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ABSTRACT BOOK

Synergizing STEM and Humanities Education: A Global Learning Approach

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In an era marked by rapid digitalization and interconnectedness, bridging the traditional divide between STEM and for fostering interdisciplinary skills and global competencies needed to address complex societal challenges. Collaborative Online International Learning (COIL) can serve as a powerful means for this integration by bridging globalization and education through collaborative learning experiences. Participants from diverse backgrounds may be given the opportunity of engaging meaningfully with content and with each other via digital platforms, fostering intercultural dialogue and collaborative problem-solving. Thus, COIL projects can be a valuable solution for internationalization at home, making global learning experiences accessible to a wider student population. Research suggests that interaction within COIL projects is an effective means for students to engage deeply with both disciplinary content and global perspectives, cultivating skills relevant to both STEM and the Humanities. By adopting COIL as a global learning approach, higher education institutions can promote equity, innovation, and the internationalization of the curricula, ultimately empowering students to thrive in a complex and globalized world. This presentation will highlight good practices and challenges in implementing global learning strategies across disciplines.

MULTIPLIER EVENT STEM PROJECT (FINAL CONFERENCE) PARTICIPANTS

Stem4Humanities, studying the evolution of teaching STEM from professors to students, evaluating real-world impacts with small companies

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The Erasmus+ project STEM4Humanities (2023-1-IT02-KA220-HED-000164647) investigates the progressive integration of scientific and technological competences within the humanities, aiming to strengthen transdisciplinary teaching and employability in higher education. Its purpose is to explore how STEM skills can be effectively introduced first among university professors and subsequently among students, extending their application to real-world contexts through collaborations with small and medium enterprises. The research path, developed across three work packages, analyses the pedagogical evolution from training to impact. A structured upskilling programme for humanities professors was designed and implemented, combining self-assessment, asynchronous online modules, and synchronous seminars focused on inquiry-based learning, computational thinking, engineering design, and the ethical use of generative AI. The results show a clear shift from theoretical awareness to confident implementation of STEM-based pedagogies in humanistic teaching. It translated these foundations into a student-centered MOOC, structured around three domains: core STEM fluency, disciplinary applications such as data analysis, text mining, and digital storytelling, and technological enablers including AI, machine learning, and extended reality. Through project-based learning, students applied technical and ethical competences to real problems, achieving measurable gains in digital literacy, critical thinking, and interdisciplinary collaboration. WP4 extended this process beyond academia through e-internships with SMEs operating in communication, digital marketing, and AI development. Students participated in activities such as ethical

auditing of AI systems, data-driven content creation, and social media analysis, while companies benefited from new humanistic insights into the social and ethical dimensions of digital innovation. The overall findings confirm that integrating STEM into the humanities fosters not only pedagogical innovation but also ethical awareness and social responsibility, demonstrating that interdisciplinary education is a crucial pathway for shaping adaptable, reflective, and employable graduates in the context of digital transformation.

Need for Social Sciences and Humanities in CRAFTing responsible and future technologies

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The rapid advancement of technology has created a pattern of predictable societal harms, from algorithmic bias to epistemic crises, that are often mislabeled as "unintended consequences." This research argues these failures stem from a systemic "sociotechnical deficit" in technology development, rooted in an educational and organizational dualism that separates technical problem-solving from its human context. This deficit leads to the accumulation of "societal debt," where the costs of poor design are externalized onto marginalized communities and the public sphere. As a remedy, the research advocates for the deep integration of the social sciences and humanities (SSH) not as a source of "soft skills," but as a vital toolkit for cultivating sociotechnical wisdom. SSH disciplines like philosophy, history, and sociology provide essential frameworks for normative reasoning, contextual awareness, and systems thinking, which are critical for moving beyond a reactive "do no harm" paradigm to a proactive mission of "promoting human flourishing." To operationalize this integration, we introduce the CRAFT framework (Contextualize, Reflect, Anticipate, Foster, Translate), an actionable process model for embedding human-centric inquiry into the technology lifecycle. Using a case study of an equity-focused early-alert system in higher education, we demonstrate how this approach transforms innovation from a purely technical exercise into a practice of responsible futurs. We conclude that making SSH a co-equal partner in technology creation is not merely an ethical imperative but a strategic necessity for building technologies that are not only powerful and profitable, but also legitimate, just, and worthy of public trust.

