

Role-Playing in Education: An Experiential Learning Framework for Collaborative Co-Design

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ABSTRACT

This paper presented the Components of Role-playing in Experiential Learning (CREL) Framework. This framework aids educators and researchers in planning, implementing, and evaluating Experiential Learning scenarios to promote learner attainment of the needed competencies for 21st-century skills. Unlike traditional models, CREL leverages role-playing as a tool for simulation and simulacra, enabling participants to engage in "as if" scenarios through suspension of disbelief. This approach allows learners to navigate complex, dynamic, immersive challenges, bridging theoretical knowledge with practical application. The article began with an introduction to role-playing as a method for Experiential Learning. This helped situate role-playing within the broader context of meta-research and meta-education. Next, the article explored the limitations of current educational practices and the critical need for frameworks that bridge these gaps through innovative, experiential approaches. The paper examined the need to address the gap presented by the lack of a coherent understanding of role-playing and, more broadly, Experiential Learning. The article then presented the CREL framework in detail. Finally, it closed with a discussion of the meta-level outcomes, implications, and overall application of the CREL for education and research.

Keywords: 21st-Century Skills, Co-Design, Critical Thinking, Experiential Learning (Active Learning), Meta-Education, Problem-Solving (Education), Role-Playing Game Theory, SDG 4: Education, Transdisciplinary Communication (TDC).

1. ON THE NOTION OF EDUCATION: ITS CONTEXT AND PURPOSE

The notion of education continuously evolves to meet the challenges of our increasingly interconnected and dynamic world. Rooted in its etymological origins—"educare" (to nourish) and "educere" (to lead forth)—education serves as a dynamic, teleological system that equips individuals with the

tools to adapt, collaborate, and innovate. This evolution emphasizes adaptability, critical thinking, and interdisciplinary collaboration as essential for navigating complex societal and global challenges.

A prime example of this shift is the Components of Role-Playing in Experiential Learning (CREL) Framework, which integrates role-playing into educational practices to bridge the gap between theoretical knowledge and practical application. The CREL framework operates through four key dimensions: Social Contracts, which promote trust and accountability; Experience, which fosters creativity and autonomy through narrative-driven learning; Collaboration, which enhances teamwork and communication; and Choice, which encourages strategic decision-making and iterative learning. These dimensions reflect the telos of education as a system designed to prepare learners for life in a dynamic and interconnected world.

This framework exemplifies the adaptability and inclusiveness central to modern education, aligning with the systems approach by addressing the contextual demands of diverse disciplines, theories, and cultures. The CREL framework demonstrates how education evolves to remain relevant across various contexts by fostering transdisciplinary collaboration, empathy, and adaptability. As such, it illustrates the dynamic, purpose-driven nature of education and its capacity to address interdisciplinary challenges—a key focus of this article.

The following sections explore the limitations of current educational practices, the critical need for innovative frameworks, and the role of Experiential Learning in addressing these gaps. This paper bridges specific methodologies with general educational goals by situating the CREL framework within the broader notion of education, ensuring its relevance across disciplines and contribution to the broader educational landscape.

2. INTRODUCTION

The intersection of education and technology has consistently presented complex challenges, particularly balancing broader education with specialized training [1], [2, pp. 1893–1958]. In the 21st century, these challenges have intensified, requiring educational systems to equip learners with novel competencies while preparing professionals for a rapidly evolving landscape.

Disruptive technologies like artificial intelligence (AI) have further necessitated curricula and instructional design changes, pushing educators to prepare students with skills suited to an innovation-driven era [3], [4]. While existing research offers valuable insights into these dynamics, the lack of comprehensive frameworks addressing the interplay between learners, educators, content, technology, and cultural contexts remains a critical gap [5], [6].

To address these challenges effectively, this paper first frames the notion of education, situating it within its broader historical, systemic, and contextual dimensions. This provides a foundation for discussing innovative frameworks such as role-playing.

