

Co-Research in Video Analysis: Shifts Towards Ethical Validity

Ashlyn Pierson (co-chair), Sophia Jeong, The Ohio State University, pierson.199@osu.edu, jeong.387@osu.edu
 D. Teo Keifert (co-chair & zoom manager), University of North Texas, danielle.keifert@unt.edu
 Andria Gentry (discussion facilitator), University of North Texas, andria.gentry@my.unt.edu
 Lauren Vogelstein (discussion facilitator), New York University, lev226@nyu.edu
 Colin Hennessy Elliott, Drexel University, ch3457@drexel.edu
 Zach Ryan, Mengxi Zhou, Indiana University, zryan@iu.edu, mz13@iu.edu

Ilana Horn, Helena Spigner, Shannon Felder, Andrea Henrie, Heather Johnson, Bethany Daniel, Sarah Lee
 ilana.horn@vanderbilt.edu, helena.p.spigner@vanderbilt.edu, shannon.m.felder@vanderbilt.edu,
 andrea.henrie@vanderbilt.edu, heather.j.johnson@vanderbilt.edu, bethany.r.daniel@vanderbilt.edu,
 sarah.lee@vanderbilt.edu
 Vanderbilt University

David DeLiema, Megan Goeke, Jeffrey K. Bye, Zack Carpenter
 ddeliema@umn.edu, goeke018@umn.edu, jbye@umn.edu, carpe787@umn.edu
 University of Minnesota, Twin Cities

Vijay Marupudi, Georgia Tech University, vijaymarupudi@gatech.edu
 Andrea Wilson Vasquez, ECEP Alliance Deputy Director, awilsonvasquez@gmail.com
 Benjamin R. Shapiro, Sierra Gilliam, Georgia State University, bshapiro@gsu.edu, sgilliam7@student.gsu.edu
 Brette Garner, Kyle Nolting, University of Denver, brette.garner@du.edu, kyle.nolting@du.edu

Ananda Marin, Brenda Lopez, Lindsay Lindberg, Shivani Davé,
 amarin1@g.ucla.edu, byl230@g.ucla.edu, lindsayelindberg@gmail.com, shivani729@g.ucla.edu
 University of California, Los Angeles

Xan Burley, University of Florida, a.burley@ufl.edu
 Alex Springer, University of Florida, aspringer@arts.ufl.edu
 Dionne Champion, TERC, dionne_champion@terc.edu
 Aditi Wagh, MIT, awagh@education.mit.edu

Pratim Sengupta, Pallavi Banerjee, Megha Sanyal, Santanu Dutta, Chetna Khandelwal
 pratim.sengupta@ucalgary.ca, Pallavi.banerjee@ucalgary.ca, megha.sanyal@ucalgary.ca,
 santanu.dutta@ucalgary.ca, chetna.khandelwal@ucalgary.ca
 University of Calgary

Daddy Poppins, Little Poof, Big Book, Bunny, Carrot, Flamingo, LBD Families
 Pricilla Dua, Keidy Alcatara, Sofia Arif, Durdana Arif, Tanzeela Sitwat, Fizah Arif,

Abstract: Qualitative research historically involved “member checking” to establish ecological validity. Video-based researchers have also begun to consider ethical validity in engaging participants in additional research processes to distribute research resources more equitably. Our teams include co-researchers who are traditionally positioned as participants or subjects. We introduce these teams and then engage in breakouts with youth and families, professional dancers and musicians, and teachers who have engaged in various stages of video-based research. We will then come together to discuss experience. We hope to foreground conversation at the intersection of ethical validity, ecological validity, and sensemaking dignity.

Session overview

Qualitative researchers have long involved participants in diverse ways to support participatory (Buckley & Waring, 2013; Charmaz, 2006; Mannay, 2015; Strauss & Corbin, 1990). Yet, in Learning Sciences (LS) video-based research traditions participants have often been left out of analysis (DeLiema et al., 2023). We focus on how involving participants in research processes contributes to ecological and ethical validity. We use *ecological validity* to refer to trustworthiness and generalizability. We use *ethical validity* to describe equitable distribution

of research materials, practice, and products among co-researchers (Keifert, this session). We take up ethical validity to move beyond member checking.

