Behind the Scenes: Design, Collaboration, and Video Creation with Youth

Sarah McRoberts, Ye Yuan, Kathleen Watson, Svetlana Yarosh

University of Minnesota

Minneapolis, MN, USA

{mrob021, yuan0191, watso559, lana}@umn.edu

ABSTRACT

Youth content creators have been under-researched on video platforms such as Snapchat, YouTube, Instagram, etc. In order to better understand the ways that technology could support youth as content creators we conducted a 30-week series of workshops with an intergenerational design team including pre-teen youth and undergraduate designers-in-training. Qualitative analysis of workshop videos and notes revealed underlying challenges in video creation related to the social dynamics of creating videos in groups. In line with previous work, we note that a primary motivation for using social media is to spend time with friends. We found that existing video technology reveals opportunities and challenges to support the collaboration and interaction that motivates youth creators. We offer illustrative designs of potential collaborations in video sharing technology and propose that some of the concerns of youth social media use could be addressed by incorporating more opportunities for social creation.

CCS CONCEPTS

• **Human-centered computing** → **Social media; Collaborative and social computing design and evaluation methods;**

KEYWORDS

Children, youth, online video, mobile video, social media, authorship, content creation, participatory design

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1 INTRODUCTION

Social sharing of photos and videos are one of the most significant uses of the Internet [48]. Open online platforms, like YouTube, are a particularly popular medium for youth who are drawn to the low barrier for entry to reach a potentially global audience [19]. Yet, relatively little research has been done to engage with youth as video authors on these mainstream, commercial platforms. Much of the work that has been carried out focuses on identifying and filtering potentially inappropriate content [15] and otherwise supporting children as consumers of media (e.g., the YouTube Kids app [4]). Other work considers the experience of children as subjects in online video rather than active creators (e.g., [6, 30]).

It is only recently that our community has begun to investigate youth as creators of video content. For example, investigations of YouTube and Vine reveal that youth use these platforms to tell stories, share opinions, and stage performances in videos, all while actively seeking to engage with a global community of viewers enabled by these platforms [43]. However, it is important to understand that current platforms were not designed with the needs of youth in mind and may fail to accommodate the needs, motivations, and skills of this unique but important class of content creators. Considering youth as creators of video content foregrounds new challenges and considerations for designers of video tools and video sharing technologies. IDC's approaches and methods are particularly appropriate to address these challenges by engaging directly with youth who are currently or aspire to become video creators. In this work, we leverage participatory design and co-creation activities within an intergenerational design team to address the following research questions:

RQ1. What are the practices and roles of youth as video creators?

RQ2. How do current video creation and sharing technologies influence, support, and/or hinder youth as video creators?

RQ3. What are opportunities for future technologies to accommodate values, priorities, and experiences of youth video creators?

We approached these questions by conducting a 30-week series of workshops with an intergenerational design collaboration between three groups: 18 pre-teen content creators, 4 undergraduate designers-in-training, and 3 adult investigators. We seek to understand children's practice of video creating and sharing and their experiences when working with currently available video technologies. We performed qualitative analysis on the data generated from the workshops. We conclude with design implications for building novel video creation and sharing technologies and a discussion of implications for future research.

2 RELATED WORK

In this section, we first summarize existing research on video sharing and highlight the potential and dangers popular social media. Second, we build on the significant, motivating work within the IDC and HCI communities that has supported youth voices in storytelling. Finally, we reflect on participatory design (co-design) methods which inspired our strategy of multi-generational youth design teams.

Mainstream Online Media and Children

YouTube was one of the first communities to provide a platform and culture for users to both consume and create content [14, 19]. YouTube has since been appropriated by many youth, for their own self-expression and needs for social connectedness (e.g., [43, 62]). In fact, many mainstream social media platforms are now providing an opportunity for children and teenagers to share their stories and experiences. Privately, teenagers use instant messaging and videochat tools to connect with their friends [13, 26]; however, there is also more broadcast sharing on public stages. Pew Research reported that United States teenagers (ages 13–17) are actively and publicly sharing on online social networks, such as Instagram, Twitter, and Vine [38]. And with popular media sharing apps like Snapchat [2] and TikTok [3], users are able to create playful content for both direct and broadcast messaging. Interview and observational studies have been able to tease apart the motivations for young adults to share in these ways [10, 44, 47, 61], yet little research has directly engaged with younger creators, even though we know that some youth are beginning their careers in content creation as early as infancy (e.g., the “#babyselfies” tag) [45].