2.1. Gap identification

As intelligence measures and foundational skills evolve with advancing technologies, traditional educational approaches are increasingly inadequate. Tasks like memorizing information or writing generic essays—now easily managed by AI—fail to prepare learners for the demands of the 21st-century workforce. Instead, success hinges on communication, collaboration, critical analysis, and innovative problem-solving skills. Research highlights significant gaps between academic training in AI and labor market needs, emphasizing the importance of mastering technical tools and research methodologies and understanding ethical and regulatory dimensions [7]. These essential skills fall into three categories: Technical, Soft, and Interdisciplinary, underscoring the need for evolving educational strategies [8].

Educational frameworks often fail to address Experiential Learning and the meta-educational challenge of preparing educators and researchers for transdisciplinary collaboration. Informal education in PhD programs frequently lacks the structure to cultivate interdisciplinary inquiry, critical thinking, and innovative teaching practices [9], [10]. Emerging adaptive learning systems offer some promise, using multiagent approaches to analyze student performance and improve innovation through predictive strategies.

Skills gaps in postgraduate education further highlight these deficiencies. Studies show that postgraduate ESL/EFL students score poorly in creativity and innovation, emphasizing the urgent need for strategies prioritizing collaboration, critical thinking, and creativity [11]. Without addressing these gaps, educational systems risk leaving learners and professionals ill-equipped for the challenges of the digital, global workforce.

This inadequacy has profound implications for the preparation of future educators and researchers. Bridging these gaps requires comprehensive frameworks that integrate Experiential Learning and meta-educational approaches to prepare professionals for the complexities of modern education.

2.2. Thesis statement

This paper proposes role-playing as a meta-educational tool to bridge the gap between praxis and theory, addressing critical challenges in modern education. Role-playing facilitates Experiential Learning, fostering critical and analogical thinking within a collaborative framework. This approach enables educators and researchers to engage with dynamic, real-world scenarios requiring adaptive problem-solving and interdisciplinary collaboration—skills essential for the 21st-century workforce. By situating role-playing within the broader context of meta-research and meta-education, the framework offers trans-disciplinary perspectives that prepare learners to meet the demands of an increasingly complex world.

2.3. Paper structure

The paper is organized as follows: Section 3 discusses the context and gaps in current educational practices, emphasizing the limitations of traditional methods. Section 4 explores the critical need for addressing these gaps through innovative approaches. Section 5 introduces role-playing as a meta-educational tool and details the Components of Role-Playing in Experiential Learning (CREL) framework. Section 6 examines this framework's practical implementation and broader impact in educational contexts. Finally, Section 7 concludes by summarizing the insights and highlighting future directions for research and application.

3. IDENTIFYING CONTEXT AND GAP

Meta-research examines the research process's methods, practices, and effectiveness, offering critical insights for improving research quality and impact [12]. Similarly, meta-education focuses on preparing educators to teach, mentor, and facilitate learning, while meta-teaching emphasizes the reflective practice of teaching to refine pedagogy and foster meta-cognition in students. Both fields stress reflection, critique, and iterative improvement. However, while meta-research has gained prominence, meta-education remains underexplored, particularly in PhD programs, which often prioritize research production over teaching or interdisciplinary collaboration.

Informal education within PhD programs—relying on mentorship, observation, and self-directed learning—often falls short in equipping graduates with the skills to design interdisciplinary curricula, facilitate Experiential Learning, or lead collaborative initiatives critical to addressing real-world challenges [1, p. 961], [13], [14].

These gaps are compounded by the lack of training in critical thinking, collaboration, and communication—skills essential for modern educators and researchers. Addressing these issues requires integrating experiential and interdisciplinary approaches into doctoral programs, guided by frameworks like Experiential Learning and transformative education [15]. Without such changes, the next generation of educators and researchers risks being unprepared to navigate the complexities of modern education and research [16].

