



Validating the AGI²E² Framework: Expert Perspectives on Integrating Artificial General Intelligence into Engineering Education

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Abstract

This study explores the initial validation of the AGI²E² Framework, a guide for integrating Artificial General Intelligence (AGI) into engineering education. The framework aims to balance technical and human-centered skills, preparing students for the demands of Industry 5.0. Expert perspectives from academia and industry were gathered to assess the framework's relevance, feasibility, and potential for real-world application. Findings emphasize the necessity of aligning technical proficiency with creativity, ethical reasoning, and adaptability, supported by institutional backing and faculty training.

Objective

To assess the content validity of the AGI²E² Framework.

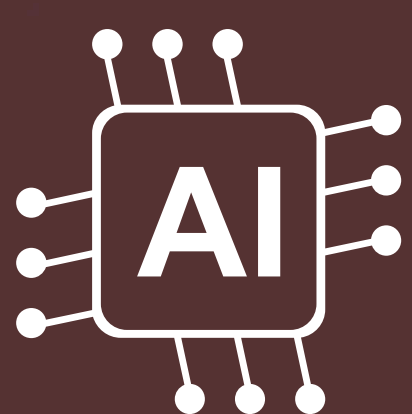
RQ1: How do experts perceive the relevance, feasibility, and applicability of the AGI²E² Framework?

RQ2: What strengths, weaknesses, and recommendations do experts provide for its refinement?

Methodology

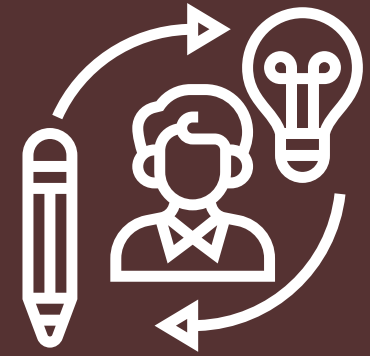
Design: Qualitative study using thematic analysis.
Participants: Seven experts in AI and engineering education, selected via purposive sampling based on the Delphi method.
Data Collection: Semi-structured interviews conducted in person and via Zoom.
Analysis: Iterative thematic analysis with inductive and deductive coding to identify core themes and insights.

Key findings



A. Utilization of AI in Education

- AI as a personalized tutor and tool for creating adaptive learning experiences.
- Automating routine tasks to enhance efficiency.



B. Transformation of Educational Roles and Skills

- Shift from content delivery to mentorship, focusing on critical thinking, creativity, and emotional intelligence.



C. Ethical Considerations and Institutional Support

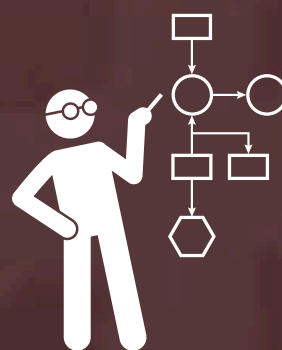
- Need for clear policies on AI usage and robust faculty training.



D. Future Educational Models

- Evolving curricula to integrate AI tools while preserving human-centered elements.

Conclusion



The AGI²E² Framework provides a structured approach to integrate AGI into engineering education, addressing the balance between technical and human-centered skills.



Expert feedback validated its relevance and feasibility, highlighting its potential to prepare students for Industry 5.0.



Ethical considerations and institutional support are critical for successful adoption of AGI technologies.

