

Pringles, Prangles, or Prongles? Negotiating Creative Authorship in Children's Remix Practices

Michele Newman
Information School
University of Washington
Seattle, Washington, USA
mmn13@uw.edu

Emily Tuy
Information School
University of Washington
Seattle, Washington, USA
tuye@uw.edu

Daeun Yoo
Information School
University of Washington
Seattle, Washington, USA
daeunwoo@uw.edu

Hannah Yi
Information School
University of Washington
Seattle, Washington, USA
hannahyi@uw.edu

Runhua Zhao
The Information School
University of Washington
Seattle, Washington, USA
runhz@uw.edu

Darae Kim
Department of Psychology
University of Washington
Seattle, Washington, USA
kimdarae@uw.edu

Jin Ha Lee
The Information School
University of Washington
Seattle, Washington, USA
jinhalee@uw.edu

Jason Yip
Information School
University of Washington
Seattle, Washington, USA
jcyip@uw.edu



Figure 1: Character illustration made by Jerold in DS4 with guidelines for potential reuse.

Abstract

Remix has emerged as a significant form of creativity, enabled by digital tools that allow the reinterpretation of existing cultural artifacts. However, the implications of remix on concepts of authorship remain largely unexamined. Therefore, this study examines children's remix experiences to understand how they develop their understanding of authorship and creativity. We conducted six participatory design sessions with 16 children aged 5–11 using the Cooperative Inquiry method to explore how their remix practices shape our understanding of creativity and authorship. Our findings reveal that children perceive remixing as a negotiated, interpretive process that influences their views on ownership within collaborative, digital spaces. Consequently, we introduce the Creative Agency Framework to help designers recognize ingrained beliefs about creative ownership and reuse in software. We conclude by discussing the significance of these beliefs for developing creativity support systems that empower children and users to identify as both creators and cultural producers.

CCS Concepts

• **Human-centered computing** → **Human computer interaction (HCI)**; *Collaborative and social computing*.

Keywords

Remix, Creativity Support Tools, Children, Creativity, Creative Ownership, Ethical Design

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1 Introduction

Remixing has long been a key part of the creative landscape, but with the advent of personal computing, it has evolved into a fundamental practice in digital creativity. This practice of repurposing existing cultural artifacts, such as videos, images, or sound files, enables users of digital systems to produce new works with new meanings [56, 63]. As highlighted by various scholars [44, 56, 58, 63], this practice fosters a culture where reuse and transformation are at the heart of creative production.

Following the rise of remix as a creative practice, our understanding of authorship has significantly shifted from a focus on individual creators to collective contributions. Diakopoulos et al. [20] emphasize that authorship in the context of remix is not merely about making choices; rather, it is a complex construct encompassing concepts such as originality, authority, intertextuality, and attribution. In the field of Human-Computer Interaction (HCI), this shift

is particularly relevant given the argument that remix practice is driven by the unique affordances of digital tools [44, 56, 58, 63]. By understanding the dynamics between tools, users, and cultural shifts in authorship, we can better appreciate the evolving nature of creativity in the digital age and design better tools to support it.

However, HCI has not sufficiently explored how these shifts are related to creativity support. Several studies have highlighted implications of remix, including copyright [28], networks of reuse [12], education [23], and changes in work processes [26]. While these studies emphasize the cultural importance of remix, they often treat authorship changes as a byproduct of remix practices rather than examining how the design of remix technologies, particularly creativity support tools (CSTs), actively shapes these changes. This creates a gap in understanding the reciprocal relationship between remix practices and the technological systems that support them. Current HCI approaches to CSTs lack a framework for analyzing how design choices reinforce cultural views of authorship and how these views, in turn, shape the practice, understanding, and valuation of remix.

Children provide a unique perspective on the intersection of remix, authorship, and creativity support. Unlike adults, who often have more formalized views of authorship, children navigate remix as a means of identity formation, ethical reasoning, and playful exploration [1]. This makes them an ideal demographic for examining how CSTs influence and reflect evolving notions of creative agency. Moreover, HCI has a rich history of researching remix practices among children through the lens of constructionist learning tools [34, 38, 60, 71, 81]. Rather than viewing children merely as learners in remix contexts, this paper positions them as foundational cultural creators. Their practices illuminate how authorship, agency, and ethical reasoning are shaped within sociotechnical systems, offering valuable insights into the broader implications of remix culture.

Furthermore, remix is an iterative process of generating and transforming cultural artifacts [56, 63]. As a result, design-centered methodologies offer a compelling way to surface remix experiences and reflections while also producing artifacts that embody creative choices. Participatory design [62] mirrors the ethos of remix through its philosophical commitment to collaboration, iteration, and shared authorship [56]. In our case, cooperative inquiry (CI) [24, 36, 85], a form of co-design that centers children as equal partners, foregrounds intergenerational dialogue, mutual learning, and the co-construction of meaning. Therefore, its emphasis on shared exploration and iterative design makes it especially well-suited for studying remix with children, not merely as a creative output, but as a relational process of authorship.

With this in mind, we conducted six participatory design sessions with 16 children aged 5–11 between February and April 2025. Our goal was to gain a deeper understanding of how children perceive and experience remix, how it influences their creative practices, and how the medium itself shapes their ideas of what creative authorship can be. Using CI as our method [24], we explored how their beliefs and experiences with remix might inform the future design of CSTs. Our study addresses the following research questions:



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RQ1: How do children perceive and experience remixing as a mode of creative expression and cultural production?

RQ2: How can insights from children's experiences with remix inform the design of creative software to support personal and ethical experiences with remix as a cultural practice?

This research explores children's involvement in collaborative, creative cultural production through remixing digital and physical materials and offers three main contributions: (1) empirical examples of children's remix practices as emergent authorship; (2) a theoretical framework for understanding creative agency at the intersection of remix and software; and (3) design implications regarding the cultural ideals embedded in software and their impact on authorship and agency. We advocate for CSTs that support social, ethical, and cultural practices that enable users to engage as active participants in cultural production. Although we focus on children, we aim for insights that extend to remix across ages in support of culturally responsive design.

2 Related Work

2.1 Remix as Culture

As noted, remix is a creative practice that repurposes existing cultural artifacts to produce new works [56, 63]. In this process, remixers often generate new narratives that expand or transform the original texts [15, 44]. This highlights the idea that authorship is not a fixed concept but a process influenced by cultural norms, interactions, and available tools. Therefore, remixing serves both as a creative act and a means of generating and documenting cultural knowledge [9].

The proliferation of remix culture has been fueled by increased access to cultural representations such as sound, photography, and film. This enabled a shift from passive consumption to active cultural production [9, 56, 63]. Digital technologies have further amplified this transition by allowing for easy replication, manipulation, and distribution of content [44, 63]. In turn, this has led to a significant redistribution of media power, framing cultural production as a participatory endeavor where reuse and transformation become central to how meaning is constructed in digital contexts [44].

However, a critical tension in remix culture lies in the question of ownership within these relational practices. Traditional views tend to regard authorship as a property-based concept [33, 38, 43, 56]. This is why many approaches to remix seek to understand it through a lens of copyright and intellectual property. While these legal frameworks are important, they often overlook how users engage with authorship in their everyday creative activities, particularly as they foster emergent forms of knowledge and culture-making.

HCI, with its emphasis on the intersection of creativity and technology, offers a broader perspective on authorship. It recognizes that authorship is not solely a legal matter, but also a socially and technologically mediated experience [32, 42, 78]. Thus, the evolving understandings of authorship raise essential questions for HCI about how creativity is supported in this landscape.

2.2 Creative Software

As authorship is increasingly recognized as a cultural and social experience, it becomes essential to examine the systems that scaffold and shape those experiences. CSTs serve as a pivotal area for exploring how the design logics of these systems influence users' perceptions of their own creative authorship and collaboration. CSTs are digital tools designed to assist users of varying expertise levels throughout the creative process [32]. These tools aim to facilitate certain creative actions, guiding users from their initial ideas to a completed creative product. However, they are often built on traditional assumptions about creativity, viewing users as individuals whose creative skills are linked to specific abilities, such as divergent or convergent thinking [76].

A noteworthy framework for assessing user experiences in creative contexts is the Creativity Support Index (CSI) [14], which emphasizes dimensions such as exploration and immersion. However, the CSI primarily focuses on the individual experience of authorship, rather than exploring the relational dimensions of creativity. Although the index includes a collaborative dimension, it primarily addresses the sharing of ideas and support for multiple users. While these aspects are important, they represent a fundamentally different approach to authorship compared to the relational perspective found in remix culture.

