

2 - 4 July 2026

Zurich , Switzerland

From Home Foods to Digital Voices: Multimodal Making as Cultural Identity Expression in a Community STEAM Makerspace

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Abstract

Community-based STEAM programs increasingly recognize the importance of connecting science learning with youths' lived experiences and cultural knowledge. Yet, few studies have documented how youth from historically marginalized communities use AI-mediated multimodal STEM-rich making to express their cultural identities in informal STEAM learning spaces. This study examines how nine youth participants in grades 5–7 at a community STEAM makerspace in Michigan used an AI-based food-storytelling pipeline to express their cultural identities and intergenerational knowledge. The pipeline included four stages: clay model-making, digital character design in Canva, story creation and voice recording, and AI video creation. The research question guiding this study was: How do youth use multimodal making to express cultural identity and intergenerational knowledge through AI-based food justice storytelling? Using multimodal artifact analysis and thematic analysis of video transcripts and field notes from a six-session food justice learning unit, and grounded in the frameworks of rightful presence, funds of knowledge, and making as identity work, this study identified three main patterns: (1) food as a vehicle for intergenerational knowledge transmission; (2) cultural identity as self-authored rather than simply labeled; and (3) humor and creative agency as forms of self-ownership in STEAM spaces. These findings suggest that AI-based multimodal making can serve as a counter-space where youth can claim rightful presence in STEAM by bringing their cultural knowledge and family histories into the making process.

Keywords: Community Makerspace; Cultural Identity; Funds of Knowledge; Informal STEAM Learning; Multimodal Making