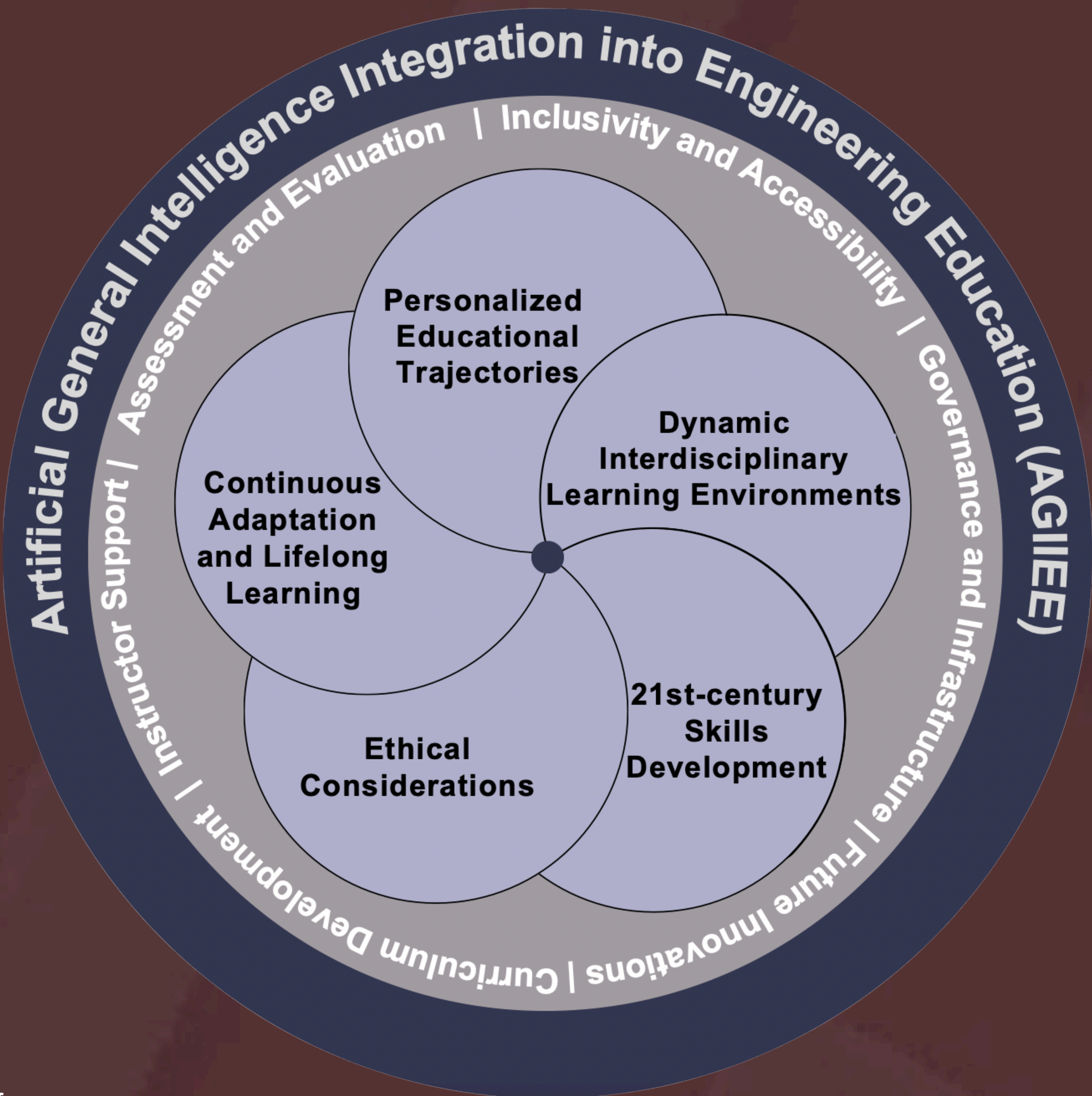


The framework emphasizes adaptability, collaboration, and practical implementation strategies to meet diverse educational needs.