Several studies in HCI have also investigated remix practices on creative platforms in youth and educational contexts. Research has shown the effectiveness of platforms like *Scratch* as tools for remixing [19, 71], which demonstrates that software designed for collaborative knowledge construction enables vibrant remix practices and fosters creative communities. Platforms like *Scratch* also support peer learning and agency, which has motivated new design approaches to tools that enhance children's broader creative experiences. For instance, *KidCAD* [30] combines physical interactions with digital modeling to encourage children to use existing objects as foundations for new designs.

Despite the many advantages of building constructionist learning environments, many widely used CSTs do not prioritize remix culture or authorship in their design [21, 32, 39, 74]. *Adobe Photoshop*¹, for example, does not natively facilitate relational authorship, unlike a tool such as *Scratch*² that provides ways to track original contributors and creators of different projects. Therefore, this study aims to clarify the connection between approaches to creativity support in constructionist learning and other design strategies for CSTs. Specifically, we are interested in exploring tools and remix practices that shape remix experiences unintentionally rather than through intentional design.

2.3 Authorship as Culture and Knowledge Making

Our discussion so far highlights how digital media has fundamentally transformed the concept of authorship, shifting the perception from a solitary creator to a more communal, mediated approach. This reconfiguration spans various disciplines where arguments challenge traditional notions of authorship [3, 8, 31, 39]. In HCI, collaborative authorship has often been examined through the lens

¹<https://www.adobe.com/products/photoshop>

²<https://scratch.mit.edu/>

of interaction design, particularly in the context of co-creation and, increasingly, artificial intelligence [37, 73]. However, while gaining traction [50, 69], the idea of collaborative authorship as an epistemic work remains less explored.

At the heart of this transformation is the practice of remixing, which emphasizes authorship as an experience rooted in interpretation and the construction of communal knowledge. For instance, Navas [63] discusses how remix serves as a cultural logic, while Knobel and Lankshear [53] frame it as a form of literacy that centers on issues of epistemic agency. This is mirrored in HCI, particularly in the context of youth remixing. Tools designed for remix not only foster peer learning and collaboration [13, 25] but also help to develop computational thinking skills [19, 46]. Moreover, they help children cultivate their values, enhance their media and information literacy [47, 59, 75], and shape their identities as creators [1, 13, 55]. This in turn lays a foundation for them as civic and cultural participators [45].

While remixing is widely acknowledged as a cultural practice, research on CSTs has predominantly concentrated on their role in fostering creativity. Current HCI models often fall short in adequately examining how design choices mirror cultural concepts of authorship. Although some educational approaches touch on the notion of relational authorship, there remains a gap in comprehending the interplay between software design, user interpretations, and cultural ideas in defining authorship in the digital age. This study aims to bridge that gap by investigating how remix practices utilizing both digital and physical tools can shape and illuminate our understanding of authorship.

3 Methods

3.1 Cooperative Inquiry

We adopt Cooperative Inquiry (CI) [24], a participatory design (PD) method developed specifically to foster design partnerships between children and adults, as our primary lens. CI treats children as equal partners [36, 85] within the design process. Likewise, prior work in HCI has demonstrated that CI is effective in helping children articulate complex ideas [85] and foster creativity [64].

We also believe CI is particularly useful in the study of remix because its methodological structure mirrors the ethos of remix as an iterative and co-creative act. For example, CI activities already incorporate remixing techniques [35, 82], enabling us to observe how children negotiate creative ownership and agency within a context similar to remix culture [22]. Following, we also believe PD approaches such as CI offer a particularly valuable lens as they emulate authorship practices found more broadly in remix as a creative and cultural act [63].

3.2 Participants

Our co-design group consists of adult design researchers, including master's and undergraduate students, and child participants ($n = 16$), as detailed in Table 1. For the purposes of this paper, all children's names have been replaced with pseudonyms. We recruited child participants through mailing lists, posters, and snowball sampling methods. Each child had obtained parental consent and provided their own assent. Our research was approved by our university's Institutional Review Board for Ethics. Over the course of three

months (February to April 2025), participants took part in six design sessions. For these sessions, we allowed children to sign up and attend based on their own availability. Therefore, not all children attended every session. Future work might consider addressing this limitation.

3.3 Design Sessions

This section summarizes the activities from our design sessions (DS), each lasting 90 minutes and divided into four parts: snack time (15 min), circle time (15 min), group design time (45 min), and group discussion (15 min). When designing for the sessions, we additionally considered children's unique developmental needs and creative experiences in remix in relation to time and scaffolding [7, 54, 66]. We conducted two initial sessions (DS1 and DS2) to explore children's perceptions of remixing and digital technologies, followed by sessions (DS3 and DS4) focused on authorship in remixing. The final sessions (DS5 and DS6) addressed the design of CSTs for remixing and related ethics. For an overview, see Table 2.

3.3.1 Design Session 1 (DS1): Physical Remix, February 11, 2025.

In our first design session, we examined how children understand remixing with physical media. We introduced a co-design activity called *layered elaboration* [82] to capture their experiences. This method, designed for iterative idea generation, typically uses transparencies to preserve original ideas. Instead of transparencies, we used a large piece of paper to replicate the transformation seen in collaging. Each group created a poster to encourage friends to join a game night using a specific colored marker. After designing their initial poster in 15 minutes, they rotated between groups for three rounds of 10 minutes each to remix the posters. Throughout the process, groups also filled out a remix tracker to document their changes and the reasons behind them.

3.3.2 Design Session 2 (DS2): Digital Remix, February 25, 2025.

In our second design session, we focused on how children understand remixing in digital media. Building on our previous activity of designing a game night poster, we used the co-design technique of layered elaboration with a digital twist. Recognizing that one of the distinct advantages of digital media is the ease with which digital objects can be copied without being destroyed, we had each group replicate the original artifact before making their modifications. We provided the groups with a set of public-domain images to start. To facilitate the process, we set up a virtual big paper using a *FigJam* board, where children could engage with various elements.

3.3.3 Design Session 3 (DS3): Authorship, March 4, 2025.

Based on our first two design sessions, our third session further explored children's experiences with authorship in remixing using digital tools. We chose three applications for children to create with on a spectrum of system control. For low user control, we had children create images with *Whisk*, a Google app that uses artificial intelligence (AI) to combine images and text to create new ones. For user control, we had children play with *TextAlive Flow* [51], an app that lets users create lyric videos. Lastly, for the high user system control, we selected *Canva*, a browser-based visual suite that allows users to either use templates or create from scratch using licensed assets. To explore authorship, we used two co-design activities: line-judging and sticky notes [36]. Children marked their position

Pseudonym	Age	Gender	Ethnicity	Sessions
Camille	6	f	Asian / Black	DS5, DS6
Candice	6	f	Asian / White / Middle Eastern	DS6
Duncan	11	m	Latino	DS1, DS2, DS3, DS4, DS5
Eli	7	m	Asian / White / Middle Eastern	DS6
Ella	11	f	Asian / White	DS1, DS2, DS3, DS4, DS5, DS6
Ireen	10	f	Black / White	DS1, DS2, DS3, DS4, DS5, DS6
Jerold	10	m	Black / Asian	DS1, DS2, DS3, DS4, DS5, DS6
Joyce	9	f	Asian / White	DS1, DS2, DS3, DS4
Lena	9	f	Asian / White	DS1, DS2, DS3, DS4
Liên	8	m	Asian	DS1, DS2, DS3, DS4
Nathan	10	m	White	DS2, DS3
Robyn	7	f	Latino	DS1, DS2, DS3, DS4, DS5
Theo	8	m	White	DS5, DS6
Varsha	8	f	Asian	DS1, DS2, DS3, DS4
Vincent	5	m	Asian / White	DS2, DS3, DS4, DS5
Zuhura	6	f	Black / Asian	DS1, DS2, DS3, DS4, DS5, DS6

Table 1: Demographics of Child Participants

on two lines labeled “I Made This” vs. “The Computer Made This” and “I Made This” vs. “Someone Else Made This,” and then provided explanations on sticky notes.

3.3.4 Design Session 4 (DS4): Attribution, March 6, 2025. In session four, we explored how children understood aspects of attribution. In the session, we first asked each group of children to create a character together. We asked them to include the character’s appearance, a special skill, and their name. We also asked each group to take a license quiz to help them determine how they wished others to use their work. There were four options for licenses based upon adapted versions of the *Creative Commons*³ licenses.

3.3.5 Design Session 5 (DS5): Designing Remix CSTs, March 13, 2025. In this session, we utilized the co-design activity Bags of Stuff [84] to engage children in low-fidelity prototyping of their own Remix CSTs. We asked the children to design a tool that would let them use materials from others to make something new. We started prototyping using big paper and design cards. We provided four design card categories: mediums, affordances, sharing, and attribution. We also provided blank design cards so the groups could add their own ideas. After twenty minutes, we asked each group to use their brainstorming to prototype using the bags-of-stuff [84].