3.1. Challenges of atemporal logic in a dynamic educational reality

Traditional educational frameworks often rely on atemporal logic, which assumes static principles and fixed methodologies. While this approach provides consistency, it fails to address

modern education's dynamic and interconnected nature. Rapidly evolving technologies, such as artificial intelligence, demand that educators and researchers adapt to shifting paradigms, unpredictable interactions, and emergent complexities.

Education must integrate analogical and creative thinking alongside logical reasoning to navigate this complexity. Analogical thinking enables learners to draw connections between diverse ideas, fostering adaptability and interdisciplinary synthesis. Creative thinking, on the other hand, encourages envisioning new possibilities, challenging assumptions, and co-designing innovative solutions. Together, these approaches equip educators and researchers with the tools to thrive in the fluid and interconnected realities of the 21st century.

3.2. Significance of the gap

The absence of meta-educational frameworks has significant implications for preparing future educators. Without structured approaches that cultivate teaching, collaboration, and interdisciplinary skills, graduates—particularly PhDs—are often underprepared for roles requiring more than subject-matter expertise. This shortfall limits their ability to design and implement Experiential Learning approaches that address real-world problems, reducing the capacity of educational systems to produce adaptable, innovative professionals capable of effective communication and collaboration across disciplines. This challenge is especially critical in a globalized world that demands co-designed solutions for complex, interconnected problems.

Evolving pedagogical frameworks, such as culturally relevant pedagogy and technological pedagogical content knowledge, highlight the urgency of addressing these gaps. These frameworks move beyond static expertise, fostering dynamic skills necessary for practical instruction and interdisciplinary problem-solving. Similarly, multidisciplinary educational design frameworks have successfully bridged competency gaps, equipping graduates to tackle societal challenges collaboratively.

Closing this gap requires a paradigm shift prioritizing role-playing and other Experiential Learning methods. Role-playing provides a powerful platform for developing critical thinking, teamwork, and adaptive problem-solving. Through immersive 'as if' scenarios, participants engage in creative exploration, addressing real-world challenges in ways that traditional teaching methods fail to achieve. However, its potential remains underexplored due to the persistence of conventional assessment practices that prioritize static knowledge over dynamic skills.

The lack of meta-teaching strategies further compounds the issue. Without these frameworks, educators often lack the reflective and adaptive skills needed for effective instruction, hindering their ability to foster student growth and professional development [12]. Embedding adaptive and multidisciplinary strategies, including role-playing, into educational systems is essential to ensure educators are prepared to meet the demands of an increasingly dynamic and interconnected world.

A significant issue in education and research arises from siloed approaches, where disciplines operate in isolation, striving to solve problems without leveraging interconnected perspectives. This paper stems from years of trans-disciplinary investigation into the overlapping and interconnected facets of the complex

educational and research landscape that underpin Experiential Learning. A drive for social innovation has brought diverse groups together to co-design solutions that address systemic challenges, enhance resource accessibility, foster inclusive learning environments, and equip educators and learners with strategies to adapt to an ever-changing global landscape.

Isolated methods and tools exist within disciplines to address specialized aspects of Experiential Learning. For example, in the United States (US), STEM education in primary and secondary schools often adopts project-based or inquiry-focused methods paired with direct instruction. However, these methods are not applied across the curriculum and rarely are systemically applied through the years of education. These experiential methods are more demanding than straightforward, direct instruction tied to closed assessments of knowledge and skills. Experiential Learning demands more time, more significant effort and involvement by participants, increased preparation time, more difficult assessment and evaluation methods, and requires the development of intercultural communication competencies to effectively manage the sociocultural challenges of learner interactions within Experiential Learning classrooms [17], [18].

Role-playing offers a powerful tool for Experiential Learning, fostering teamwork, socio-emotional growth, creativity, and interdisciplinary exploration [19], [20]. It has also been successfully applied in historiographical and cultural contexts, demonstrating its potential to bridge disciplinary and cultural divides [21]. Despite this, its adoption remains limited due to the dominance of static, traditional teaching methods that prioritize rote learning over dynamic skills [22].

