Augmented Intelligence for Pedagogically Sustained Training and Education

Policy Brief 2 - December 2024

CORE PEDAGOGICAL STRATEGIES IN AUGMENTOR

ADAPTIVE LEARNING & PERSONALISED EDUCATION

augMENTOR seeks to empower both students and educators, using AI-driven technology to make informed decisions about the learning process. Using the student's activity profile and the analysis of the learners' activity (learning analytics), the augMENTOR solution can track progress and refine learning progression paths to meet the needs of each student.

TRANSVERSAL SKILLS THROUGH AI

Leveraging advancements in Hybrid Intelligence (HI), which combines human and AI strengths, augMENTOR supports the 4Cs (Communication, Collaboration, Critical thinking, and Creativity). Our AI-based solution helps teachers and learners assess and regulate learning activities effectively, enabling more complex objectives through human-AI collaboration.

INTEGRATING AI IN PEDAGOGICAL APPROACHES

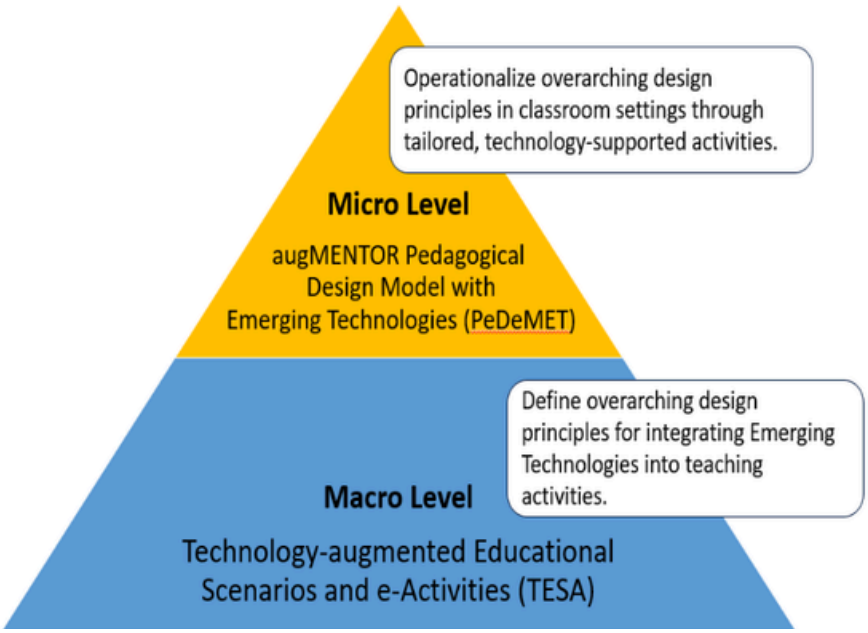

Figure 1. Pedagogical Framework Structure

The augMENTOR Pedagogical Framework integrates AI into education by addressing gaps in existing models like Technological Pedagogical Content Knowledge (TPACK) and ADDIE. Drawing on Activity Theory and creative pedagogy principles, the **framework balances technological and pedagogical dimensions to enhance teaching and learning**. It introduces TETPACK, incorporating Emerging Technologies into teacher competencies, and Technology-augmented Educational Scenarios (TESA), a data-driven model for classroom-level practices. By combining theoretical insights with practical applications, the framework fosters cohesive, technology-enhanced learning experiences. Its holistic approach considers educators, learners, content, and context, offering innovative tools to create meaningful, outcome-focused educational interventions.

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SUPPORT THE INTEGRATION OF EMERGING TECHNOLOGIES (ET), AND ENHANCE EDUCATORS' ABILITIES TO USE AI IN ENRICHING LEARNING EXPERIENCES

Educators need comprehensive training to integrate Emerging Technologies and AI into teaching effectively. The augMENTOR Pedagogical Framework addresses this need by ***combining theory and practice to foster innovative, inclusive, and ethical teaching methods.*** *Aligned with the EU AI Act, it emphasizes AI literacy and responsible use, mitigating risks like bias and misinformation while unlocking AI's potential for personalized learning. Through professional development, mentorship, and practical tools, augMENTOR equips educators to navigate regulatory challenges, enhance teaching practices, and create impactful, technology-driven learning experiences. To successfully train educators with the Pedagogical Framework created, a set of key methods need to be applied.*

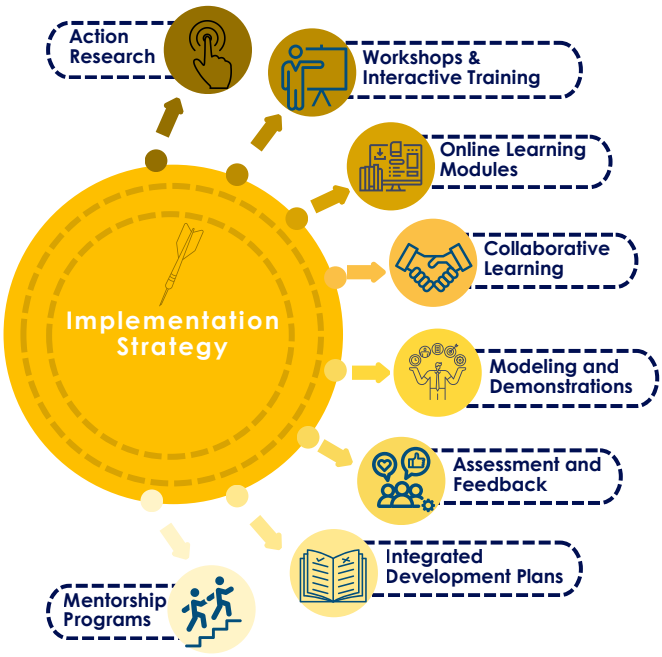

Figure 2. Key methods to implement the augMENTOR Framework.