3.3.6 Design Session 6 (DS6): The Ethics and Use of Remix, April 1, 2025. In our final session, we explored children’s experiences and their beliefs around the ethics and potential challenges that may arise when using remix tools. In this session, we first used physical line judging (moving around the room on a line) to ask the children whether it was permissible to remix in three different contexts: making AI Art, creating an album of music covers, and making memes. We selected these three contexts because they are ubiquitous in current remix communities and offer a broader range of possibilities. After line judging, we broke into our design groups and completed the co-design activity of comic boarding [36], in which we asked children to create a character who invented a

remixing tool and to show how the creator might address ethical dilemmas in remix.

3.4 Data Collection

Data collection occurred during and after each design session, yielding three data sources: video/audio recordings, design artifacts, and session notes compiled into memos by the first author. All sessions were recorded using a Meeting Owl and an external microphone during circle time, and each design group used the iMacs’ internal microphones during design time. Artifacts included photographs of analog materials and screen recordings or screenshots for digital designs, documented in a *Google Slides* document. The first author noted common trends during the sessions to guide the final group discussion and shared these observations with design groups. After each session, they wrote reflexive memos detailing specific moments and analyzed recurring themes.

3.5 Data Analysis

To code our data, we used an inductive approach to qualitative coding [11, 16, 79]. This approach aligns with our view of authorship as a negotiated experience and enables us to capture how children express their thoughts on work, attribution, and ownership without imposing adult-centric remix theories. We conducted our analysis in three phases, with advanced memoing [16] by the first author focused on moving from our observations and open codes to theorize relationships and patterns across data sources [16]. We summarize this process in Figure 2.

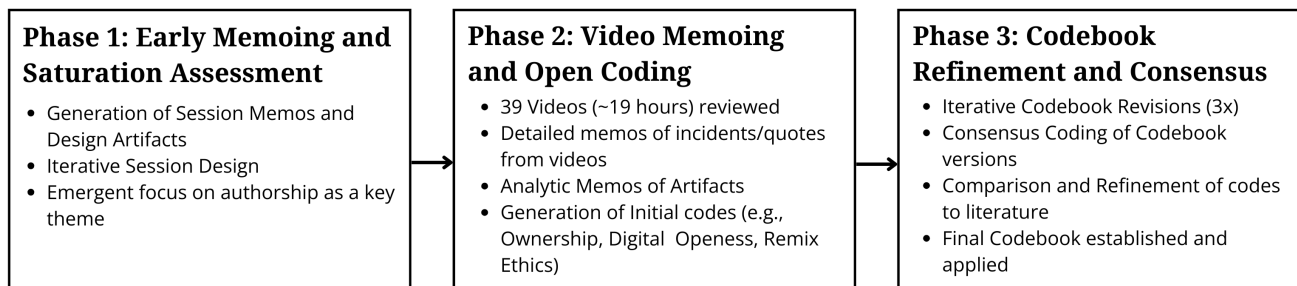
3.5.1 Phase 1: Design Sessions and Early Memoing. Initially, we explored the literature on remix culture to design our first two sessions. After each session, the first author documented observations, reviewed design artifacts, and summarized themes during debriefs with adult co-designers. These culminated in session memos.

During this phase, we utilized constant comparison [6] to analyze these memos and artifacts for emerging themes [11]. We noted a strong connection between children’s remix experiences and authorship, particularly regarding ownership of their works. In

³<https://creativecommons.org/share-your-work/cclicenses/>

Design Session	Research Question	Design Goal	Co-Design Activity
DS1: Physical Remix	How do children understand physical remix?	Understand children’s feelings and engagement when a remix alters or erases the original creation.	Layered Elaboration [82] with Big Paper
DS2: Digital Remix	How do children understand digital remix?	Understand children’s feelings and engagement when a remix preserves the original creation.	Layered Elaboration on Figma
DS3: Authorship	How do children perceive their role as authors when remixing with digital tools of varying control?	Understand how children apply authorship to their remixed works.	Line Judging and Stickies [36]
DS4: Attribution	How do children understand attribution of digital content in remix?	Identify approaches to applying attribution to created works by children.	Big Paper [36]
DS5: Designing Remix Tools	What features would be useful in CSTs to support children’s remixing experiences?	Identify potential affordances for CSTs for children related to remix.	Bags of Stuff [84]
DS6: The Ethics of Remix	How do children conceptualize the ethics of remix in different contexts?	Identify potential ethical pitfalls for the use of CSTs for remix by children.	Line Judging and Comic-Boarding [61]

Table 2: Design Session Goals and Activities



*Advanced Memoing by First Author Throughout

Figure 2: Summary of the three phases of data analysis

comparing the physical (DS1) and digital (DS2) contexts, we found similar reuse statements but varied practices across the two media. This led us to focus on authorship and mediation in subsequent sessions.

3.5.2 Phase 2: Video Memoing and Open Coding. As we progressed, observational memos from these sessions revealed recurring patterns concerning concepts such as permission, legal issues, and understanding of remix. Therefore, we moved from continuing to collect co-design sessions to more detailed analyses of video recordings, with five team members reviewing the sessions in five-minute increments to create memos. The video memos were created by analyzing 39 videos totaling 19 hours across the six design sessions. Furthermore, the memos noted incidents such as (e.g., “Lena adds a tiny textbox”) and quotes (e.g., “It’s not ok when you don’t have the other person’s permission” (DS2, Ireen)).

The codes in this phase were developed through open coding [79], focusing on labeling specific quotations and interactions as described in the memos and represented in the design artifacts, leading to initial thematic codes such as “Ownership” and “Digital Openness.” For example, the quote “I think it’s fine if they give

you consent [to remix].” (Duncan, DS1) was given the code “Remix Ethics” with a memo further describing reasoning from the memoer as “Duncan is aware that there are some more accepted reasons to remix than others.”

3.5.3 Phase 3: Focused Coding and Final Codebook. In the final phases, we used focused coding [11, 79] to refine our themes and codes. We iteratively discussed and compared the codes we had generated across the three data sources (session memos, video memos, and design artifacts), resulting in three rounds of codebook refinement. For example, codes from our open coding, such as “attribution,” “recognition,” and “crediting,” were collapsed into a category of “attribution,” and eventually in our final codebook, these terms were added to a broader theme of “ownership” and the code “others” as shown Table 3.

3.6 Accuracy and Selection of Examples

To ensure accuracy across all phases of our analysis, we implemented a consensus process [10, 40, 41], allowing a second team member to review the memos and offer feedback. If a disagreement

Theme	Code	Sub-Codes
Remix Practice	Remix Reasoning Remix Tactics	Communication, Context and Culture, Feelings, Interpretation, Respect Copy and Paste, Delete, Enhance, Redefine, Template
Mediation	Design Digital Mediums	Affordances, Tool Use, Understanding of Software Digital Boundries, Digital vs. Physical
Ownership	Self Others	Creative Control, Self-Expression Attribution, Permission (In Vivo)

Table 3: Final Codebook

of a code occurred, we engaged in a group discussion with those coding the data until consensus was reached. The first author compared the final codebook with existing literature on remix [25, 56, 63], creativity, [49, 76], and creativity support tools [32, 71, 78], refining descriptions as needed. Details of the final codebook can be found in Table 3, with a comprehensive version available in our supplemental materials.

We selected our examples for this paper based on their salience, their representation of broader patterns, and their attention to detail to best demonstrate the participants' relational and creative practices. These examples were chosen inductively, emerging from the data and discussions with the research team, to ensure they reflect our larger themes from the codebook. The selected examples were also reviewed across the research team through consensus [40] to verify they represented recurring patterns rather than isolated cases.

4 Findings

Our analysis identified three interrelated themes that shape how children perceive and experience remix across physical and digital contexts: the interpretive nature of remix, mediation, and the role of ownership in authorship. In the sections that follow, we describe each theme and provide examples from design artifacts and memos of our video recordings, showing how children's practices reveal the design stakes of authorship in remix. For clarity, we also italicize the quotes from children in this section.

4.1 Authorship as Interpretation: Children's Remix Priorities and Tactics

Children viewed remixing as a process of interpreting existing works. Their sense of whose authorship mattered most, such as their own, the original creator's, or a future remixer's, shaped how they used, changed, and credited material. This dual orientation of creation and interpretation reflects prior research on remix culture [53, 63] and underscores that for children, remixing is not just about making something new, but about making sense of previous cultural ideas. Remixing becomes a nuanced process of reasoning about meaning, ownership, and relational expression, indicating that creative remix acts offer a site of ethical negotiation around conceptions of authorship. Through our analysis, we identified three interpretive priorities that shaped children's remix practices: personal expression, respect, and communication. We summarize this section visually in Figure 3.

