 28
Stakeholder feedback 106, 135
Student needs and support 128, 132–133
Student-centred learning 30–31, 106, 123, 128
Sustainability 71, 84–87, 90–91, 96, 102, 107, 132
Sustainable development education 83, 106, 132, 136
Sustainable tourism 84–87

T

Taxation terminology 27
Teacher education and evaluation 44, 72, 109, 125, 135–136
Teaching materials 124
Terminology and translation 27, 29, 38, 125, 126
Toronto 102
Trade war 100

U

University governance and policy 89, 98, 104–105, 107–108, 110, 121, 128
Urban sustainability 102

V

Virtual assistants 57, 87, 98, 118, 138
Virtual identity 62

W

Willingness to pay 92, 103

Y

Youth and political persuasion 58