PhD graduates, in particular, often lack experience with role-playing and other Experiential Learning methods, receiving minimal training in their development, implementation, and assessment. The absence of structured meta-educational frameworks further exacerbates this gap, emphasizing the urgent need for transformative tools that foster interdisciplinary collaboration, critical thinking, and adaptive problem-solving. Adopting such approaches is essential to preparing learners and educators for the complexities of an AI-driven, innovation-centered world.

3.3. Leveraging emerging approaches for Experiential Learning

Emerging technologies and innovative methodologies present transformative opportunities for addressing gaps in Experiential Learning and transdisciplinary education. AI-driven simulations, for instance, enable the creation of adaptive, personalized learning environments that promote critical thinking, collaboration, and decision-making at scale. These systems employ AI-generated mentors, role-players, and evaluators to simulate complex, real-world scenarios, equipping learners with practical skills [23].

Role-playing simulation games further enhance active learning by immersing participants in scenarios that replicate real-life challenges. Tools like ChatGPT have been shown to foster Experiential Learning by enabling students to practice problem-solving and communication in controlled yet engaging environments [24]. Such approaches bridge the divide between theory and practice while fostering interdisciplinary collaboration.

Simulations, including crisis management scenarios, highlight the power of Experiential Learning in preparing participants to make strategic decisions under pressure. These immersive exercises develop adaptability and strategic thinking, essential for navigating an interconnected world's complexities.

These emerging approaches underscore the need to integrate advanced tools such as role-playing and AI-driven simulations into educational systems. By adopting these methodologies, educators can foster critical competencies that prepare learners to thrive in an innovation-driven, transdisciplinary world.

4. THE NEED TO ADDRESS THE GAP

The educational system, especially PHD training programs, often prioritizes research over teaching, relying on informal education through mentorship, observation, and self-directed learning to prepare graduates for future roles as educators and collaborators. However, this unstructured approach fails to address critical competencies essential for interdisciplinary and transdisciplinary collaboration.

Educators lack the understanding, resources, and tools to design innovative, experiential, and collaborative learning environments without explicit meta-education. This gap limits their ability to engage students effectively and adapt to the complexities of modern education. In a world where knowledge is dynamic and challenges are increasingly interdisciplinary, this lack of preparation hinders educators from equipping learners with the critical skills needed to thrive.

4.1. Impact of Neglecting Meta-Education

The neglect of meta-education has significant consequences for the fields of education and research. Without structured training, educators are ill-equipped to foster experiential and collaborative learning, perpetuating reliance on outdated methods like rote memorization and standardized testing. These approaches fail to meet the demands of the 21st-century workforce, which requires skills such as collaboration, critical thinking, and adaptability.

This issue is particularly evident in role-playing methods, which lack a unified set of research frameworks or best practices applicable across disciplines. Educators without meta-educational preparation often cannot introduce innovative methodologies or address the diverse needs of learners. This gap undermines their ability to design curricula and experiences that prepare students for real-world problem-solving and teamwork.

The absence of practical tools and frameworks perpetuates a cycle in which underprepared educators produce insufficiently trained learners. This limits education's potential to drive innovation, collaboration, and societal progress, emphasizing the need to integrate meta-educational strategies into training programs.

4.2. Rationale for Role-Playing in Meta-Education

Role-playing provides a transformative solution to the limitations of traditional educational methods and the lack of meta-educational frameworks. As a meta-educational tool, it equips educators with the resources and skills to design innovative, experiential learning environments. By engaging in structured scenarios, educators can develop essential competencies such as:

- **Analogical Thinking:** Drawing connections between diverse ideas and applying them to novel contexts.
- **Critical Thinking:** Systematically analyzing problems and generating innovative solutions.
- **Interpersonal Dynamics:** Building communication and teamwork skills essential for interdisciplinary collaboration.

Role-playing fosters the co-design of learning experiences, promoting creativity, adaptability, and agency in educators and students. Through these experiential activities, educators gain a deeper understanding of collaboration and dynamic problem-solving—skills critical for navigating today's interconnected and rapidly changing educational landscape.