In the past decade, researchers have begun to also consider the ethical validity conferred by involving participants in video analysis. For instance, Vossoughi & Escudé (2016) and DeLucca (2023) question the relationships between camera, data, and participants, positioning data collection and analysis as a relationship rather than surveillance. Following these commitments, researchers have explored involving participants in video analysis in personally meaningful ways (e.g., supporting participants' reflection and learning about their own practices)—for instance, by using video-based “reflection interviews” with families to understand family practices and culture (Keifert, 2021), or by through choreographic video viewing practices with dancers to reflect on compositional elements of their work (Vogelstein, 2022). We propose such approaches are not only ethical, but also generative, opening researchers to new perspectives and practices developed with participants.

We take up the idea of educational dignity—“the multifaceted sense of a person’s value generated via substantive intra- and inter-personal learning experiences that recognize and cultivate one’s mind, humanity, and potential” (Espinoza et al., 2020, p. 326)—and consider *sensemaking dignity—the multifaceted sense of a person’s value generated via substantive intra- and inter-personal learning experiences that recognize and cultivate one’s perspective on professional and/or everyday experience*. We provide examples of sensemaking dignity in a wide array of co-researcher teams supporting ethical and generative co-analysis.

Symposium agenda

We explore possibilities of positioning participants including youth, teachers/teacher candidates, families, dancers, and musicians as co-researchers in video-based analysis. We consider generative possibilities for participants' learning in their own fields, as well as their novel and generative contributions as co-researchers. We bring together representatives from nine research teams that include traditional university-based (uni-based) learning scientists and co-researchers who have traditionally been positioned as subjects or participants. In the proceedings, teams collectively answer three questions: (1) What is the context/focus of your collaborative work? (2) How does your team work together to analyze data? (3) What do you learn from each other as you work together? Through responses to questions, we provide a glimpse into the multiple arrangements for collaborative research including the foci of research projects, the sharing of the responsibility and privileges of analysis, and the generative possibility for collaborative learning.

In the live hybrid symposium, we will begin with a short introduction including (a) establishing methods of interaction between in-person (IP) and virtual (V) presenters/attendees and (b) a problematizing of traditional video-analysis approaches in the Learning Sciences. We then present 1-minute videos from each team allowing multiple co-researchers to share perspectives on the first and second shared questions (context of collaboration, how your team works). We will then host breakout sessions in three groups (youth + families, teachers/teacher candidates, and professional musicians and dancers) to explore what we learn together as we honor the sensemaking dignity of all team members? During open discussion, we will facilitate engagement across V + IP attendees via methods established in Keifert et al. (2023).

Synthesis and significance

We see moves towards ethical validity as central in recent LS research. Our focus on co-research/co-analysis follows in that tradition. All papers share key methodological connections (summarized here).

1. Co-researchers iterated roles, disruptions of researcher/researched power dynamics towards partnership. Examples: Elliot et al.'s shift towards youth participatory action research, Marin et al.'s clip selection process, Keifert et al.'s “all hands on deck” in families, Sengupta et al.'s deep care work.
2. Weaving of perspectives (experiential, theoretical, playful, analytical) towards new understanding. Examples: Ryan & Zhou's play-as-boundary object, Pierson et al.'s use of notice/wonder language, Keifert et al.'s avoiding of “directing” young children, Horn et al.'s collaborative visualization.
3. Recognizing brilliance beyond the academy we learn from (and with) co-researchers. Examples: Pierson et al.'s naming of learning with and from one another, DeLiema et al.'s paying expert practitioners for their time, Horn et al.'s recognition of the improvisation in teaching practice, Vogelstein et al.'s use of choreographic citation practice, Sengupta et al.'s centering of youths' experience of forced migration.