4.1.1 Personal Expression: Self as Author. Children often approached remixing as a form of personal expression, an opportunity to prescribe their own ideas and identities onto existing cultural materials. This interpretive priority privileges the self as author, framing authorship as a process of creative autonomy and the enactment of one's own self. Remixing in this context becomes a way of exemplifying one's voice, becoming a site of epistemic agency and articulation.

Children's remixed works often alter cultural symbols and meanings from the originals through self-interpretation. A common tactic is removal, which allows them to express ownership over their creative products. As an example, during DS1, Joyce was remixing a poster that belonged to Lena and Zuhura. On the poster, Zuhura had drawn a silly poop character. When receiving the poster to remix, Joyce colored over the word "poo" using her green marker on group 2's poster (Top right of Figure 4), noting "*I don't like it.*" When the group came back together in our final circle time, reflecting on the crossed-out word, Zuhura demonstrated a sense of sadness that her work had been cut out, saying "*I don't like when people cross out other people's drawings.*" Similarly, in DS2, while remixing digitally, Ella deleted a warning to not flip a poster, asserting, "*Now look at the poster, there's no warning.*" In both cases, removal reflects their self-interpretation and individuality while appropriating existing work.

A related but distinct form of personal expression involves decontextualization, the practice of removing elements of an original work to reshape its meaning. A prime example of this can be seen with Jerold during DS1, who expressed his dislike for cats by drawing a Kirby, a character from a popular Nintendo game series, feasting on cats, as seen in Figure 4 (in the middle, left-hand side of the page). Instead of simply eliminating the cats from his artwork, he redefined the context of the original piece. This allowed him to showcase his personal preferences regarding cats, while also highlighting his connection to a video game series he enjoys. The Kirby was subsequently crossed out by Liên and Ireen. Interestingly, while Jerold had also been adding the Kirby eating the cats, Joyce, who liked cats, also added to Kirby saying "*you will be playing cat games!*" to also try to recontextualize, adding in elements to reshape meaning, the Kirby eating the cats. In doing so, remix became a tool for subtractive authorship through addition, where meaning was crafted through a duality of interpretations.

Therefore, we see children's remix practices that emphasize self-authorship as allowing them to express creativity by reworking

	Author	Co-Creator	Steward
Interpretive Stance	Self-Driven	Balanced	Deferential
Ethical Attention	Self	Shared	Originator
Remix Tactics	Transform	Respect	Continuation/Inquiry

Figure 3: A visual representation of the three stances children took in prioritizing interpretations during observed remix experiences.

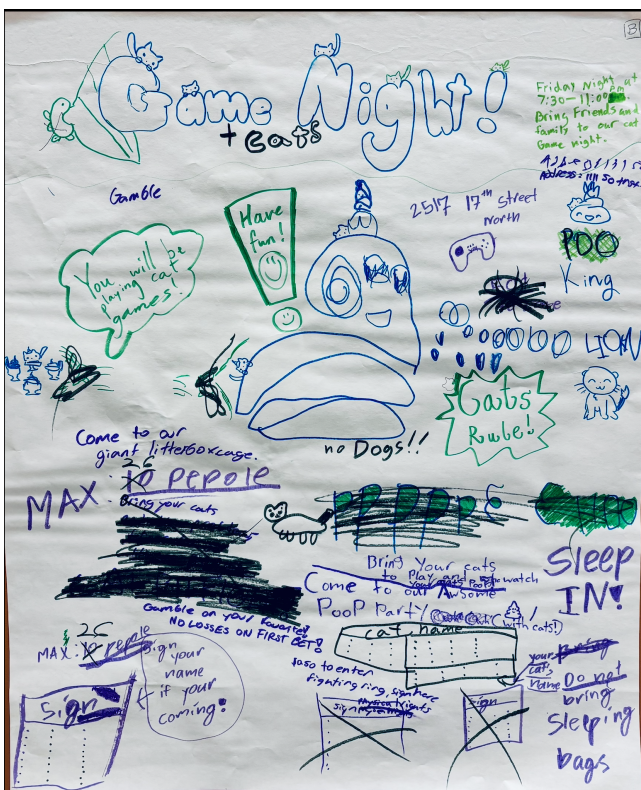


Figure 4: Zuhura and Lena’s Remixed Poster from DS1

materials into personal interpretations. Through acts such as removal and decontextualization, they prioritize their preferences and identities, using remixing to assert ownership and self-articulation. However, as seen in Zuhura’s case, these practices can also lead to relational friction, highlighting the need to balance creative autonomy with ethical reasoning.

4.1.2 *Respect: Negotiated Authorship.* In some cases, remixing was guided by a sense of respect for the original creator, privileging an interpretive stance of authorship as co-created. This priority

reflects authorship as a relational responsibility, in which creative choices are shaped by ethical considerations. In this way, they seek to interpret their own goals through reflection and comparison to others.

For example, many children used popular movie and video game characters in their work. While looking at the different options for assets they could use in *Canva*, Nathan found a light speed traveling video and excitedly said “*Oh this one’s from Star Wars! heck yeah!*” He copied it over, adding text saying “*We ar⁴ taking you to STAR WARS*” and animated it similar to the movie introduction, as shown in Figure 5. Afterwards, he concluded saying “*I like this. Do you guys like this? I like this.*” Liên agreed.

While the idea of copy and paste arose naturally with digital tools, such as in Figure 8, the concept of copying someone else’s ideas as a sign of respect also occurred in physical contexts. During DS4, Lena designed a superhero cat, as shown in Figure 6a. When it came time to remix in the new group, Joyce, who was a good friend of Lena, noted that she was very good at drawing in Lena’s “*style*” and decided to create a direct copy of the work as seen in Figure 6b. To further change it, she added it onto a mug and noted that the group would give “*50% of the money*” to the previous group. In this example, remixing, especially by providing a new context for an idea or creative work, can help demonstrate respect for the original creator (in this case, a friend) while also allowing the remixer to benefit.

When prioritizing both their own voice and others, children often balance their personal expression with relational ideas of ownership. In this way, remixing became a way of honoring the original creator while still making the work their own. In these cases, the children tried to preserve a shared meaning, reflecting remix as a collaboration that surfaced tribute and transformation.

4.1.3 *Communication: Other as Author.* In some remix practices, children prioritized the original or future creator’s intention and interpretation above their own, treating remix as a way to preserve or clarify the symbolic meaning of the source material. This interpretive stance reflects a focus on others as originality, where authorship is experienced as a relational deference rather than a transformation into new ideas. Remixing, in these cases, becomes a

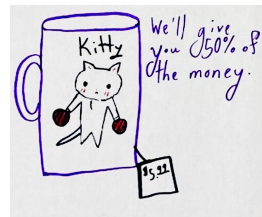
⁴We have directly copied what Nathan wrote as seen in Figure 5.



Figure 5: Nathan copies over an asset that looks like the opening of Star Wars, adding his own text.



(a) Lena drew an original cat character during DS4.



(b) Joyce recreates Lena's "style," putting the cat on a mug to sell.

Figure 6: Cats drawn by Lena and Joyce showing copy and paste on paper.

way for children to question and expand upon the original ideas of a work, sometimes subordinating their own to ensure an understanding of the goal. This shift allows children to explore the cultural and personal implications embedded in the original works,



Figure 7: An Example of Templating where Ireen and Liën (black marker) drew a large television, open for others to add too.

turning remixing into a way to reinforce a different creator's voice and indicating authorship as a means to enact ethics around reuse.

For example, in DS1, Group 3 listed items to bring to the game night on their original poster. It started when Varsha excitedly said, "Oh I have an idea about something to add," and wrote a note about the things she would bring to the party. Duncan, in response, began a longer list, to which an adult co-designer excitedly said, "Oh, a potluck!" The list included drinks, food, and cushions, but also included hand soap (perhaps because the group had placed the original game night in a public bathroom as a joke). When remixing, Jerold, reading out the list, could not possibly understand why hand soap would be requested for a game night party. In shock and disbelief, he threw his hands up saying: "YOU NEED TO BRING HANDSOAP?" Confused, Jerold crossed out the hand soap and writes "WHY?" in big letters next to the list. In doing so, he used his remix to question the original group's intentions.

An additional way remix functioned as a form of communication was through templating, or setting up opportunities for others to express themselves. In DS1, groups would leave open parts of their posters or intentionally draw elements so that the next groups could add to them, showing that the kids understood others would also be working with their ideas. For example, Ireen and Liën set up a large TV (using the black marker), leaving space for others to add to it as shown in Figure 7.