However, in considering youth creators on open online platforms, it would also be irresponsible to neglect the concerns around risky behavior and inappropriate content online. A significant body of work has investigated the careful work of parents to monitor and curate the content shared online about their children [5], and more recent work has also

examined perspectives of online privacy and safety from teenagers themselves [59]. Certainly, in public online domains it is important to consider the guidance and support children and teenagers may need to develop resilience to high-risk content [58] and toxic interactions [60]. Yet there is work that frames youth online activities, and even the risks, as opportunities. Storytelling and video creation can play an important part in learning, especially when educational content is supported by a community that encourages active engagement [57]. Youths can directly interact with the content creators through YouTube's community outreach and commenting affordances [9, 35]. Youth can also use social media stories to “fashion themselves” and take chances to practice self-expression [25, 40]. And, even though children and teenagers experience risks online, such exposure can actually help them develop resilience and strategies to manage risks independently in the future [58].

While this paper does not necessarily advocate for increased or more public sharing by youth, we do choose to respect their goals and potential as media creators. This paper aims to meet youth creators at their own levels of aspiration and focus on exploring the positive potential of media creation as discussed in the following subsection.

Youth Storytelling

As a community, IDC has shown consistent commitment to amplifying children's voices and perspectives [63]. Many have attempted to enact this value by investigating and creating opportunities for children's storytelling. There are many examples of designs for creative storytelling from creating tangible computing storytelling objects (e.g., [20, 53]), to engaging children in narrative creation for video games [11], to supporting them in creating video dialogs with remote peers [32]. Some designs empower youth to use mobile storytelling as a way to create and share their experiences with friends and family [12, 24]. Children even broadcast their stories through tools like Canadian Broadcasting Corporation's StoryBuilder [7].

Across other parts of HCI we have also seen youth video storytelling leveraged for educational purposes like connecting with other classrooms globally [46], language learning [31], and learning in general early childhood education [67]. A diverse set of design approaches also considered how new video sharing systems could support connectedness. There have been a variety of approaches in these video connection efforts including synchronous video chat [13], live-streaming events [54], asynchronously sharing short video fragments [17]. Designers have considered a variety of possible interventions to support a reciprocal and productive communication practice with media messaging, including requiring a video response to received messages [55] or asking the users to share a video everyday [49]. However, these efforts have

not yet succeeded in engaging youth creators as broadly and effectively mainstream commercial media. If we as a community want to support children in storytelling, it may behoove us to meet them where they are and use their existing practices as a starting point for supporting better storytelling experiences. This is one of our fundamental motivations for exploring youth video creation and sharing through participatory design.

Participatory Design with Children

The participatory design, co-design, and cooperative inquiry approaches play an important role in inspiring and driving design in the IDC community [22, 27]. While these approaches require time, resources, and the skills to work with children, they can lead to exciting outcomes in the development of new technologies and design-centered learning [22]. Since its introduction to the community, the cooperative inquiry method has been used widely throughout the world and continues to evolve and grow for current research needs [27]. Participatory work with youth has also expanded to consider the incentives and motivations for teens [28] and encourages youth to be leaders for more of the design process [36]. In our study, we build on the principles and approaches of cooperative inquiry, adapting it for the specific needs of our co-designers and incorporating the contributions of youth co-designers in three different groups (aspiring video creator pre-teens, undergraduate designers-in-training, and design researchers). We build on previous work that addresses the dynamic experiences of participatory design which includes different generations of young creators [56, 66]. We found this arrangement to be a fruitful way to engage all participants according to their skills and interests and we reflect on the specific adaptations made throughout this paper.

3 METHODS

Our methods consisted of weekly afterschool workshops with pre-teen aspiring content creators and weekly design sessions with undergraduate designers-in-training. We describe the roles of all the co-designers, outline typical sessions (and deviations from typical sessions), and discuss our analysis process.

Participants and Settings

Given the far reach of youth video content we actively engaged with an intergenerational collection of youth to recognize their varied approaches to creation and the diverse skills and interests they each bring to bear in the co-design process. The pre-teen youth met weekly at their middle school as part of an afterschool program. The undergraduate designers-in-training met weekly at a design space at University of

Minnesota. The two lead authors incorporated Action Research goals [42] in working with both of the two groups to generate ideas and practice design skills. Our motivation for action research was to empower our collaborators to become leaders and designers of the workshops in a way that would still help us answer our research questions [65]. Given the small size of our groups we are excluding a table of participants, since one could easily use it to attribute each piece of evidence to a specific member.