These connections will inform our synchronous conversation. Our discussion, focusing on our final question and the concept of sensemaking dignity, will support reflections on professional practice and everyday experience as sensemaking dignity. We hope attendees will gain a sense of how through shared sensemaking dignity, co-research teams contribute generative, context-based interpretations of activity of value to LS community.

Critical complexities of youths' analytic contributions to IA in participatory research

Colin Hennessy Elliott, Keidy Alcantara, Pricilla Dua

This paper is a methodological story of a research project where youth, originally positioned as participants, fashioned new roles as researchers. The study was designed as a video ethnography of a high school robotics team. When I (Colin) presented an analysis grounded in IA (Jordan & Henderson, 1995) to members of the team, a powerful discussion ensued. Specifically, two young Latina/x youth articulated how, in the analysis of video of one of their peers who identified as Afro-latina, they saw resonance to their experiences and the limited number of young women and gender non-binary folks doing technical work on the team. We formed a youth participatory action research (YPAR) group where “differently positioned adults and youth are able to experience and analyze power inequities, together,” (Torre et al., 2008, p.24); we met weekly over the course of over a year with the goal to make sense of what made youth feel empowered/disempowered, to participate in STEM learning spaces. We used theories of liberatory education (Freire, 2000) with youths' storytelling of their schooling experiences, peer interviews, and video analysis of the robotics team practice to weave together counterstories of STEM learning.

Youths' contributions to collaborative IA sessions on video data were complex displays of microgenetic analysis in three ways: 1) analyses often spoke directly to how their own positioning was consequential to what we could analyze (whether in the video or not); 2) they innovatively traversed space and time to articulate how what was happening in the video under review had consequence including regularly comparing interactions to their schooling experience; and 3) they used an expansive take on what “interactional resources” are made available in the video (Jordan & Henderson, 1995).

Learning from youth researchers' positions as knowledgeable contributors to analyses of team practices, learning, and its connections to structural hierarchies of power greatly shaped the direction of the research project. Doing this work supported all of us in knowing more how to make learning more fully human in future STEM spaces. Finally, the brilliance of youths' analytic perspectives in video analysis contributes to the burgeoning subfield of “critical interaction and microgenetic analytic analysis” (Philip and Gupta, 2020), seeding what it takes to interrogate the operations of power and oppression at the level of interactions.

Pursuing playful forms of video analysis alongside youth stakeholders

Zach Ryan, Mengxi Zhou

We present pilot data of a play-based framework aimed at co-analyzing video data alongside youth in an effort to make the research process a playful endeavor. We worked alongside youth participants in an after-school nature club aimed at learning about the natural world through place-based learning activities. Together, we co-analyzed video data using Interaction Analysis (IA; Jordan & Henderson, 1995) where we intentionally invited playful interactions of youth as they reflected on videos of their own discourse during our design activities at the community center and nature walks through local wetlands.

We operated within a participatory design research (PDR) project, which focuses on collaborating directly with communities through research-practice partnerships (RPPs) and centering the contributions of stakeholders, primarily youth in our context, throughout the research process in pursuit of transformative goals (Gutierrez & Jurow, 2016). We framed play as a cultural boundary object (Penuel et al., 2015) when thinking about co-analysis with youth, as play centers youth as the primary designers and experts of their interactions. We sought to treat play as a serious research endeavor for both youth and researchers, framing youths' expertise in play as an important asset to better contribute their insights during moments of IA.

In our PDR context, we partnered with a local community center to collaborate alongside youth participants to design a set of playful learning activities and materials aimed at understanding our local place-based wetlands ecologies. Video data recorded for the project included designing play activities, such as playground games, about wetland inhabitants and how they interact in their environment at the community center, as well as fieldwork where we traversed local wetlands through nature walks. We then conducted collaborative IA sessions where youth provided commentary on their interactions through a set of semi-structured interview questions to prime their reflections.