These remix practices, which privilege others' interpretations, position remix as a process of stewardship in which the goal of authorship is to preserve or set up others' interpretations. In this case, authorship is rooted in scaffolding a shared understanding by positioning themselves not as a sole author but as a step within the remix process.

4.2 Authorship and Mediation: Navigating Remix Across Physical and Digital Spaces

Building on these interpretive priorities, we observed children engaged differently with digital and physical remix. Each medium's



Figure 9: Ireen adds a text box to the digital poster, trying to adjust the size and text in DS2

During DS2, we observed that children's remixing within *FigJam* was shaped by familiar software design conventions such as text boxes, layering, and canvas resizing. For example, Ireen, Robyn, and Joyce attempted to add the word "and" between the provided text boxes with the words "Video Games" and "Board Games" on their poster. Initially they used the pen tool, but they switched to the text function and struggled with placement, accidentally moving existing elements. Ultimately, instead of adding the words to one textbox, they succeeded by adding a third text box with the new word, as seen in Figure 9. Once they got the word situated, they were upset that it was offset, and rather than reposition the text boxes, they resized the canvas to the existing elements. Robyn noted "I liked last time better," referring to creating posters in DS1. This moment illustrates how these types of norms embedded in software design also shape how children make creative decisions.

Furthermore, during DS2, in another group, Vincent took control of the workspace, with Lena and Ella helping out. During the process, an adult co-designer prompted the group to start dragging over images they thought would be helpful for the board. They attempted to copy over one of the gorillas pasted into the workspace by Duncan and Nathan. As they did so, some images showed up behind the board. As the children were confused, the adult once again rearranged the layers, bringing all images to the front so they could be seen. Another group accidentally put their image on the group's board, causing more confusion. As Lena relocated and resized images on the board to make space for text, the board disappeared behind the workspace. She clicked and dragged the board, images, and workspace to restore the board. Another adult co-designer had to help them bring their board back. Overall, the group was left with a very cluttered workspace and needed help from the adults to bring the images to the sizes and arrangements they wanted.

In DS5, as children created their own remix tools, we noted their struggle to articulate the potential of creative software, often viewing it through a lens of enchantment akin to that described by Sherry Turkle [80]. Ireen referred to her tool as a "magical pen" that "records what you said and writes it down automatically." When asked if it could fix grammar, she clarified that it only records speech. While Ireen recognized her pen as a means of exploring creativity, she found it challenging to articulate the specific remix strategies it could enable and did not fully grasp how recording speech could open up remix possibilities.



Figure 10: Jerold and Duncan's DS-like design for a "Portable Remixer" from DS5

A similar phenomenon was exhibited when Duncan and Jerold presented "Portable Remixer," shown in Figure 10. Duncan described it as "kinda like a video editor, but it has more. So other than the average video editor stuff, it's portable." It offered other features that could turn things "into high resolution" or "make audio more clear." They also noted its "element library." Jerold added that it includes a camera for remixing videos, photos, and audio. As they described the way that the tool worked, Duncan said "It is kinda like a DS. It has a stylus. This is where you do all the editing. It has an audio thing. You can record audio. It is very high tech." Overall, Jerold and Duncan had a good grasp of useful software for remix practices but lacked clarity about what manipulating digital objects might entail. They saw potential in software to enhance video and audio quality, but viewed it as a versatile creative tool. Most software focuses on specific media, though they share similar functions.

The findings indicate that mediation plays a role in children's remixing through both software affordances and design norms. Children felt fewer creative limitations digitally than physically. While they acknowledged ethical reuse and permissions, their sense of ownership in the digital space was influenced by their interpretations of remix materials and the manipulations possible through various software.

4.3 Authorship as Ownership: Children's Negotiations of Control and Reuse

Lastly, children often based their discussion of authorship around the concept of ownership. Children viewed ownership as central to authorship, balancing their beliefs about creative control and intellectual property with their actual remix practices. Mediation factors, especially in digital contexts, shaped gaps between how they talked about ownership and how they enacted it. In this section, we first describe children's stated beliefs about authorship as ownership, and then discuss how mediation shaped the way these beliefs were enacted in practice.

4.3.1 Children's Stated Beliefs of Ownership. The primary discussion around demonstrating ownership in remix arose in reference to children's stated beliefs around the importance of asking for "permission" to remix a work, as it enabled creators to maintain their creative vision and protect their work. For example, Varsha said people should not be able to remix anything "because you can take other people's ideas and turn them into something new without their permission" (DS2). Duncan similarly argued that when remixing something, one "should get permission from the person who created it because I think that the person might have had some bad experiences with remixing. You don't wanna do something that is wrong." This indicates a desire to maintain respect for the original creator's ideas, even when modifying the work. This demonstrates that they understand that during the process of remixing, permission is an acknowledgment of the work or idea one is appropriating belongs to someone else.

A big part of the argument about granting permission focused on children's beliefs about the importance of creative control as a foundational part of ownership. Ella, during DS2, for example, voiced:

I don't think you should be able to just remix everything...I don't think you should do that because then there's going to be thousands of like Pringles knock-offs, and it's gonna be like 'Prongles.....Prangles'. You should get that person's permission. That's what a patent is for.

In this way, she is noting that part of creative ownership includes not just making copies and using someone's work; it also means putting some part of oneself into the work. Additionally, she notes that systems, such as patents, exist that allow creators to enforce their creative rights. These examples further indicate that, in children's view of ownership, an important aspect of creators' rights in remix culture is the ability to determine when and when not to grant permission for their work to be remixed.

During DS4, children were asked to apply adapted Creative Commons licenses to their works, and none chose the "Free-for-all" (CC0) license. They expressed concerns about losing control over their ideas and potential unwanted changes. Group 2 members, Ella, Jerold, and Robyn, were particularly hesitant. Robyn stated that only "proper" individuals should use their work, leading to a discussion in which she affirmed her dislike of others using their ideas. The group also argued that they would prefer that others not make money from their work because "it matters whose idea it was" as people using one's work "shouldn't make money from it [because] they didn't put in the initial work."

Broadly, these examples suggest that children associate ownership with the right to control how their ideas are used, expressing a desire to protect their creative vision and time put into their work. Additionally, while they assert their ownership of original works, they may not fully grasp the cultural and collaborative benefits of remixing.

Additionally, some children did make arguments in favor of remix, emphasizing the importance of context in questions of reuse. For example, in DS6, Theo noted that in reference to the final comic board prompt "more users come to remix and share their work because..." he thought that "they should share because more

art comes." Though he still acknowledged one reason remix rules might be needed was that "someone could steal someone's paper and add to it."⁵ This suggests that supporting children's understanding of the arguments for and against remix may help them make more informed choices around what it means to be creative in digital spaces.

4.3.2 Children's Practices and the Mediation of Ownership. Most often, children respected the idea of ownership, such as in DS4, when creating and remixing characters. This demonstrates an understanding of the original creators' rights. For example, Ella, Jerold, and Robyn placed a "Let it Be" license on their character, Kenny Kenneth, an anthropomorphic rabbit, as seen in Figure 11. When Duncan and Varsha attempted to remix Kenny, they struggled with the license's limitations. They discussed ways to incorporate the original artwork creatively; Duncan pointed to the red drawings, further positing, "What if we cut this thing out and put it in? We won't be changing it." When an adult asked how they could give credit to the other group, Duncan said, "They didn't state how much credit...maybe, 'inspired by group 2'" which he wrote in tiny letters at the bottom of the poster, hardly visible. Varsha looked over, "Why are you writing it so tiny?" Duncan responded, "They didn't specify how much credit." Ultimately, the two kids reframed the original character drawings as part of "The Kenny Kenneth Museum." Duncan further explained "We didn't really change it. We made it more into a showcase. We put the images of it somewhere and added as much of the character as we could."

In this exchange, Jerold had also designed a series of *Among Us* characters, as seen in Figure 1. In the work, he labeled a warning for those who wanted to reuse it: "can't change, sue if you do." When an adult inquired why others could not remix his creation, Jerold simply replied, "I don't want remix to happen." Another adult followed up with, "Why don't you want people to remix your stuff?" Jerold countered, asking, "Why would I?" When one of the adults pointed out that he was also remixing previously made characters from the video game *Among Us*, Jerold noted that he drew these and therefore owned them, without fully understanding how he had also remixed previously made ideas. Interactions such as these indicate that children do feel a sense of ownership over their work, but do not always understand the benefits or broader cultural reasoning behind remixing as a creative act, or even that they themselves may be engaging in the remixing of ideas.