Without structured meta-educational frameworks, educators and researchers risk working in silos, perpetuating outdated methodologies, and failing to integrate advancements across disciplines. This lack of transdisciplinary perspectives hinders their ability to address complex, real-world challenges effectively. Role-playing bridges this gap by embedding transdisciplinary principles into scenarios, enabling educators to integrate interdisciplinary insights within dynamic learning and research environments.

The following section explores practical applications of role-playing as a core component of meta-education. It demonstrates how it can prepare educators and researchers to meet the demands of a rapidly evolving world.

5. ROLE-PLAYING AS A TOOL FOR EDUCATION

In the context of meta-education, role-playing serves as a transformative tool to address the multifaceted challenges educators and researchers face in teaching, collaboration, communication, and transdisciplinary work [25]. Unlike traditional methods, role-playing immerses participants in dynamic scenarios that reflect the complexities of real-world educational and research contexts. As noted by Nagib, a structured approach to role-playing begins with a general understanding of education, transitions into Meta-Education, and culminates in Role-Playing Education (RPE) as a method and application [26].

The Components of Role-play in Experiential Learning (CREL) framework offers a structured approach to integrating role-playing into meta-education. This framework bridges the gap between theory and practice by engaging participants in collaborative problem-solving, addressing organizational and interpersonal challenges, and fostering reflective processes. Through CREL, educators and researchers gain the skills and mindset necessary for innovation-driven environments.

Rooted in diverse disciplines—including Game Theory, Sociocultural Theory, and Video Game Theory—the CREL framework demonstrates its versatility across contexts [27], [28], [29], [30], [31], [32], [33]. Effective role-playing scenarios often require educational researchers to adopt multiple roles as participants, leaders, and facilitators, which can be challenging without the training provided by meta-education.

Vygotskian theory underscores the educational value of role-playing, mainly through the Zone of Proximal Development (ZPD), which emphasizes collaborative learning. Role-playing aligns with this concept by fostering social interactions and constructing knowledge through shared experiences [34]. Simulated scenarios also contextualize learning, helping students engage deeply with curriculum content while applying theoretical concepts in practical, meaningful ways [35].

The integration of technology further enhances role-playing's potential in education. Tools like Minecraft enable students to build and explore virtual worlds, fostering creativity and teamwork [36]. Gamified platforms such as Classcraft immerse students in narrative-driven roles, enhancing motivation and collaboration [37], [38]. Virtual environments like Second Life facilitate complex, customizable simulations, making role-playing a highly adaptable and impactful educational tool [39]. By combining theoretical insights, structured frameworks, and technological innovations, role-playing emerges as a powerful approach for preparing educators and learners to navigate the complexities of modern education and research.

5.1. Framework for Role-playing in meta-education

The CREL framework for integrating role-playing into meta-education is built around four critical pillars that address the key competencies required for 21st-century education and research. Role-playing facilitates experiential Learning by immersing participants in hands-on activities where they learn by doing, reflecting, and iterating their approaches. This dynamic process deepens understanding and fosters practical skills, empathy, and strategic thinking, making it an ideal personal and professional growth tool. The CREL framework encompasses four foundational dimensions that guide role-playing in meta-education. These dimensions work together to equip participants with critical competencies for addressing the demands of modern education and research:

I. **Social Contracts: scenario, control, and power**

Role-playing scenarios operate within explicit and implicit agreements, or social contracts, that govern interactions. These contracts emphasize trust, fairness, and accountability, addressing participants' power and authority dynamics [40]. In any social experience, the degree of support and autonomy the leader or educator provides is often at odds with the power differentials—actual or perceived—among participants. The social contract and its parameters are crucial for facilitating transdisciplinary communication and collaboration, particularly for educators and researchers.