Pre-Teen Youth. We collaborated with Sanford Middle School afterschool program to hold video creation and technology design workshops. We wanted to recruit Snapchat, YouTube, and other online video enthusiasts who would be interested in designing and testing new technology. Students at the Sanford Middle School had the opportunity to select this workshop from twelve other activity options. The first author spoke with interested and curious students during the dinner part of the program when all students were together. The school named the workshop "Snapchat, Etc.", and recruiting conversations explained that we were designing and creating with all kinds of video creation tools. The lead researchers told students about each day's activities and the plan to create and inspire new technologies. The school hosted these workshops weekly as an option among other activities. Attendance grew steadily from five to twelve weekly attendees with 18 people attending at least twice (8 males, average of 7 participants per week). At ages 11 to 13 (average 11.6), these collaborators had been sharing on social media accounts for at least one year (average 2 years) and been watching YouTube videos for more years than they were willing to count (average guess 4.5 years). They all had great enthusiasm and experience with video creation. They were roughly split down the middle with their preferences for creating for YouTube, versus mobile video apps like Snapchat and Instagram.

Lead Researchers. In line with recommendations from Yip et al. [66], we find it important to also articulate the roles and participation of the three lead researchers. These researchers (including the first two authors) had completed graduate level training in related fields (Computer Science, Communications, HCI, and Design). The first two authors were present for all meetings between both groups. Despite having advanced skills, all three researchers actively worked to enact their status as equals. Especially with pre-teens, youth were reminded of their own expertise as video creators and technology experts. For example, while the lead researchers taught design skills, pre-teens taught the lead researchers about video apps and camera techniques, and undergraduates taught the lead researchers about prototyping tools. The lead researchers also made sure to actively participate in ideation and creation activities, offering their own

ideas and support. Mutual learning and exploration served as a driving force during these workshops.

Pre-Teen Sessions

The workshop design varied from week to week as the pre-teens developed their interests and established their relationship with the lead researchers. The pre-teen workshops took place once a week (Wednesday) for 34 weeks from September 2017 to May 2018, with a total of 29 sessions (five weeks were canceled due to school closures). Each session lasted about 70 minutes. We discuss the typical activities in the following sub-sections.

Typical Session. A typical session began with theater warm-up games and then the session's theme or goal was introduced. In order to most address RQ1 and RQ2, activities around the experience of content creation were common. During a video creation session students were encouraged to create their own video projects in self-selected groups. Participants were provided with different technologies and resources to support their process. Technologies included video cameras with tripods (2) and mobile phones (4) with different video apps installed (specifically, YouTube, Snapchat, Instagram, Vine Camera, Marco Polo, and Musical.ly as it transitioned to TikTok [37]) and private profiles created for the project. Before participants borrowed the equipment, they told researchers what they wanted to film during that session. The goal of the research leads was to help support everyone's contribution and encourage creativity. The last 5 to 15 minutes of each session was spent cleaning up and reflecting on the creations and session in general.

Activities. The thematic arc of the co-design workshops was developed to answer the research questions and to help students build skills as designers and creators. The first 6 sessions were spent teaching the youth about design aspects: brainstorming, story-boarding, creating paper prototypes, and evaluating interfaces. These activities were chosen for three reasons. First, they helped offer some context as we answered RQ1. Second, they offered the students a chance to learn more about technology design and help us establish some common design terms for the rest of the semester. Third, they gave us time to get to know the students and stabilize our attendance since it is often a common practice in the afterschool program for students to try several different afterschool activities in the first several weeks. The remaining 23 sessions were spent immersing in the video creation process. Videos were made around the school with session leaders near to support the process. Sessions were also spent in the school's computer lab to give students the chance to use iMovie and edit some of their larger creations.

This emphasis on open exploration gave us a chance to iterate on RQ3, and to help the pre-teens explore RQ2 through experience.

Action Research Approach. We incorporated an action research approach to developing the specific activities of each session [18, 23]. In answering RQ1, we found it imperative that we take time to foster an equal and open relationship with our collaborators. This ultimately showed itself in the variation on specific activities to arrive at a successful balance of research goals, learning goals, and children's desires and motivations. For example, during one session of evaluations, students lost focus and started arguing amongst themselves. As we talked about why this is happening, one pre-teen said, "We're sorry we're misbehaving. It's just that we haven't gotten enough chances to run around." In response, we made room for everyone to play a running game for the next 20 minutes of the session. This event changed the following sessions, in that we made sure to arrange more active time in warm-ups and throughout the co-creation activities. It also offered a foundation for students to share their experiences and take ownership of their time.