Questions asked to youth included encouraging them to bring a playful lens to their reflections and reenact actions they performed in the video to clarify/expand on the meaning of their decisions. Through inviting play into the co-analysis of video data, youth were able to articulate complex reflections on how they viewed the natural world around them, and what they deemed meaningful and consequential in processes of learning about local wetland ecologies and interrogating our (humanity's) collective role in human-nature relations.

Moment to moment: Working toward reciprocity in video-based research

Ananda Marin, Brenda Lopez, Lindsay Lindberg, Shivani Davé

Our collaboration between university researchers (faculty and graduate students) and Chicago-based improvisational jazz artists draws on participatory design research (Bang & Vossoughi, 2016) and the principles of genealogy (i.e., kinship-based and activity-based family), relationships, reciprocity, and guardianship and care (Jahnke & Gillies, 2012) to answer the research questions: How can these artists conceptual, spatial, and relational practices help the fields of learning sciences and education (re)imagine the design and organization of learning environments around principles of relationality? Co-design meetings have functioned as a space to nurture relationships while designing research activities that are consequential for collaborators within their disciplines. These research activities included two conversational concerts, conversational dinners with artists and audience members, venue mapping, and studio visits.

Our experiences with recording the concerts led us to reflect on the temporal nature of video analysis. We argue that video analysis begins in the field when decisions are made about how and what to record. For example, we realized the need to pay careful attention to how we moved alongside and with collaborators' bodies as they set up the performance space and as we set up recording equipment. We were highly aware of our desire to capture quality video and respect artists' space. Following the first conversational concert, we invited collaborating artists to participate in video data analysis sessions. However, they expressed concerns about participating in an interaction lab where we collectively watched video and paused for analytic discussions at moments of interest, noting that watching video of themselves would feel too close and instead asked that we select moments for discussion. Therefore, we are developing respectful and caring methods to support our selection of video clips for joint analysis. These analytical practices are grounded in the artists' practices and the performance. For example, we have drawn on photographs taken during the performance to select "meaningful clips." Working with the perspectives captured by multiple cameras, we created frame within a frame photographs, which depict layered imagery from multiple angles that document specific synchronized moments of the performances. These photographs have also guided our video annotation practices. Finally, guided by the artists' suggestion, we are drawing on transcripts of a post-concert conversation to create video clips of moments that were of interest to audience members. We reflect on the ways that following the lead of collaborators can support reciprocal modes of video analysis that are consequential for all parties involved.

Teacher candidates' co-analysis during video club

Ashlyn Pierson, D Teo Keifert, Helena Spigner, Shannon Felder, Andrea Henrie, Heather Johnson, Andria Gentry, Bethany Daniel, Sophia Jeong, Sarah Lee

We engage in co-analysis through Video Club (VC; Forsythe & Johnson, 2017) with undergraduate science methods Teacher Candidates (TC) and facilitators. VC allows for ideological sensemaking (Philip et al., 2018; Daniel et al., 2023) during which TCs' frames for noticing shift towards anti-deficit narratives (Louie et al., 2021). Researchers reflect with TCs Boophis and Helena about VC with another TC (Jamie) and a facilitator (Ashlyn).

Virtual VC included: a TC sharing video of their teaching, two peers, and an experienced teacher educator. TCs had the opportunity to reflect and receive feedback on their teaching. In addition to offering helpful feedback for the TC sharing video, VC also offered a way for everyone to practice attentiveness to students (anti-deficit noticing). Critical in our shared analysis is a reflective, rather than evaluative, stance. All participants used 'I notice' and 'I wonder' prompts to keep the conversation inquisitive and to engage the TC sharing video without making judgments. VC thus allowed TCs to make precise and relevant observations that are more likely to lead to measurable improvement (collaborative rearticulation of ideologies towards anti-deficit narratives). Learning *with* and *from* one another is central. We all pick up on different things, so it helps to have other perspectives in the same analysis. Putting all these ideas together gets the group much closer to understanding than reflecting individually would. For example, Jamie identified the different ways Boophis was affirming alternative sense-making, connecting ideas from class about anti-deficit teaching with TCs' interpretations of the video.

