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The Role of the 4c Model in Developing Communication Culture Skills

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A B S T R A C T
This study examines how the 4C model (Critical thinking, Communication, Collaboration, and Creativity) enhances communication culture skills in young learners through dialogues, immersive technologies (VR, AR, AI-driven tools), and other interactive methods such as storytelling, and project-based learning. The findings reveal that the integration of dialogue-based learning, digital immersion, and collaborative activities significantly improves verbal expression, listening, confidence, and creativity. The study highlights the importance of multi-modal teaching approaches in fostering effective communication skills in early education.

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Introduction. In an increasingly interconnected and rapidly evolving world, the ability to communicate effectively and work collaboratively is more crucial than ever. The 21st-century skills framework emphasizes the importance of critical thinking, communication, collaboration, and creativity (the 4Cs) as essential competencies for navigating the complexities of modern life and contributing meaningfully to society [1]. These skills are not only valuable for individual success but also play a vital role in shaping a positive communication culture within educational institutions and beyond.

A communication culture refers to the shared values, beliefs, and practices that influence how individuals interact and exchange information within a specific context. A healthy communication culture promotes open dialogue, active listening, mutual respect, and constructive feedback, fostering an environment where individuals feel safe to express their ideas, challenge assumptions, and engage in collaborative problem-solving.

Young learners, in particular, benefit significantly from developing strong communication culture skills early in their educational journey. By fostering these skills from a young age, educators can empower pupils to become effective communicators, critical thinkers, and collaborative team players, setting them on a path toward lifelong learning and success. This article explores the role of the 4Cs model in developing communication culture skills in young learners, examining the theoretical underpinnings, practical applications, and potential benefits of this approach.

Literature Review. The 4Cs – critical thinking, communication, collaboration, and creativity – are widely recognized as essential skills for success in the 21st century [1]. These skills are not only valuable

for individual achievement but also crucial for addressing complex global challenges and fostering innovation.

The 4C model has been widely recognized as a foundational framework for 21st-century skills development [2]. Research shows that:

- Critical thinking helps learners analyze, reflect, and engage in meaningful conversations [3].
- Communication is essential for expressing thoughts clearly, listening actively, and responding appropriately [4].
- Collaboration fosters social interaction, teamwork, and shared learning experiences [5].
- Creativity enhances expressive language, storytelling, and problem-solving abilities [6].

The literature review shows that the 4Cs model provides a framework for integrating these essential skills into educational curricula and pedagogical practices. By explicitly focusing on the development of critical thinking, communication, collaboration, and creativity, educators can create learning environments that foster student engagement, promote deeper understanding, and prepare pupils for future success.

Methods. A quasi-experimental study with a pre-test/post-test control group design was conducted to analyze the effectiveness of dialogue-based learning, immersive technologies, and other interactive methods in communication culture development.

The study involved 120 primary school pupils (aged 8–11) from two different schools, divided into an Experimental Group (EG) and a Control Group (CG). The EG was exposed to dialogue-based learning, immersive technologies, storytelling, and project-based learning, while the CG followed traditional textbook-based learning with minimal interactive activities. The intervention spanned 11 weeks, beginning with a pre-test and baseline observations (Week 1), followed by the implementation of different methods in the EG (Weeks 2–10), and concluding with a post-test, teacher interviews, and student focus groups in Week 11, after which data analysis was conducted to assess learning outcomes.

Teaching methods used in the experimental group

Dialogue-Based Learning	Role-plays, debates, and storytelling sessions to improve verbal expression, fluency, and active listening.
Immersive technologies	VR Simulations: Provided real-world conversational practice in virtual environments (e.g., ordering food, giving directions). AR Applications: Enabled pupils to interact with 3D objects and characters related to their stories.
Storytelling & Creative expression	Pupils created and performed short plays, digital storytelling projects, and puppet theater.
Project-Based Learning (PBL)	Collaborative projects, such as designing a classroom magazine or creating a community-based initiative, encouraged critical thinking, collaboration, and creativity.

The study began with a pre-test and baseline observations in Week 1, assessing pupils' verbal fluency, listening comprehension, turn-taking, and politeness strategies, while also evaluating engagement, non-verbal cues, and collaboration through an observation rubric. From Weeks 2 to 10, the experimental group underwent the implementation of different teaching methods. Finally, in Week 11, a post-test was conducted to measure progress, followed by teacher interviews and student focus groups to gather qualitative insights. The collected data was then analyzed to determine the effectiveness of the interventions.

Results. *Key Findings*

The experimental group demonstrated significantly higher improvements in communication culture skills compared to the control group:

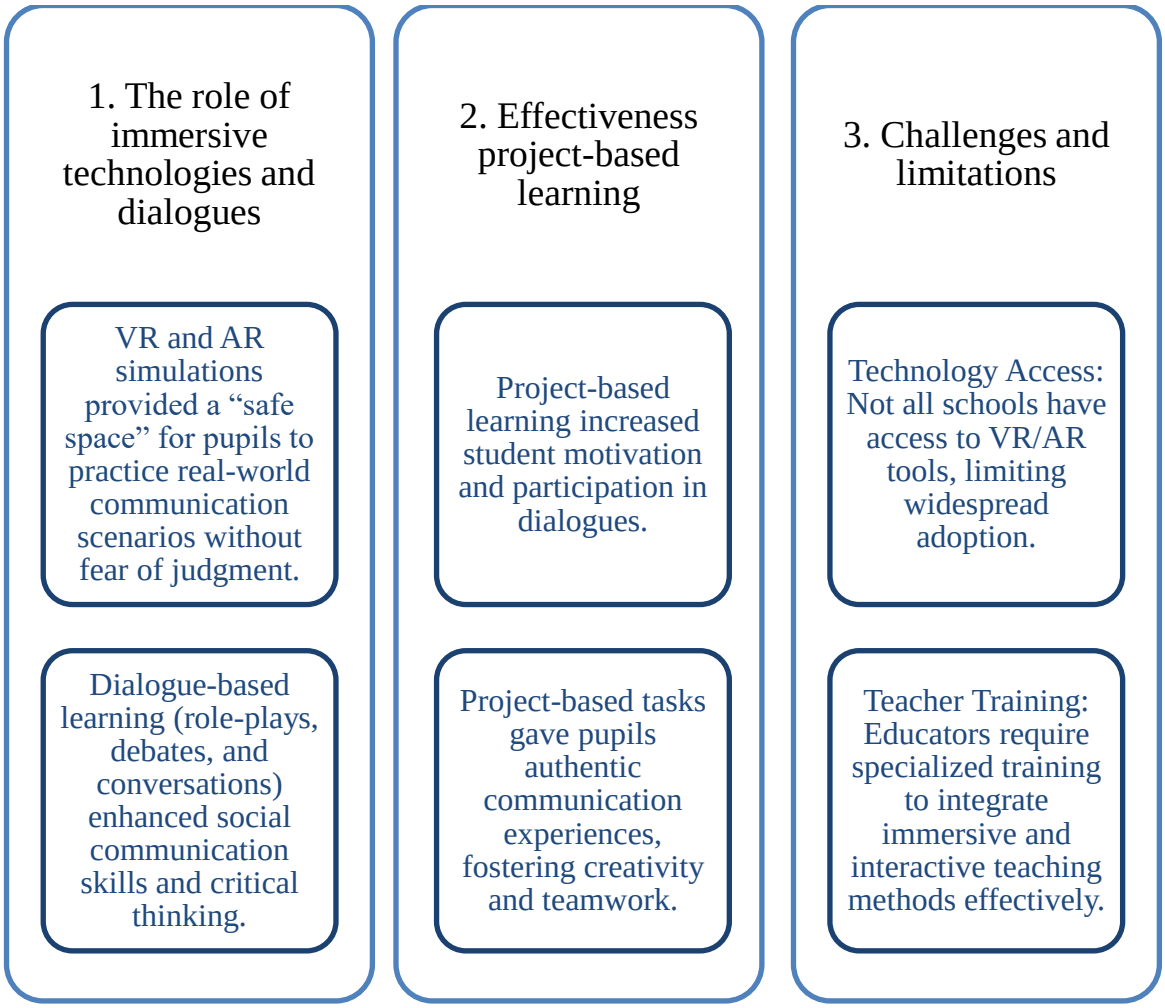
Qualitative Insights

- Pupils in the experimental group actively participated in discussions, showed enthusiasm, and demonstrated better fluency.
- Teachers observed increased confidence, improved eye contact, and greater willingness to engage in conversations.
- Pupils found immersive tools and storytelling to be the most engaging, while project-based tasks strengthened teamwork.

Analysis. The 4C model, when combined with dialogues, immersive technologies, and other interactive methods, proved highly effective in enhancing communication culture skills.

- Critical Thinking: Pupils learned to analyze and respond appropriately in dialogues and role-plays.
- Communication: VR conversations and audios improved fluency, pronunciation, and listening skills.
- Collaboration: Group storytelling and project-based tasks fostered teamwork and mutual understanding.
- Creativity: Pupils used AR-enhanced storytelling, puppetry, and digital projects to express ideas more vividly.

Discussion. This study explored how immersive technologies, dialogue-based learning, and project-based tasks enhance communication skills in primary school students. By comparing an experimental group using these methods with a control group following traditional approaches, the research assessed their impact on verbal fluency, listening comprehension, and social interaction. The discussion highlights key findings, including the benefits of immersive tools and interactive learning, as well as challenges like technology access, teacher training, and long-term skill retention.



Key Takeaways:

- Dialogues and VR-based communication scenarios improve verbal fluency and confidence.
- Project-based learning enhance engagement and collaboration.
- Digital storytelling tools provide real-time feedback, accelerating language acquisition.
- For educators, integrating multi-modal teaching approaches ensures a holistic development of communication culture in early education. Future research should explore long-term impacts, accessibility solutions, and teacher training programs to support the wider adoption of these methods.

Conclusion. This study demonstrates that combining the 4C model with dialogues, immersive technologies, storytelling, and project-based learning significantly improves communication culture skills in young learners.

The 4C model provides a valuable framework for developing communication culture skills in young learners. By integrating the 4C into educational settings, educators can empower pupils to become effective communicators, critical thinkers, and collaborative team players. Implementing the 4C model effectively requires a shift in pedagogical practices and a commitment to creating learning environments that prioritize these skills. Educators need to be trained in the use of immersive technologies, dialogue-based learning, project-based learning, interdisciplinary approaches, and authentic assessments. They also need to be supported in their efforts to create learning environments that foster communication, collaboration, and creativity.

Further research is needed to develop standardized assessments for measuring 4C skills and to evaluate the effectiveness of different approaches to implementing the 4C model. However, the existing evidence suggests that the 4C model has the potential to make a significant contribution to the development of communication culture skills in young learners. By focusing on these essential skills, educators can prepare pupils for success in the 21st century and beyond.

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