A particularly interesting example of software mediating children's ownership arose in DS3, where children tried out three tools, reflecting on their own and others' ownership. In the case of *Canva*, a popular online creative software for creating visual objects, Group 1 (Jerold, Nathan, Liên – Figure 5) did not utilize *Canva*'s AI feature to generate materials to remix with, instead using instead the licensed material provided. Among all the groups, the line-judging activity showed that group 1 felt the most connected to their work. While this difference cannot be taken as definitive evidence of specific aspects of mediation through AI, it does illustrate how software affordances may mediate ownership differently depending on use.

⁵We have adjusted the spelling of "some won" from Theo's comic for the sake of reading the in-text prose.

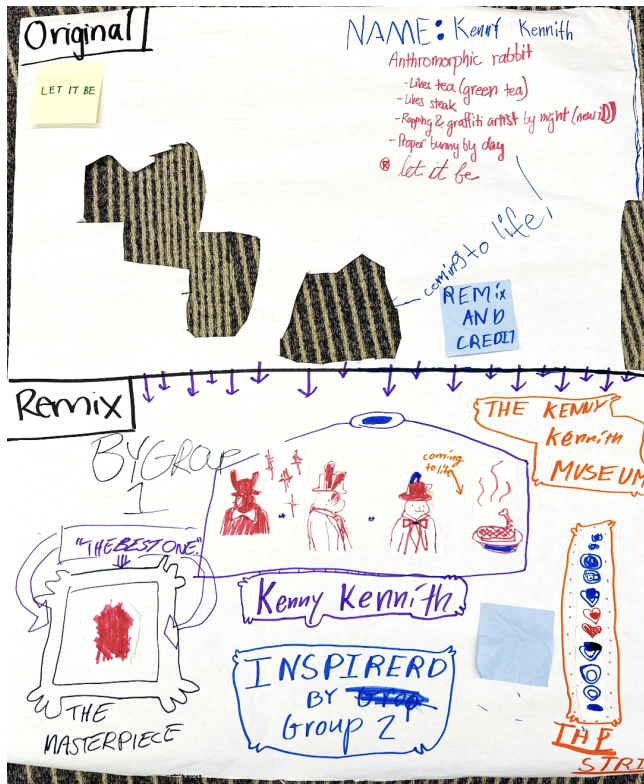


Figure 11: In their remix of Kenny Kenneth, Duncan and Varsha create a museum to display the character after being asked to “Let it Be” by the original group.

This highlights that mediation emerges not only through the affordances of systems but also through users’ agency in acting upon them.

These examples suggest that mediation does not just inform children’s creative experiences or choices, but also informs their actions as demonstrations of ownership in remix experiences, especially in relation to the cultural ideas they have around following or maintaining interpretations. Mediation is not just occurring at the level of their creative work, but also at the level of their cultural understanding of what it means to own creative work, especially in digital environments.

5 Discussion

Our analysis shows that children’s interpretation of cultural works influences their remix practice and ethics across both digital and physical contexts (4.1). However, in digital environments, these practices are further shaped by the specific affordances of digital tools and by children’s familiarity with the norms embedded in software design (4.2). Therefore, while children emphasized ownership as a key aspect of authorship, their behaviors can at times be mediated (4.3). This highlights the tensions between theoretical understandings of authorship and the lived realities of remix culture as mediated by digital tools.

To address this, we present two main contributions: first, the Creative Agency Framework, which aims to provide designers with a tool for understanding the spectrum of interpretive stances and highlights how the design and use of CSTs influence beliefs about authorship and creativity. Second, we discuss how this framework can support arguments for a broader approach to creativity support.

5.1 Reframing Authorship in Remix: The Creative Agency Framework

This section introduces the Creative Agency Framework, which outlines a pathway from interpretive priority through mediation of the concept of authorship to a form of agency. We also define related “myths” based on Roland Barthes’ theory of *Mythologies* [4] to clarify how these remix experiences shape ideas of creative agency and authorship through mediation. The framework consists of four domains (Figure 12), which we describe first, and three pathways (Figure 13), which we describe second.

5.1.1 The Four Domains of the Creative Agency Framework. The Creative Agency Framework identifies four key domains, as illustrated in Figure 12. The first three domains stem directly from our findings. Importantly, in our framework we draw a distinction between the first domain, **interpretive priority** (4.1), which we observed across digital and physical contexts, and the *mediation* of the **concept of the author** informed by software norms and design (4.2), as well as **creative agency**, where users act upon these mediated authorship experiences (4.3).

We draw on Barthes’ concept of myth [4] to situate our findings. Unlike traditional notions of myth as widely accepted stories, Barthes sees them as cultural sign systems that recode everyday signs (such as soap) into ideological meanings presented as natural facts (soap symbolizes purity and luxury). He argues these myths can obfuscate the varied meanings of a sign (soaps are abrasive chemicals, not luxurious cleaners) [4]. We apply Barthes’ notion of myth to our empirical data because children often articulated cultural narratives of remixing (e.g., “asking permission”) that did not consistently align with their practices (4.3). This approach highlights how CSTs mediate common cultural narratives of authorship in remix contexts. We define these as **myths of creative agency**.

5.1.2 Expressive Pathway. The first pathway that our framework highlights is the Expressive Pathway, the leftmost path of Figure 13. The pathway begins with the interpretive priority of the **self**, where a remixer sees remix as a way to assert their own ideas and wishes. In this case, we observed that children engaged in this stance in remix tended to use remix tactics centered on removing or fully transforming the meaning of the original work (4.1.1). In turn, this pathway aligns most closely with individualistic approaches to creativity that dominate both creativity research and HCI [32, 76]. This focus on the self is demonstrated in instances such as when Duncan and Nathan decided to use *Google Images*, find their own image of a gorilla, copy it, and then paste it across the workspace (Figure 8), turning a simple image of a gorilla into a humorous statement.

Mediation of the Author-Concept and Assertive Agency. In this context, then, the children can see themselves as authors of the given work. As an example, in the case of the gorilla image (Figure

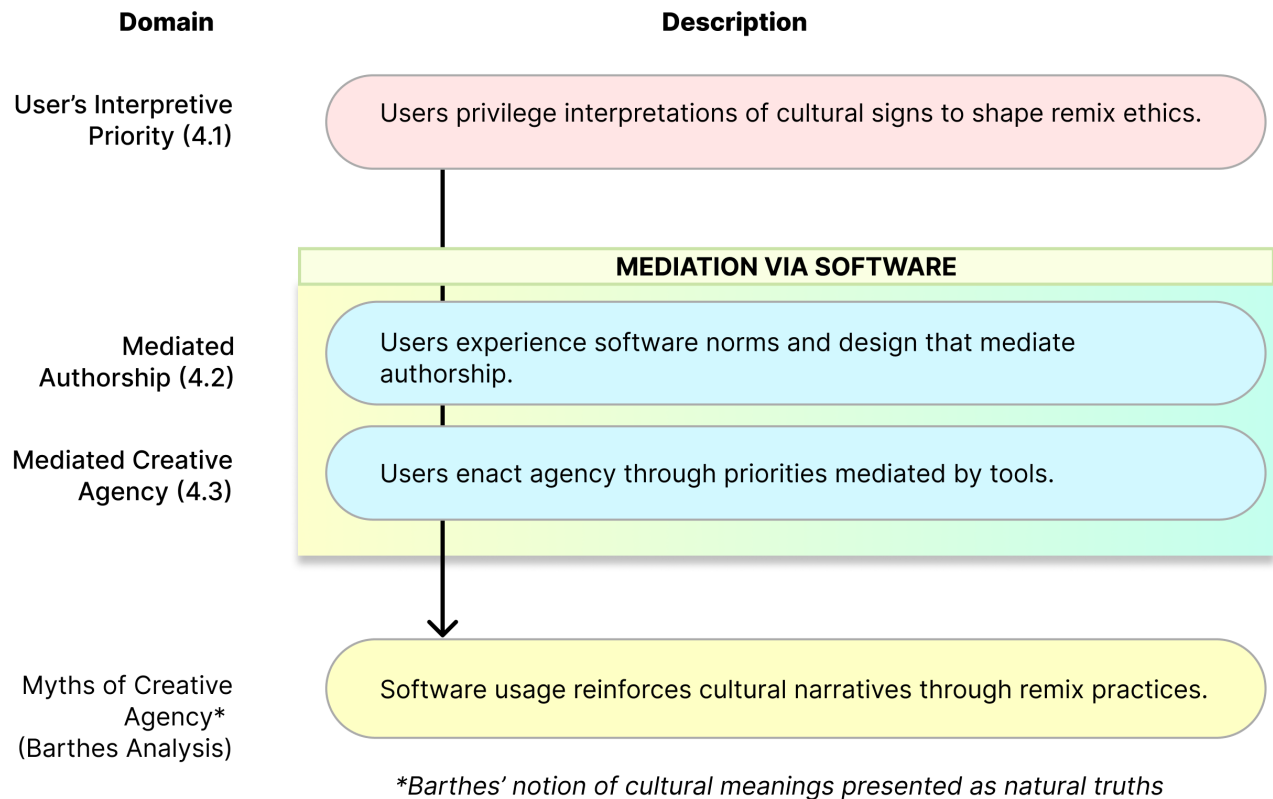


Figure 12: Each domain of the Creative Agency Framework is grounded in findings (Sections 4.1–4.3), with Myths of Creative Agency extending from comparative analysis with Barthes' conception of *Mythologies* [4].