In summary, VC provides opportunities for collaborative sensemaking (not evaluation) towards rearticulating ideologies (Daniel et al., 2023) and shifts towards anti-deficit noticing (Louie et al., 2021). Without TCs' reflections during the original VC analysis session and retrospective co-analysis, we as researchers would have missed multiple connections to prior experiences relevant to TCs.

Co-analysis via co-observation in family-uni partnerships

Andria Gentry, D Teo Keifert, Daddy Poppins, Little Poof, Big Book, Bunny, Carrot, Flamingo

We describe a partnership with COVID-cautious families over 16+ months to develop co-observation: a method shifting to video-as-relationship (Vossoughi & Escudé, 2014) supporting ethically valid research—attending to the distribution of research materials, resources, and activities—to produce ecologically valid representations of learning embedded in participants’ understanding/practice. Below, we reflect with 3-5yr old Littles (Little Poof, LP; Bunny, B; Carrot, C) and their caregiver Bigs (Daddy Poppins, DP; Big Book, BB; Flamingo, F).

What is the context of your collaborative work? / What do we do together? Littles named our collaborative work as ‘show us’ (uni-based team members) what they (Littles) are doing. BB and F emphasized the importance of “showing” as validating children’s perspectives, questions, and ideas without “directing.” We do not “steamroll over them but pause and welcome their thoughts and ideas” (BB). F also named “how learning is intertwined with everything you do as a family.” *How does your team work together to analyze data? / How does your team work together to reflect on family learning and activities?* We attempted many forms of co-analysis: storying, gifts using emergent storying methods (e.g., stop motion, squishy circuits, cardboard, video narratives), and artifact-elicitation. DP named this as a “we-centric approach” in which “stories, daily life tidbits” were “shareable data.” F added we are not “experts studying families” but instead “all hands on deck” as a collaborative effort. BB and Teo emphasized our “luxurious” timeline and the centrality of trust. *What do we learn from each other as we work together?* We are learning together. We are seeding and cultivating relational trust. F stated, “everybody’s a part of it, and we work together, and you learn something. And I learn something, and we can come together to produce something that’s useful for everybody.” BB shared, “you’re not alone in having those questions.” Relationality is critical; as DP said, “If the study didn’t bring us closer, that’s where it would have stopped.” Closeness, trust, bonding, and a “pliability” or flexibility in design led to claims like “We grew together” (DP); “I think that learning is so connected to that vulnerability, that safety, the community” (BB). BB sums up: “we have the luxury of being able to slow down...learn from each other.”

The luxury of longitudinal co-observation seeded relational trust and a collaborative method centering ecological/ethical validity, friendship, children’s brilliance, and the value of families as contexts for learning.

Expansive and flexible video reflection: Straddling IA, video-cued ethnography, and pedagogical imaginings in an RPP focused on debugging

David DeLiema, Megan Goeke, Jeffrey K. Bye, Zack Carpenter, Andrea Wilson Vasquez

In this methodological reflection, we explore how interaction analyses (IA) of video recordings from a summer computer science (CS) workshop were later examined, extended, and transformed by CS teachers reflecting on their classroom pedagogy. Specifically, we built on a growing literature examining debugging discourse in CS education (e.g., Brady et al., 2020) and formed a research-practice partnership (RPP) among elementary and middle-school CS teachers, a CS professional development leader (Author 5), and learning scientists (Authors 1-4). Our RPP centered the learning scientists’ initial IA findings about the open-endedness of debugging as a catalyst to envision new debugging pedagogy. A core purpose of our RPP was to leverage IA’s capacity to spark reflection and embrace the deep expertise of teachers to envision pedagogy.