STEM Skills for Humanities : The Experience of Project Implementation at Ivan Franko National University of Lviv (Ukraine)

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This presentation outlines the implementation steps of the "STEM for Humanities Scholars" project at Ivan Franko National University of Lviv. The project's realization was made possible through the support of the European Commission and the financial assistance of the Italian National Agency INDIRE (Grant Agreement – 2023-1-IT02-KA220-HED-000164647) within the framework of Cooperation partnerships in Higher Education.
The presentation primarily focuses on the teacher professional development courses, the student training course on the MOOC platform, the student internships in small business firms, the dissemination conference on project results, and the feedback from participants.
The professional development courses for humanities faculty emerged as the most successful element with significant potential for future growth. The analysis included the approaches to material delivery, the discussion of topical issues that arose during the course, and the review of the participants' project work. Crucially, the attendees of the faculty course included representatives from various Ukrainian universities, which facilitates the application of STEM skills in the professional activities of higher education educators across Ukraine and contributes to the project's wider dissemination.
The training course on the MOOC platform served as a strong motivator for students, offering them an engaging way to acquire additional skills and tools in their free time, which will help them become more

competitive in the labor market in the future. The online internships in NGOs and in small scale businesses presented a unique challenge for humanities students. However, following the knowledge gained on the MOOC platform, these internships successfully enabled students to apply an interdisciplinary approach to solving real-world cases. Simultaneously, for small business representatives, these student internships were an interesting experiment, offering an opportunity to gain an external perspective on problem-solving from specialists in other fields, particularly those from the humanities. Information regarding the project's progress and the opportunity to acquire additional knowledge through the MOOC platform, which is accessible to all interested parties, generated significant interest among students at the Multiplier Event held at Ivan Franko National University of Lviv.

Key words: STEM teaching approaches, STEM skills, STEM competencies, cross-disciplinary education, virtual internship program.

From Models to Meaning: Bridging STEM and Humanities for Communicative and Participatory Climate-Resilient Planning

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Scientific research today needs stronger and more effective communication with society and governance. In many cases, research activities, particularly in STEM fields, still take place in silos, with limited interaction between researchers, policymakers, and communities. In the age of artificial intelligence, these gaps can be bridged more efficiently, yet technology alone is not enough. What is needed is a clear and continuous dialogue between science and society, ensuring that research outcomes are understandable, accessible, and applicable in real-world contexts. In my PhD research, "Optimizing Urban Nature-Based Solutions for Climate Change Adaptation and Their Co-Benefits," I focused on spatial prioritization, suitability assessment, and the maximization of co-benefits through ecosystem service modeling. These analytical and objective-oriented approaches can provide valuable information to researchers, practitioners, and policymakers to support evidence-based decisions for sustainable and resilient communities. However, I argue that objective-oriented research alone is not sufficient. Scientific studies should go beyond technical optimization and the inclusion of preferences and actively promote participatory planning, policymaking, and governance approaches. The foundation of such transformation is communication. Transdisciplinary research should not be limited to data generation or modeling but should involve the co-creation of knowledge among scientists, stakeholders, and local communities. By identifying and engaging different stakeholders and understanding their priorities, place-based and context-specific solutions can be designed, implemented, and shared more effectively. This perspective highlights the importance of combining STEM-based analytical tools with humanities and social science approaches to strengthen inclusivity, transparency, and justice in research and education. It also emphasizes that scientific research, especially in engineering and environmental sciences, should be seen not merely as a consultancy service producing maps or plans, but as a process of developing understanding, fostering communication, and creating meaningful solutions for human well-being and planetary sustainability.