EMBEDDING AI IN EDUCATIONAL PROGRAM DESIGN

Integrating AI and Emerging Technologies into education requires more than training educators — it necessitates ***updating curricula to embed AI in program design****. The augMENTOR Pedagogical Framework provides guidelines to address cognitive, instructional, and technological needs, ensuring AI tools foster essential competencies like creativity, critical thinking, and collaboration.*

The augMENTOR Pedagogical Design Model with Emerging Technologies (PeDeMET) offers a holistic curriculum redesign approach, integrating elements such as:

- ***Needs Analysis*** *to assess cognitive and instructional requirements.*
- ***Content Delineation*** *to align educational themes with learner needs.*
- ***Tool Integration*** *for effective use of AI and ICT in teaching.*
- ***Outcome Identification*** *focusing on knowledge and the 4Cs.*
- ***Learning Strategies*** *rooted in creative pedagogies.*
- ***Assessment Methods*** *emphasizing feedback and continuous improvement.*
- ***Contextual Placement*** *ensuring relevance to real-world environments*

SUPPORTING AI-ENHANCED PEDAGOGICAL TOOLS

The augMENTOR Pedagogical Framework supports integrating AI tools into education to enhance teaching, foster student engagement, and develop transversal competencies. Key challenges include educator readiness, infrastructure gaps, ethical concerns, and curriculum alignment. Recommendations include:

- ***Educator Training****: Provide specialized AI training, focusing on PeDeMET and TESA models, and improve AI literacy.*
- ***Infrastructure Development****: Equip schools with devices, software, and reliable internet while collaborating with developers to align tools with augMENTOR methodologies.*
- ***Ethical AI Use****: Ensure data privacy, eliminate biases, and support inclusivity.*
- ***Curriculum Integration****: Align AI tools with competency-based learning goals and facilitate adaptive learning experiences.*

Implementation strategies emphasize professional development, infrastructure enhancement, ethical AI deployment, stakeholder engagement, and continuous feedback to refine practices.

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Introducing 21st century skills in the learning process

The augMENTOR framework emphasizes integrating 21st-century skills, **focusing on the 4Cs: Critical thinking, Collaboration, Creativity, and Communication.** These transversal competencies are vital for future readiness and adaptability in dynamic, interdisciplinary workplaces. To assess the 4Cs, augMENTOR employs **rubrics, participatory design workshops practical guides** to help educators integrate and evaluate the 4Cs within their courses. This approach ensures nuanced, context-sensitive assessment and supports the broader application of transversal competencies in diverse learning scenarios.

FIVE TIPS FOR ASSESING THE 4CS

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INTERNATIONAL STAKEHOLDERS & EDUCATIONAL POLICY MAKERS

ESTABLISH GLOBAL BENCHMARKS

To facilitate the integration of transversal competencies through the augMENTOR solution, we firstly identified the main transversal competencies of the international frameworks of the 21st century skills and thev we focused on the 4Cs conducting a thorough literature review to identify the main components of each competency.

IMPLEMENTATION STRATEGIES

- Develop further cross-national pilot programs to test the augMENTOR framework in different educational contexts.
- Continue to publish findings and associated case studies to promote best practices and encourage iteration around the augMENTOR solution

EDUCATORS, TRAINERS & EDUCATIONAL ORGANISATIONS

ENCOURAGE PROFESSIONAL DEVELOPMENT AROUND THE 4CS

To enhance educator proficiency in using the augMENTOR framework, ongoing training is recommended through workshops, online courses, and professional development sessions. Strategies include creating tailored resources, establishing collaborative online spaces, offering certifications with incentives, collecting best practices, and providing ongoing support via Q&A sessions, social media, and forums.

FOSTER PERSONALISED LEARNING

The augMENTOR solution enables educators to personalise learning by leveraging rubric-based data and formative assessments. By aligning teaching strategies with the Learner Model, educators can design targeted interventions, support struggling students, and empower high achievers. This data-informed approach fosters teacher agency and enhances the focus on 4Cs competencies in personalised learning.

ITERATE THROUGH FEEDBACK LOOPS

Support teacher and learner development by using insights, feedback, and learning analytics. Conduct post-assessment meetings to review analytics, provide feedback, and set goals. Regularly review and update augMENTOR rubrics to maintain their effectiveness and alignment with learning objectives. Incorporate learner feedback on augMENTOR tools and rubrics into the refinement process, ensuring their experiences and perspectives are included.

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LEARN MORE

Visit the extended version of this policy brief to find more information about:

- Dedicated strategies about implementing the presented briefs
- The introduction of AI in educational settings
- Current EU policies and trends.

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