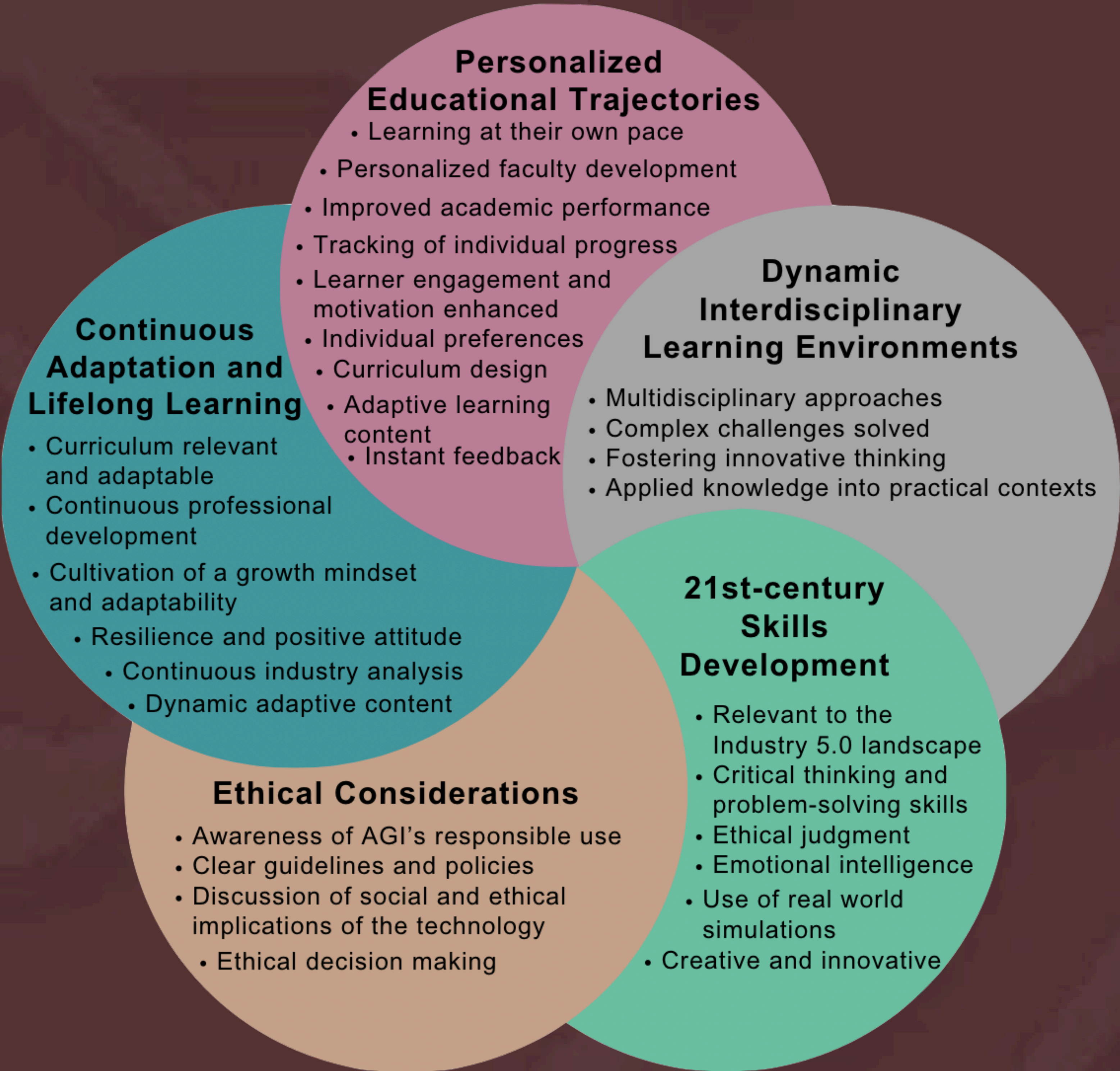
Future research will expand validation efforts, incorporating diverse stakeholders and empirical testing to refine and enhance the framework's impact.

AGI²E² Framework



Reference:
Trini S Balart, Kristi J. Shryock. A Framework for Integrating Artificial General Intelligence into Engineering Education: Enhancing Human-Centric Approaches for Industry 5.0. TechRxiv. June, 2024.

Core Educational Components



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