Keywords: Transdisciplinary science and engineering; Nature-based solutions; Communication and participation; Stakeholder engagement, Spatial decision support

The Role of Transversal Skills in Graduate Employability in Pakistan's Government Sector

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This research study explores the role of transversal skills in graduate employability within Pakistan's government sector. According to UNESCO, transversal skills are a set of core competencies that include critical thinking, communication, collaboration, and problem solving, which are essential across various

fields and professions. These skills enable individuals to adapt to changing work environments and make effective contributions to organizational success. Pakistan is a multi ethnic and multilingual society. Many Pakistanis do not fully understand or speak the national language, Urdu, and primarily use their regional languages for communication. This language barrier, combined with weak transversal skills such as critical and innovative thinking, interpersonal, and intrapersonal skills, is a significant challenge. These skills are noticeably lacking across government departments, contributing to the ongoing decline in government performance and efficiency. The government sector in Pakistan often recruits graduates who possess a university degree or school certification but lack essential transversal skills. This gap limits their ability to work collaboratively, think creatively, and respond to complex problems in dynamic environments. As a result, government services suffer, affecting policy implementation and public satisfaction. Improving transversal skills among graduates can enhance their employability by preparing them to meet the sector's evolving demands and challenges.

This research study examines the current state of transversal skills among Pakistani graduates entering the government workforce. It highlights the need for education and training reforms to integrate these competencies into curricula and professional development programs. The study also discusses strategies for government institutions to foster an environment that encourages continuous skill development. In conclusion, transversal skills are vital for graduate employability and overall government sector performance in Pakistan. Addressing the language and skill gaps can lead to more effective governance, improved public service delivery, and sustainable development. This research emphasizes the urgent need for policymakers, educators, and employers to collaborate in promoting transversal skills as a priority for national progress.

STEAM Centers as Part of the Educational Ecosystem: From Concept to Impact

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STEM education emerged in the late 20th century to promote technological literacy and integrate scientific disciplines. Later, with a growing emphasis on creativity and innovation, STEM evolved into STEAM. In Lithuania, this model is implemented through educational reforms, strategic initiatives (Millennium Schools, 2025; EU Structural Funds projects, 2025), curriculum updates (School 2030, 2021), and the establishment of STEAM centers. Between 2021 and 2023, ten STEAM centers were established across different regions to develop 21st-century competencies (National Education Agency, 2022). These centers promote hands-on learning, interdisciplinary skills, and experimentation, strengthening ties between education, business, and science. As regional educational innovations, STEAM centers transform curriculum content and school collaboration models. The case study of the Marijampolė Regional STEAM Open Access Center assesses how this model impacts educational processes and student learning experiences. Through document analysis, statistical data, and focus group research, the study examines how STEAM centers support national education strategies.

STEAM centers enable students to apply theoretical knowledge in practice, foster interdisciplinary learning, and integrate modern teaching methodologies with labor market needs. They also enhance teachers' professional competencies through continuous training and innovative pedagogical practices. In conclusion, STEAM centers are becoming a key part of the educational ecosystem, fostering sustainable partnerships and enhancing student motivation. Increasing attendance, expanding teacher training programs, and growing municipal support indicate a systemic transformation, making learning more interactive, experiential, and innovative.

Keywords: STEAM education, Interdisciplinary learning, Educational innovation, Regional STEAM Centers, Practical learning

AI Meets Language Learning: Understanding Students' Acceptance of ChatGPT for Writing Tasks