8), the children position their ability to copy and spam the image as their unique creative output. This demonstrates that these common affordances, such as copy and paste, mediate what the author can be through signaling certain practices. This leads to the conception of the author as someone who demonstrates originality or uniqueness, reinforcing a widely accepted cultural idea [3, 31, 44, 71, 76]. Many CSTs act as tools that will reflect this [32]. This means that CSTs often enforce the current user's will over the wants and needs of previous or future users. This isolates the user in the broader cultural context of their remix actions, where, despite stated beliefs around issues of ownership, such as permission (4.3), CSTs enable users to perform these actions regardless of their stated beliefs.

Following this, as the children enact the affordance of spamming gorillas, they are not only using the tool, but are actively shaping the provided workspace to reflect their own voice, essentially **asserting agency** as a way to demonstrate their own creative identity. A similar phenomenon can be seen in the ways that children crossed out or deleted elements of a work they did not like, as seen in section 4.1.1. While viewing authorship as a form of unique self-expression is common, CSTs often fail to encourage users to reflect on their remixing goals and the ethics of reusing materials. The affordances of digital tools empower users, as demonstrated in our study and

supported by affordance theory [48, 65], but also fosters a culture of agency within CSTs that positions a user as primary authors, despite concerns about licensing or intellectual property in digital spaces (4.3) [27].

The Myth of a Singular Voice. Therefore, we suggest that CSTs may reinforce a **myth of a singular voice**. We take this to be the cultural narrative that defines authorship through the presence of a unique voice, which becomes evident in the act of transformation. This idea perpetuates the belief that originality and self-expression are fundamental to authorship, despite the fact that many creative practices are inherently collaborative and derivative. In remix contexts, CSTs facilitate transformation and support the notion that authorship is linked to these visible changes. This gives rise to the belief that if a work is modified sufficiently, the individual who appropriated it can rightfully claim authorship [28, 56]. This is in direct opposition to theories of creativity that support more socio-cultural approaches [5, 17] as well as the shifting conception of the author in remix [44, 56, 63]. Therefore, if systems preference this pathway, they can easily create friction between cultural ideas of the author in remix contexts and the affordances of a specific system.

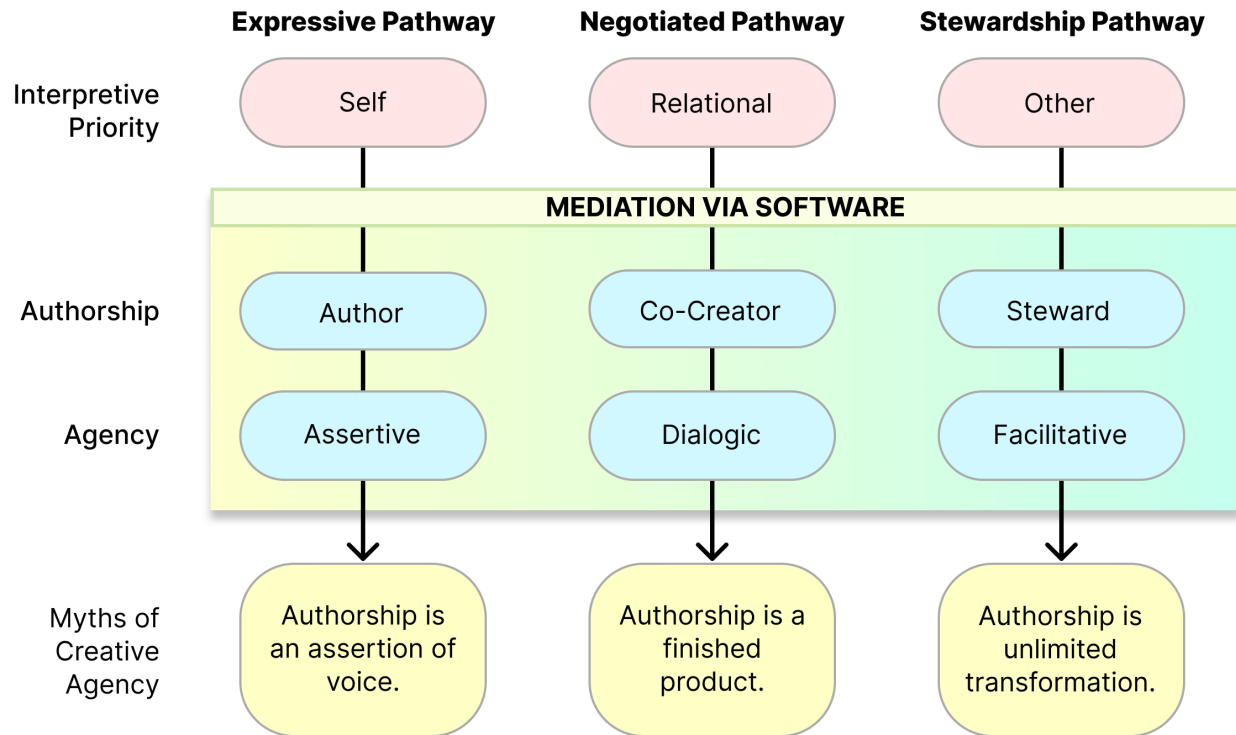


Figure 13: The Creative Agency Framework identifies three pathways of remix practice: expressive, negotiated, and stewardship. These pathways describe how children's creative agency unfolds across cultural, technological, and ethical dimensions.

Design Implications. Certainly, there are times when this approach is necessary and even useful, as most CSTs are currently evaluated and designed with the idea of the author as assertive in mind. Yet, to challenge or extend past the myth of a singular voice, supporting the evolving nature of authorship, we should foreground choices that support users' thinking about their work outside the context of a creative system.

Children expressed that a sense of control was vital for asserting their authorial voice (4.3.1), yet this was often lacking in practice. This was especially true when using digital tools (4.2). These tools allowed for easy copying without concern for altering the original. Theories of ownership in remix works often focus on defining property through metadata that can be obscured, and the use of created objects is typically tied to licenses outside the creative process. Programs like *Canva* may provide licenses for a fee but often conceal this aspect to keep the focus on the user's ideas. To move beyond the myth of the singular author, designers should encourage users to reflect on their intentions and choices regarding assets in their work. Providing systems that foreground the types of licenses, such as *Creative Commons*, or provide clear ways of tracking changes made across multiple users in a remix chain, offer ways to help scaffold users' understanding of the remix contexts their own expressions work within.

5.1.3 Negotiated Pathway. In this pathway, remixers strive to create a balanced **relation** between their own interpretations and those of others, treating source material as a means of engaging in conversation with one another (4.1.2). For example, as Joyce tried to recreate Lena's drawing style (Figure 6), she did so to honor her friend. As another example, when children remix ideas from intellectual properties they enjoy, such as *Star Wars* (Figure 5) or *Among Us* (Figure 1), they are often demonstrating this more balanced interpretive stance, where they seek to express themselves, but also represent the original work with some reverence and retained meaning.

In many ways, this is a stance that seeks not only to transform but also to provide new, meaningful context [15], where creative work is defined less by the object itself and more by the meanings produced through its relation to other texts and artifacts [3]. It is the intertextuality of this pathway that leads to the formation of new knowledge through a negotiation of whose understanding of the work defines its meaning [15, 44]. This is to say, in the context of the negotiated pathway, a multiplicity of interpretations is explored.

Mediation of the Co-Creator Concept and Dialogic Agency. In this pathway, the remixer is understood as a **co-creator**, seeking to make *with* and *not against* the original creators' work. It places their ideas in **dialogic** agency with the original creator, seeking

to comment or extend the original ideas. Yet, when using affordances such as dragging, resizing, or layering assets, as commonly found within CSTs, we noted that children's understanding of those affordances leads to their authorship, as expressed through arrangement and combination, not through true dialogic co-constitution of meaning. This was especially difficult as children often lacked the understanding of the norms of creative software design (4.2.2).