As Ron Edwards explains, "All role-playing is a subset of the Social Contract," encompassing emotional connections, logistical arrangements, and expectations [41]. Social contracts establish norms for collaboration, ensuring equitable contributions and fostering mutual respect. Rousseau's principles further deepen this understanding by providing a theoretical foundation for structuring collaborative efforts. His parameters, such as defining the limits of authority and recognizing the rights retained by individuals, offer guidance for creating equitable and mutually beneficial interactions [42]. Together, these perspectives emphasize the role of social contracts as a guiding principle, shaping how diverse stakeholders engage with one another to foster trust, accountability, and

innovation. This dimension promotes effective communication and drives creativity in collaborative endeavors by structuring roles and interactions.

II. **Experience: narrative, agency, and emergent play**

Role-playing scenarios are designed to allow participants to shape the direction of the narrative through their decisions. By actively contributing to the story, participants explore the flexibility and impact of collaborative storytelling. This dimension highlights the dynamic interplay between structured scenarios and emergent, player-driven outcomes, cultivating creativity and agency. Planning, facilitating, and evaluating the experience is essential to effective Experiential Learning, especially when it involves role-playing. However, the range of actual experiences and the degree of freedom for participants to be involved in the design, flow, and outcome are highly varied. Educators and researchers need to be aware of various ways that the experience is managed to allow the learners to feel agency in what is happening, attain the learning goals, and still be engaging and enjoyable to ensure the effectiveness of the experience.

III. **Collaboration: leadership, communication, and group dynamics**

Teamwork and communication lie at the heart of this component. Participants work together to solve problems, navigate challenges, and achieve shared goals. This component emphasizes the importance of collective engagement, cultural tools, and interpersonal relationships in fostering effective group dynamics. Role-playing is often associated with scenarios tied to team-building and investigations of interpersonal dynamics, communication, leadership, and other productivity and human capital development studies. However, role-playing research and its application in meta-education goes far beyond this. Every Experiential Learning scenario requires a clear understanding of this component to determine if these factors are significant and how they influence the overall experience.

IV. **Choice: strategy, decision-making, and iterative design**

At the heart of Experiential Learning is the idea that the participants are given a scenario and set of choices. Those choices lead to outcomes that have consequences as the narrative is generated through the ongoing experience. Participants engage in strategic decision-making, risk assessment, and dynamic adjustments and adaption, reflecting on the outcomes of their actions to improve future performance. This component explores the action and reaction when faced with challenges, interpersonal dynamics, and pressure related to choosing. Every scenario in Experiential Learning must examine how choice is a factor and how all other factors relate to choice in the developing narrative. A significant benefit of role-playing associated with this component relates to the iterative nature of gameplay and Learning, enhancing the depth and replayability of scenarios—the ability to revisit scenarios multiple times, experiencing new outcomes, challenges, and learning opportunities with each iteration [43]. By adjusting elements of each component, the choices made and resulting actions provide continual learning opportunities and fertile areas for education research.

5.2. Benefits of Role-playing in meta-education

Role-playing enables participants to engage in Experiential Learning that extends beyond theoretical knowledge by utilizing elements from these four components. This framework simulates real-world challenges and fosters iterative reflection and practice, preparing educators and researchers for interdisciplinary collaboration and innovation complexities.

The integration of role-playing through the CREL framework offers numerous benefits in meta-education:

- **Fostering logical and analogical thinking:** The framework encourages participants to draw connections between gameplay and broader educational or research contexts. This approach strengthens critical reasoning and analogical thinking, preparing educators and researchers to navigate dynamic, transdisciplinary environments.
- **Developing practical skills:** Participants gain hands-on experience in problem-solving, teamwork, and decision-making. These skills align with the demands of the modern workforce, ensuring educators and researchers are equipped to tackle complex, real-world scenarios.
- **Promoting empathy and adaptability:** Immersive role-playing scenarios allow participants to experience diverse perspectives and explore their implications. This process fosters empathy and adaptability, essential for addressing interdisciplinary challenges and engaging effectively in collaborative settings.