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Technology acceptance refers to the extent to which users are willing to adopt and effectively use new technologies for the purposes they are designed to serve. One of the most widely recognized frameworks for understanding this process is the Technology Acceptance Model (TAM), developed by Davis in 1986. The model identifies two key determinants of technology acceptance: perceived usefulness, or the degree to which a person believes a system enhances performance, and perceived ease of use, which reflects the effort required to operate it. Over the years, TAM has been extensively applied in various educational contexts to explain learners' engagement with different digital tools and platforms. Building on this theoretical foundation, the present study investigates the perceptions and acceptance of ChatGPT among students of English as a second language (ESL) and English for specific purposes (ESP) at two universities located in Lithuania and Ukraine. While TAM has frequently been used to study technology acceptance in language learning, limited empirical evidence exists concerning students' acceptance of artificial intelligence tools such as ChatGPT, that directly support writing-related tasks. To address this gap, a quantitative study was conducted using a TAM-based questionnaire to measure students' perceptions of ChatGPT, its usefulness, ease of use and other factors shaping overall acceptance in non-mandatory writing contexts. The findings are expected to offer valuable insights into the acceptance of AI-driven tools in language education and to inform strategies for their effective integration into ESL and ESP curricula.
Keywords: technology acceptance; higher education; foreign language learning; ChatGPT.

The Future of Work: The Transformation of Jobs and Skills in the Labour Market of Tomorrow

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Recent developments in technology, artificial intelligence and an ever-changing geopolitical environment are transforming the future of the global labour market both in terms of jobs and skills required for successful economic growth.This report is on the shifts taking place in the global labour market: jobs and skills tendencies. Drawing insights from The Future of Jobs Report 2025 by the World Economic Forum, the report focuses on the key factors driving the change: the aging of the world population, the digital revolution, and climate change. Together, these factors are reshaping what the future of work will look like within the next five years. It is expected that more than 90 million jobs will be displaced worldwide by 2030; however, approximately 170 million new ones are expected to emerge. As it might have been expected, the roles related to technology and artificial intelligence are among the fastest-growing, Yet a growing demand for manual and essential workers: healthcare, education and construction professionals as well as delivery drivers. Along with the aforementioned changes in the job roles, the workforce skillset is to change too. By 2030, almost 40% of today's skills will have changed or become outdated. The skills to be most in demand are analytical thinking, resilience, flexibility, and leadership. Along with these skills, technological literacy will become another core skill for workers of tomorrow: data, cybersecurity and work with artificial intelligence. For higher education institutions, these changes emphasise the need to both foster STEM-related competencies and human-centred skills for optimal preparation for the global labour market.

Bridging STEM and Languages: Bilingual Migration Corpus Compilation and Analysis with Sketch Engine

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This paper exemplifies the integration of STEM-based digital methodologies with linguistic research by employing Sketch Engine, a corpus query and analysis tool widely used in computational linguistics and digital humanities. It presents the compilation and analysis of a bilingual EU migration corpus in English and Lithuanian using Sketch Engine. The corpus is designed for the study of migration-related terminology used in the legislative discourse. It comprises EU migration documents adopted between 1998 and 2024, grouped into two categories: legally binding texts (regulations, directives, decisions, judgments) and legally non-binding texts (resolutions, reports, communications, proposals, opinions). The documents were extracted from the EUR-Lex database, aligned using LF Aligner, and subsequently uploaded to Sketch Engine, enabling metadata-based subcorpora creation by year of adoption, author (institution), or document type. This structure allows detailed comparative analysis of terminology across time and document types. Recent developments in Sketch Engine – notably part-of-speech tagging and lemmatisation for Lithuanian introduced in December 2024 – have substantially expanded analytical possibilities for the Lithuanian language. The study explores the potential of tools such as Parallel Concordance, Wordlist, Word Sketch, and Keyword for bilingual terminology extraction, comparison, and frequency analysis. These tools enable researchers to identify key lexical and grammatical patterns, collocations, and potential term candidates in the migration domain. However, certain limitations persist. Current configurations of Lithuanian Word Sketch and Term Grammar affect the accuracy of collocation and term extraction, requiring manual revision. Furthermore, the prevalence of legislative terminology in EU discourse poses additional challenges when isolating domain-specific migration terms. The paper argues that continued development of STEM technologies for under-resourced languages such as Lithuanian is essential for fostering linguistic and interdisciplinary research, ultimately contributing to cultural sustainability and the preservation of linguistic diversity in the digital era.