Disrupting a Cycle of Disciplinary Harm: Confronting Ghosts in Creative Computing Endeavors with Out of School Educators

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Abstract: In designing equity-oriented learning environments around computing, it is important to consider how educators are structurally set up to reinscribe injustice. This poster presents a study of six pre-service teachers that were supported to confront "disciplinary ghosts," experiences of harm related to computing in order to heal and re-envision alternative possibilities. We use the hauntological processes from Yoon and Chen (2022) as the starting point of a design framework towards healing.

Introduction

When attempting to intervene on the dominant ideology, Freire warns us that we are structurally set up to continue its reproduction (1988). While informal educators may be positioned to disrupt cycles of harm in their interest-based learning environments (Vossoughi et al., 2013), they may also carry with them their own histories of harm that relate to STEM learning that seep into their pedagogy. In this poster, we leverage the concept of hauntology to examine educators' experiences as they prepare for, participate, and reflect on the facilitation of a community-based, culturally responsive program for families around creative computing.

Theoretical perspective

Our approach builds on the concept of hauntology, where hauntings are "the process of return and revisitation of the past to the present; … a memory of an ongoing agitation about injustice" (Gordon, 2008). Within hauntology, ghosts are one way in which abusive systems of power make themselves known in daily life. In this study, we use the three hauntological processes from Yoon and Chen: witnessing, rememorizing, and transformation and dreaming (2022) as an analytical framework. Through their participation and pedagogical debriefs, we were interested in how educators confront and reshape what we call "disciplinary ghosts," prior experiences of harm that continue to be viscerally felt as they engage in teaching and learning in the present and imagine possibilities for the future.

Method

This study focuses on six elementary pre-service teachers (PSTs) who participated as facilitators in a series of family computing workshops between Spring 2022 and 2023 in an urban area in the Mountain West of the United States. They were undergraduate students from the same university that the authors are based. PST's had varying experiences with creative computing and working with families in out-of-school settings. Prior to the workshops, we supported PSTs in preparatory sessions where they engaged in case studies of past facilitator experiences, documentation practices, and activities with the computational tools that families would be using. We also engaged in pedagogical debriefs where our design team discussed our experiences around computing together. These debriefs included creating journey maps that traced our experiences over time, noting where we felt supported or constrained in computing interests and how we think about these experiences as educators today. Following the PSTs participation as facilitators in the family computing workshop, we also engaged in a design reflection session. During this session the PSTs were supported to think about aspects of the experience that they wanted to bring into their practice as full-time teachers in the following year as well as dream together about what their ideal vision for learning would look like. Data sources include pre/post- interviews, audio recorded pedagogical debriefs, participant field notes and artifacts such as PST's journey maps.

Findings

Our findings reveal that educators expressed recurrent hauntings around their experiences with computing and were supported by their peers in sensemaking and dreaming of alternative futures together. The impact of experiences can be understood using the hauntological process of witnessing, rememorizing, and transforming and dreaming.

Witnessing: "Receiving and often recording an account of injustice" (Yoon and Chen, 2022, 84)
In practice: During the journey map exercise, where we reflected on our own histories with creative pursuits and computing pursuits. As we shared, we often unearthed memories for each other, adding more relevant experiences

and details to our own journey maps. In community together we witnessed the disciplinary ghosts that continue to haunt our experiences as learners and educators. For example, one educator shared a haunting related to trying to learn programming analysis tool in a biology class that still makes her feel she can never learn to code.

> PST 1: "in college, I took biology lab, and you had to use RStudio. My god, I hated that… and I had a group of friends, and they were all science majors, and I was an education major. And I got attacked for that every day. It was bad. They all knew RStudio [a programming language] ...and I was like, "I don't" And so a negative connotation really came from that. I was like, okay, I can't do it. I'm bad. I'm bad at it…So just saying, bad connotations around, if you don't know how to do it, things you just can't…"
> PST 2: "You can't learn."
> PST 1: "You can't learn. They won't teach you."

Rememorizing: "Stories that build different worlds for more who's and what's that matter… making it possible to do the work of release, re-membering, and reconciliation" (Yoon and Chen, 2022, 84)

In Practice: Following our journey map exercise, we spoke about how we were enabled or constrained from engaging in creative and/or computing pursuits in our past and present. As we reflected, we talked about what alternative pathways might have looked like if experiences of harm within these disciplines were ameliorated and the ways in which our present might look different. One educator talked about how she relied on her creativity as an outlet when she felt that she couldn't express what she knew in school due to her dyslexia. She wondered what it would have looked like for these ways of knowing to be equally valued:

> "I sort of have always used my creativity as an outlet, and I feel like that comes from not having accessibility [in school] when I was younger. So, I'm super dyslexic, and when I was in elementary school it was really hard because I couldn't express what I knew, even though I knew it. And there were these limits…And I think being creative means that there doesn't have to be limits and it's often like redefining them."

Transforming and Dreaming: "Taking steps to return, repair, and reckon with having no good options, and yet having all options." (Yoon and Chen, 2022, 87)

In Practice: Following the conclusion of the workshops, our team engaged in a final pedagogical debrief where we discussed aspects of working together in a creative computing context that felt healing, and how these moments might be expanded. The pre-service teachers reflected together on what aspects of their experience they could imagine bringing into their pedagogy as elementary teachers the following fall, and which aspects still felt out of reach. We dreamed together about how aspects of the system of education in our country might be changed so that those pieces would feel possible, creating new visions for the relationship between formal and informal learning together.

Discussion

As we aim to create experiences for learners that are equitable and transformative, it is important to recognize how educators' own disciplinary ghosts may continue to haunt their work, constraining what is possible in creating alternative visions for education. This work shares a promising approach to supporting educators to confront these ghosts and dream of alternative futures. This poster will include visuals of the journey map exercise and scaffolds from the final reflection session to illustrate what this process entailed. In future work we plan to continue building on this approach toward a restorative design framework for informal educators.

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