Therefore, CSTs often treat work as final, focusing on creative experiences that allow users to export and share without following up. This is also evident in children's tendency to view CSTs as a sort of editor (such as the *Portable Remixer* in Figure 10) rather than a process of dialogue. Most often, users do not see how others have taken their work and changed it. While this does exist in some more constructionist platforms [68, 71], most traditional CSTs do not afford this option.

The Myth of a Finished Product. Following this, CSTs can suggest to users a focus on product rather than process over time. The **myth of a finished product** is the cultural narrative that authorship is defined as the final product of transformation rather than by dialogic processes of collaboration. In this way, despite children's wish for a more collaborative remix experience, the focus on visible outcomes in CSTs over interpretive changes and meaning negotiation suggests to users a focus on creative objects rather than creative dialogue. When the ability to track remix chains is lost, including understanding original intentions and receiving feedback from other creators about the use of their work, CSTs default back to the idea that remix is an act of personal expression, not a form of relational authorship that exists in a network of ideas [8, 29, 44].

Design Implications. Without a remix lineage that includes the creators' interpretations of their work, it becomes difficult to understand how or why ideas in remix evolve. In this case, dialogic agency is not just about provenance of an object, but about understanding the creative choices and reasoning that were made. It centers remix as an epistemological practice. Therefore, designers seeking to challenge the myth of the finished product of remix with CSTs might include ways to track remixed histories of not just who but how, when, and why remix choices were made. This could include annotation tools or collaborative modes that not only create the product together but also help users clarify and comment on these broader questions. Additionally, designers might consider alternative skins or design layouts that let users turn off features such as exporting products, to focus on the creation and evolution of their work, in comparison with other users' reasons for use.

5.1.4 Stewardship Pathway. In the stewardship pathway, remixers view creation as an act that involves considering what original creators and future creators might wish to do with the objects, and they place **others'** interpretations and wishes as valuable. This demonstrates how remixers engage in creation as an act of curation and understanding, even when creating. For example, many of the children did try to engage with the applied licenses in DS4 (4.3) or leave open space for others, as when Ireen and Liên created a template for others to use (4.1.3).

Mediation of the Steward-Concept and Facilitative Agency. In this sense, the remixer takes on the role of a cultural **steward**, a bit like an archivist [57], who considers the intentions and desires of both

original and future creators. While this perspective encourages a more profound sense of responsibility toward the material being used, many CSTs often lack the necessary frameworks to enact remix in this way. In turn, the children in our study frequently disregard questions of intent or creative acts that seek to demonstrate the remixing of knowledge for others' use. For example, although children did attempt to think about their ethics of choice (4.3.1), we commonly saw them default back to privileging their own interpretations and use of remix objects (4.1.1), especially in the ability to not destroy an object in digital contexts versus in physical ones (4.2.1).

What makes this specific pathway difficult to enact in CSTs is that it heightens the tension between creative work as objects and creative work as knowledge. **Facilitative agency** supports enacting remix for the sake of others, and aligns more with technologies centered on collecting cultural objects (e.g., content management systems) than creating them. Yet, as noted, children in our study did often suggest that they wanted to collect aspects or support others' use of them (4.1.3) and therefore, further exploring this concept may support forms of self-expression that are not often scaffolded, though nonetheless could support the development of a creative self-concept and creative self-efficacy.

The Myth of Unlimited Transformation. The **myth of unlimited transformation** is the cultural narrative that authorship is defined by an endless capacity to alter or remix a work, rather than by enacting care for its continuity. In this view, CSTs frame authorship as the continued assertion of individual voice, privileging visible acts of transformation over collective knowledge-work.

Yet, it is common practice for the affordances of digital media to enable the alteration and re-sharing of works, despite concerns for stewardship. While this perspective may celebrate creative expression aligning with standard approaches to copyright [56], it risks diminishing the significance of authorship as an act of care and responsibility in remix. It instead presents remix as a privilege rather than a practice, which may lead to a loss of acknowledgment for the contributions of original creators and a neglect of the ethical dimensions of cultural production.

Design Implications. One approach to countering this myth is to reestablish how we track and clarify how ideas and data circulate across communities. For example, Almeda et al. [2] argue for viewing creativity as a form of support within ecosystems, especially amid the rise of potentially disruptive technologies such as generative AI. Similarly, the children in our study did not always understand the broader reasoning behind remixing or sharing work, especially regarding issues of consent and the provenance of the original ideas (4.3.2).

To remedy this, designers can think more broadly about how different platforms work together and about the social practices around them. For example, understanding the affordances of other tools, such as social media [2], and how communities and remixers interpret them can provide greater clarity on the ethical and stewardship dimensions of remix. We suggest that designers adopt a constructionist [19, 34, 81] and critical [4, 74] lens by thinking about platform interdependence and social practices that make stewardship visible. This approach indicates that designing CSTs

for remix involves supporting facilitative agency, enabling remixers to curate, annotate, and amplify others' work with care and context.

5.2 Design Implications Across Pathways: Rebalancing Creativity Support in Remix

The discussion of these pathways and myths suggests that CSTs influence authorship by emphasizing individual ownership, product-focused experiences, and visible transformation. This reinforces cultural narratives that equate creativity with originality and constant change, rather than viewing remix as a collaborative process of meaning-making and care. Therefore, we argue that across CSTs, the dominant myth of creative agency is anchored in the expressive pathway, where authorship is equated with asserting one's authorial voice. Yet, CSTs do more than enable creation; they shape users' experiences and narratives about what authorship is and can be. By privileging the assertive stance, we obscure other forms of creative remix agency, namely the negotiated and stewardship remix pathways. These pathways are grounded in forms of knowledge work that are often acknowledged intellectually [77], but not always culturally.

If we return to conceptions of what creativity support is, we can compare our three pathways to Schneiderman's summary of the role that technology plays in supporting innovation [77]. Ultimately, summarizing three perspectives on creativity, he argues that creativity broadly seeks to inspire users to see things in new ways, systematically approach previous work to generate new ideas, and reflect on the influences of our social and intellectual stations. Ultimately, he makes the connection between creativity and the knowledge-making process [52].

Therefore, we suggest that ultimately, our framework asks designers to consider how authorship, tied to the intention of users and design of tools, reflects cultural myths about what it means to create, and identify where these systems may misalign either intentionally or unintentionally with alternative approaches to authorship in remix contexts. As we have argued, CSTs broadly favor the expressive pathway, seeking to help users enact their creative visions. In doing so, we may lose out on scaffolding the other pathways, which also offer possible ways to empower users to feel engaged and build their creative self-concept [49]. Ultimately, by fostering a more inclusive and multifaceted approach to authorship in design, we can empower individuals to fully explore their creative identities. We feel this is particularly important as CSTs continue to incorporate new technologies such as generative AI, which also reinforce certain beliefs about creative work and remix as a practice [18, 70]. Therefore, we suggest designers and HCI researchers not only consider the cultural biases in the data used to train AI, though important, but also the ways that AI itself reinforces certain ideas through its design and implementation across differing creative contexts.

6 Limitations and Future Work

Our study involved six design sessions with 16 children from the same geographic area, all with prior experience in technology and design. This work aims for theoretical generalization rather than statistical [83]. Not all children participated in every session due to scheduling conflicts, and we focused on key experiences related to

ownership and ethics from the first two sessions. Future research should explore how creative software influences children's remix experiences across diverse locations and ages. Since the children knew each other, distractions occurred, which could bias their feedback. Expanding our research to include interviews with teachers, parents, and software developers, as well as observations in unstructured settings, could provide a more comprehensive view. Future studies should also explore how children express their reuse ethics through creative software and how this further shapes their ownership of digital works, particularly by comparing remixing with assets versus generative AI. Additionally, research should examine these pathways among adults with more established authorship ideas and consider intergenerational aspects of creation in family or informal learning contexts.

7 Conclusion

Our study investigated how children experience remix as a creative practice in both digital and physical environments; we also explored how these practices and mediums may inform their self-expression and sense of ownership in their creative work. Our findings indicated that children experienced remix as an interpretative process of self and others' creative expressions, as well as making a connection between ownership and creative control. Furthermore, it demonstrated that children do perceive a difference between remix in digital and physical mediums, and more specifically, that their understanding of the digital tools used also influence their perceptions and actions around ownership of materials in digital environments.

While our work is centered on children, we believe that our framework for understanding the mythologies of creative agency can be beneficial to designs beyond children's software experiences [78]. Adults, like children, are increasingly presented with pre-existing cultural artifacts embedded in the tools they use, influencing how they also consider themselves authors [50, 67, 69, 72]. We leave readers with the notion that a more balanced approach to designing authorship can better empower users of creative software to see themselves as both creators *and* cultural producers.

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