

Engaging with AI Creatively: Nurturing Human Creativity

This presentation reports a preliminary analysis of a study that investigated the implementation of creative makerspace workshops with children from diverse cultural backgrounds and experiences. Informed by Hetland et al.'s (2007) framework for nurturing creativity, the study exemplifies how these workshops can support children's development of creative thinking in increasingly AI-supported learning environments. The study provides preliminary insights that may be valuable for educators designing creative workshops.

Background: Creativity is recognized as a human ability that is not only considered an essential skill for work and everyday life (Beghetto & Kaufman, 2013) but also supports students' engagement in key cognitive processes, including exploring ideas, evaluating possibilities, problem-solving, and generating novel solutions (Lille & Romero, 2017). Creativity also encompasses two complementary dimensions: divergent thinking and convergent thinking (Guilford, 1962), enabling students to transition from idea exploration to meaningful outcomes. However, artificial intelligence (AI) is increasingly performing tasks once considered uniquely human, such as generating images or solving complex problems. These developments have raised concerns about human relevance, raising awareness of the importance of human creativity (Markauskaite et al., 2022). From a humanistic perspective, the education system and classroom pedagogies should foster students' creative thinking and problem-solving to engage them in thoughtful interactions with AI technologies (Habib et al., 2024).

The Study: This study explores how creative workshops can foster children's creativity, equipping them to engage with AI more creatively. To achieve this aim, the researchers designed workshop activities within a makerspace, involving a sample of children from diverse cultural backgrounds, ages, and experiences in the United Arab Emirates. The design of the workshops was informed by Hetland et al.'s (2007) work and adapted to support idea generation through real-life experiences, discovery, collaboration, reflection, and meaningful outcomes. The workshop activities involved both individual and collaborative processes to facilitate sharing, observation, and refinement, generating new perspectives and ideas, and to collaboratively produce new design

outcomes using available materials and tools. These activities were conducted as extracurricular activities outside the classroom. Within the multidisciplinary research team, one member was also an artist who played a key role in supporting and constructively challenging the children's thinking as they developed their ideas. Up to 30 volunteer children aged 6-16 were recruited from the community using convenience and snowball sampling. Children were placed into groups based on approximate age to facilitate the flow of activities and data collection. Data collection included qualitative and quantitative methods, including focus group interviews, video recordings of activities, and artifacts. The study was approved by the Institutional Review Board. Parent consent and child assent were sought.

Preliminary Results are based on a group of seven children who participated in one of the workshops. The children brainstormed ideas individually using a concept map, then drew their ideas; later, they displayed their work on the wall to explain their ideas, "look around," and give and receive feedback from others. The artist prompted children to think about their ideas by asking questions such as "what is the originality?" and "what makes it different?" Next, children worked in groups to combine ideas into a single design. For example, one group combined the idea of a "school bag that comes with a chair" with another idea (a game), which would allow students to "sit while waiting for their parents" at school and engage in playing the game.

To assess creativity, we used Shively et al.'s (2018) rubric, which draws on Guilford's (1962) four elements of creativity (fluency, flexibility, originality, and elaboration) and adds usefulness as an additional element. We conducted independent analyses of these artifacts, then compared the results and resolved some interpretational differences. During this presentation, the researchers will present selected samples of the analysis to illustrate the analytic process and outcomes. Overall, the findings show that through their design processes and products, some children exhibited novice or developing creativity, needing more time and scaffolding to elaborate and transform their ideas. This suggests that the more children develop their creativity, the more they will be able to use AI tools creatively. For example, Habib et al. (2024) reported that some children had difficulty generating ideas beyond the AI's suggestions. Together with our findings, this suggests that children who need creative growth should be nurtured towards divergent

and convergent thinking, for which AI alone may offer limited opportunities. While interacting with AI technologies, educators should adopt practices that foster creativity through pedagogies and scaffolding to drive critical human creative thinking.

Keywords: Human creativity, creative workshop, artificial intelligence, collaboration, artist-facilitator

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