By integrating these benefits, role-playing is a meta-educational tool that bridges the gap between traditional practices and the competencies demanded by contemporary education and research.

The potential of role-playing in meta-education lies in its theoretical framework and its practical application. The following section explores how the CREL framework can be effectively implemented in educational and research contexts. It highlights its impact on preparing educators and researchers to address the demands of a swiftly changing, interconnected world.

5.3. Industry-specific applications

While this paper primarily focuses on the educational context, the CREL framework holds potential for applications in industrial and business settings. Examples include:

- **Supply chain optimization:** Simulating logistics and efficiency balancing to enhance decision-making processes.
- **Stakeholder negotiations:** Practicing negotiation strategies within cross-functional teams to improve collaboration and conflict resolution.
- **Project planning:** Implementing the CREL framework allows role-playing scenarios for industrial management where participants can view the project from multiple perspectives. For instance, integrating society or state officials into the roles helps participants understand broader stakeholder impacts and dynamics.

- **Team leadership:** Utilizing role-playing to simulate leadership challenges, improving team dynamics and decision-making skills.

These scenarios aim to demonstrate the framework's relevance and adaptability to real-world professional challenges, although their detailed exploration is outside the scope of this paper.

6. IMPLEMENTATION AND ITS IMPACT

Role-playing can seamlessly integrate into meta-educational contexts through structured activities that simulate real-world challenges. These activities can take various forms, including:

- **Simulated teaching scenarios:** Participants assume roles as educators, students, or administrators to explore classroom dynamics, curriculum design, and pedagogical strategies. These scenarios help future educators practice delivering lessons, managing diverse classrooms, and addressing real-time challenges.
- **Interdisciplinary problem-solving exercises:** Participants collaborate on scenarios requiring knowledge and skills from multiple disciplines. For example, a team might address a global issue, such as climate change, requiring contributions from environmental science, engineering, policy-making, and social sciences.
- **Collaborative research planning:** Participants simulate the planning and execution of research projects, navigating challenges like resource allocation, power dynamics within teams, and ethical considerations.

Participants take on defined roles within a mock organization or project in each scenario, navigating conflicts, decision-making, and team dynamics to achieve specific goals. These activities not only replicate the complexities of professional environments but also encourage participants to engage in critical thinking, problem-solving, and adaptability within controlled yet realistic settings.

Role-playing also significantly benefits graduate students from non-teaching disciplines in professional training. By participating in structured scenarios, they can:

- **Develop strategic thinking skills:** Role-playing exercises allow graduate students to approach complex problems from multiple perspectives, fostering innovative and adaptable thinking.
- **Enhance collaboration and teamwork:** Role-playing in professional training contexts enables students to navigate interpersonal dynamics, build effective communication strategies, and work cohesively in interdisciplinary teams.

6.1. Meta-level outcomes

The integration of role-playing into curricula produces measurable outcomes that significantly enhance the preparation of educators and researchers:

- **Enhanced preparation for transdisciplinary collaboration:** Role-playing equips participants with the skills to work across disciplines, fostering communication and collaboration between diverse teams. These scenarios prepare educators to address the complexities of interdisciplinary teaching and research effectively.
- **Improved logical and analogical thinking:** Through iterative decision-making and reflection, participants balance logical reasoning with creative and analogical thinking, enabling them to approach challenges with greater flexibility and insight.
- **Development of experiential teaching competencies:** Participants gain practical experience in creating and delivering learning environments that prioritize active engagement and experiential methodologies, aligning with the needs of modern learners.

These outcomes position role-playing as a critical tool for shaping educators and researchers who can thrive in dynamic, interconnected professional landscapes.