In the spirit of participatory design-based research (Bang & Vossoughi, 2016), our RPP refrained from pre-defining problems of practice and techniques for teachers; additionally, teachers were paid for their participation to honor their time and expertise. Like others in this session, we moved beyond assuming video analysis was the sole purview of researchers. Our collective work started with discussions of CS education values and ethics; then over three 2-hour sessions, the group watched and discussed video recordings of teachers and students debugging together and critiqued the prior interaction analyses of these recordings. These sessions were partially grounded in IA practices (e.g., avoiding assumptions about what participants in the video were thinking or feeling) but also created substantial openings for participants to talk about what the video meant to them and what pedagogical ruminations and openings it created. These video sessions then served as a foundation for teachers to develop conjecture maps about novel debugging pedagogies and pilot these approaches in their classrooms.

By embracing video review sessions that made space both for IA-inspired claims *and* reflections on personal experience and pedagogical imaginings (more common to the video-cued ethnography tradition; Adair & Kurban, 2019), we gleaned distinct lenses—community of support, multiplicity, future orientation, non-linearity—that pedagogically grounded an emphasis on the open-endedness of debugging. In turn, the learning scientists on our team came to see IA protocols as important but not exclusive ways to make meaning during video data sessions with teachers. We view collaborative video reviewing as an ethical opportunity to level researcher-teacher power dynamics, a practical move to shape classroom teaching, and an epistemological opening to clarify the scope and substance of IA claims.

Surfacing dilemmas of responsive instructional practice by integrating video formative feedback and interaction geography

Ilana Horn, Benjamin R. Shapiro, Brette Garner, Kyle Nolting, Sierra Gilliam

Since 2016, we have partnered with a professional development organization (PDO) in a large U.S. city that supports secondary mathematics teachers' professional growth. Mid-career teachers apply to join the PDO in school-based teams; they are selected based on commitments to ambitious instruction. With participating teachers, we have co-developed a video formative feedback (VFF) process (see Horn & Garner, 2022) that incorporates a new method called interaction geography (Shapiro et al., 2017; Shapiro & Silvis, 2023) to transcribe and dynamically visualize teachers' movement and use of space for collective reflection, with a focus on an uncertain, improvisational aspect of ambitious instruction: monitoring students' groupwork.

Educators widely agree that good instruction builds on students' thinking. To do this well, teachers need to respond in the moment to students' contributions. As Lampert (2001) described, this involves navigating tensions about responding to ideas that might derail a lesson; managing concerns about inclusion; and thinking about past and future learning goals. Math educators have urged teachers to develop responsive practices not only to center students' ideas in lessons, but also to create inclusive environments. In this way, developing responsive practice is crucial for both student sensemaking and authentic inclusion.

Most practice-based teacher education pedagogies focus on supporting teachers' learning of pre-active practices or well-defined interactional routines. While these are important, the improvisational aspects of teaching require different teacher education pedagogies (Philip, 2019) because responsive practice requires a different kind of teacher knowledge. We seek to specify the nature of teacher knowledge of responsive practice and how it develops particularly with respect to teachers' movement and use of space.

In addition to this context, we collaborate with teachers to collect, transcribe, and dynamically visualize classroom data such as audio and video in new ways — particularly, our VFF process entails a collaborative process to share and reflect on video data with teachers while interaction geography includes dynamic visualization tools that empower teachers to critically reflect and share their perspectives on their complex monitoring practices. Together, these efforts support learning from one another in ways that underscore how responsive practice relies extensively on teachers' ongoing interpretation of the situational particulars of their classrooms, requiring teacher knowledge that incorporates dilemmas. By documenting the situated complexity of teachers' responsive practices, our findings undercut rhetoric of "best practices." Methodologically, they highlight new approaches to supporting participatory video analysis with teachers to uncover layers of meaning in classroom interactions.

Leveraging co-analysis to disrupt normative citation practices

Lauren Vogelstein, Xan Burley, Alex Springer, Dionne Champion, Aditi Wagh, Rebecca Steinberg, Doug Varone

We describe an interdisciplinary collaboration between choreographers and learning scientists as designers, facilitators, and analysts on the Choreographing Science Project. This project brings together middle schoolers, scientists, and choreographers for summer camps to disrupt settled ways of doing and understanding science (Vogelstein et al., under review). While we have found ways to foreground choreographic ways of knowing in the design and facilitation phases of our collaboration, entrenched analytic and citation practices have challenged the interdisciplinarity of our analyses. We share how we utilized a choreographic device called *Liquid Architecture* in the design and facilitation of a dance-science activity and what it meant to analyze this design for a journal manuscript. We found that while our choreographic partners Xan & Alex were able to describe this device as designers and leverage it as facilitators, our analysis of the design and implementation of this activity was stunted by a discrepancy between citation practices across the arts and sciences.

When Xan & Alex suggested utilizing *Liquid Architecture* as a choreographic device for dance-science inquiry they described both how their mentor, Doug Varone, had developed this device and why they thought it would be generative for dance-science sensemaking. As a design team we were able to make connections between choreographic forms of embodied representational sensemaking in liquid architecture and related practices amongst scientists (Vogelstein et al., under review). However, we did not know how to translate these insights into citable/comprehensible analysis on the page of a journal manuscript. In particular, we felt a discrepancy in what we could cite with respect to choreographic devices like *Liquid Architecture* that lived in oral and embodied traditions and scientific practices as documented in ethnographic studies (see Ochs et al., 1996). For us, this tension highlighted consequential differences in citation practices across the arts and sciences, with important ramifications for what it meant for us to analyze and communicate our work. As a creative work-around, we invited Doug into our analysis sessions so that the lived history of his work can (1) be recorded as part of our

analysis and (2) be explicitly leveraged in our analysis. While Doug was not one of the youth or scientist participants in the video records we are analyzing, his absence foregrounded discrepancies in disciplinary citation practices. For us, this emphasizes important considerations for interdisciplinary analytic work in order to give respect to the rigor of inquiry practices typically not respected in academic spaces.

Centering deep care in co-research

Pratim Sengupta, Pallavi Banerjee, Megha Sanyal, Santanu Dutta, Chetna Khandelwal, Sofia Arif, Durdana Arif, Tanzeela Sitwat, Fizah Arif

We report axiological reflections on design-based co-research by drawing on a two-year long research project in which newcomer (refugee and immigrant) youth of color to Canada participated in weekly co-design workshops and engaged in creative storytelling about their experiences of migration and implications for Canada's immigration and resettlement processes. Our work is rooted in calls for a fundamental axiological re-orientation of historically marginalized learners' participation in disciplinary practices by centering their educational dignities (Espinoza et al., 2020), which in turn requires centering ethical micro-interactions (Espinoza et al., 2020), making visible contrapuntal histories (Philip & Sengupta, 2021), and naming and resisting symbolic violence (Sengupta et al., 2022). We expand this conversation by identifying forms of *deep care* (Banerjee et al., 2022) – i.e., work in which the ethic and practice of care are interwoven – that emerged as central in our co-research.

In our weekly workshops, the youth and researchers co-created counter-narratives and counter-models (Sengupta et al., 2022) of forced migration and resettlement (animations, simulations, documentaries, etc.) that render visible feelings of hope, loss and pain that underpin these experiences. As part of this work, the youth interviewed their family and community members to understand how geo-political violence due to imperialism and colonization led to forced migration (e.g., partition of India, Pakistan and Bangladesh in 1947). Our analysis focuses on audio and video recordings of these interviews, and reflective conversations of the youth and the researchers on what they learnt through these interviews.

During these conversations, we listen(ed) together to the segments of the interviews noted to be salient by the youth, and the researchers also listen(ed) *contrapuntally* (Gilligan, 2015) to the youths' perceptions of their experiences of interviewing, and their interpretations of the interviews. Listening contrapuntally revealed essential tensions within the speakers' voices, such as the distinction between solidarities between themselves and the interviewees that in turn were rooted in feelings of pain, loss and separation, and a more individualistic and moral language of justice and rights (see also: Gilligan, 2015, p. 72), as mandated by governments and resettlement agencies. The counter-stories that co-created using these interviews also took on forms of deep care (Banerjee et al., 2022) through centering the underlying affect, and also making visible the enduring, intergenerational violence of imperialism and empire.

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