6.2. Broader implications

Role-playing addresses modern education's dynamic and temporal nature, aligning teaching and research practices with the demands of a global, technology-driven workforce. By fostering Experiential Learning, role-playing prepares participants to:

- **Navigate complex, interdisciplinary challenges:** Participants develop the ability to tackle multifaceted problems that require input from various fields and perspectives.
- **Adapt to rapid technological advances:** Role-playing scenarios help educators and researchers practice integrating new technologies into their work, ensuring they remain effective in a rapidly changing world.
- **Promote global collaboration and innovation:** Role-playing enhances participants' capacity to engage meaningfully in international and cross-cultural initiatives by emphasizing empathy, adaptability, and communication.

By embedding role-playing into educational frameworks, institutions can create engaging, interactive environments that develop and hone the critical skills required by the 21st-century workforce. This innovative approach connects theoretical learning with practical application, equipping educators and researchers to navigate the challenges of an increasingly interconnected and rapidly evolving world.

6.3. Case study

One notable success story where the CREL framework has been effectively applied is the creation of the Employee Resource Group (ERG) at the author's university. The framework was instrumental in assisting participants with strategic planning that emphasized Diversity, Equity, and Inclusion (DEI). The broad planning process involved Hispanic and Latinx parents, business owners, staff, faculty, and students. This case highlights the framework's adaptability to interdisciplinary and professional

environments, demonstrating its value in fostering collaboration and inclusivity.

6.4. Student-centric suggestions

To empower students in advocating for role-playing methods, practical advice includes:

- **Building awareness:** Presenting the benefits of role-playing to faculty and administration, emphasizing its value in enhancing critical thinking, teamwork, and adaptability.
- **Pilot initiatives:** Proposing small-scale role-playing exercises in classes or workshops to demonstrate their effectiveness.
- **Institutional support:** Collaborating with peers to create student groups or resource networks that promote role-playing methodologies in academic and professional settings.

These future applications and student-focused strategies underline the CREL framework's ongoing relevance and potential to inspire innovation across various disciplines.

6.5. Future applications

The CREL framework has significant potential for future applications in both educational and professional settings. In 2025, James Lipuma and Arturo Llaca plan to implement this framework in their classrooms. This initiative will serve as a baseline for future articles exploring the impact and scalability of role-playing in diverse educational contexts. Cristo Leon plans to host the *10mo Coloquio Internacional de Estudios Sobre Juegos de Rol* in 2026 to evaluate the CREL framework's effectiveness and gather insights for further refinement.

7. CONCLUSION

This paper has highlighted the transformative potential of role-playing as a meta-educational tool to address the challenges of modern education and research. Traditional methods often fail to prepare educators and researchers for dynamic, interdisciplinary environments in an interconnected, rapidly evolving world. The CREL framework offers a practical approach to bridge this gap, fostering experiential learning, critical thinking, collaboration, and adaptability. Through its dimensions of social contracts, narrative agency, collaboration, and iterative design, role-playing equips participants with the competencies needed to navigate real-world complexities and align education with the demands of the 21st-century workforce.

The CREL framework exemplifies the ongoing evolution of education, serving as a bridge between theoretical constructs and practical applications while fostering interdisciplinary collaboration and adaptability. As a case study within the broader notion of modern education, it demonstrates how targeted innovations can support global educational goals, ensuring relevance and inclusivity in a rapidly changing world. The framework's adaptability and inclusiveness reflect the essential qualities of education in fostering transdisciplinary collaboration, empathy, and strategic decision-making.

Institutions should integrate the CREL framework into PhD programs and educational curricula to fully realize the potential of role-playing in meta-education. Embedding role-playing within these contexts will better prepare educators and researchers to address interdisciplinary challenges, embrace experiential teaching methodologies, and foster meaningful collaboration. Further research is essential to refine and expand its application, explore cultural adaptations, develop complementary tools, and assess long-term outcomes to maximize its impact.

Role-playing has the potential to reshape education and research by cultivating innovative leaders, fostering interdisciplinary collaboration, and creating dynamic learning environments. By embedding this tool within educational systems, we can address the challenges of our global, technology-driven society. With continued implementation and exploration, role-playing can become a cornerstone of meta-education, driving progress and fostering a more interconnected and adaptive future.

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