Undergraduate Sessions

Similar to the workshop sessions with the pre-teens, the activities varied from week to week, to support the interests and skills of undergraduate designers-in-training. The workshops took place once a week (Friday) from September 2017 to May 2018, with a total of 30 sessions (sessions canceled for Thanksgiving, Winter, and Spring breaks). Each session lasted about 40 minutes.

Typical Session. Unlike the pre-teen creators, the undergraduates regularly continued their own projects outside of meeting times, so workshop times would be spent creating together or presenting knowledge. A typical session began with each participant reviewing the design or analysis work completed since the last session. The lead researchers also used it as a time to give a general update on the activities with the pre-teens. This update would transition into the main activity of session, which was typically a student presenting the work that they had done over the previous week, teaching the rest of the team what they had learned.

Activities. Activities for the undergraduates were designed primarily to echo the activities in the pre-teen workshops and address RQ3. The responses, notes, and other artifacts from the pre-teen sessions each week went to the designers-in-training to encourage them to brainstorm their own ideas and develop wireframe prototypes from the combined ideas. In the first six weeks of the workshops, the activities were

piloting and reflecting on the activities designed for the pre-teens. Members of the undergraduate team had varying experience with design, and were able to take this time to establish common terms and bring everyone up to speed, as they also took time to explore wireframe and prototyping tools that they would use for developing ideas in the workshop. In the remaining seven weeks of the series, undergraduates used their time to develop designs independently according to their interests.

Action Research Approach. The undergraduate student group did not require dramatic revisions of group activities, as the pre-teen group. However, we took advantage of varied skillsets and interests of each collaborator to adjust activities according to each person's individual interests. Since one undergraduate was more interested in app development, he led investigations into programming tools and tutorials for other students to learn. Another used participation in these activities to design their own research questions and join the lead researchers in activity design and analysis for this project. By bringing different skills and goals together, we were able to learn from each other, and invest deeper into the success of both the teams and individuals.

Analysis

We used qualitative analysis of the videos created during the pre-teen workshops and the iterative design process outlined below to articulate our findings.

Workshop Video Content Analysis. Primary data for addressing RQ1 and RQ2 in this paper comes from analyzing the videos created by the pre-teens. We conducted an in-depth data-driven analysis where each video was reviewed and coded by at least two researchers.

Inspired by relevant practices in [43, 62], these videos were coded according to how the creators engaged with the audience and each other. The first author worked with the second and third to complete the open coding process by reviewing the created videos from the first 9 weeks of video creation. The 256 minutes of video resulted in 1000+ open codes, which were then clustered using iterative rounds of constant comparison affinity mapping. These affinity map clusters lead to the development of a codebook with 7 categories of video creator roles and practices (Skits, Goofing Around, Documenting, Surveilling, Bothering Others, Disregarding the Camera, and Technical Moments as described in the Results). The researchers categorized the previous open codes to refine and apply the codebook.

In our final analysis, we tallied the categories that occurred in each video (i.e. if there were 4 open codes of the Surveilling category and 1 open code of Documenting in one video, we marked that the video had Surveilling and Documenting). The remaining 314 minutes of video from

the later 14 weeks of video creation were then coded by the first three authors and an additional expert qualitative researcher. Each video was assigned to two researchers who individually assigned categories as they reviewed the video. The four researchers calibrated their coding by meeting and discussing video content for agreement on assigned codes. Borderline and novel interactions that didn't fit the codebook were noted and discussed among the four researchers. The two sets of codes for each video were then merged, and the two researchers settled disagreements through discussion. The 7 categories of video creator roles and practices from a total of 605 minutes video and 798 coded instances are discussed in the Results as they related to RQ1 and RQ2. .

Design Development Iterations. As introduced in previous subsections, we used an iterative design approach between the pre-teen and undergraduate workshops to develop answers to RQ3. During an undergraduate workshop session, we reviewed the artifacts from previous pre-teen sessions (sticky notes from brainstorming sessions, note sheets from interface evaluations, etc.) and began developing a brainstorm list of video app designs. This brainstormed list was organized by themes and then brought the next week to the pre-teen session to collect the responses from the pre-teens. The responses were then brought back to the undergraduates to decide on some of the joint favorite design ideas. These ideas were prototyped in the research lab, and we discuss the ideas in Video Collaboration Opportunities (Section 5).

Ethical Considerations

We took measures to ensure the active engagement & support of all who participated in the study. Our work was designed to incorporate youth opinions in our activities and adjusted according to the groups' interests & needs. Although the participants were under 13 and thus not compliant with these applications' User Agreements, the pre-teens were already active and aware participants of social media (as further discussed in Section 6). We actively worked with the Sanford Afterschool leaders to design enjoyable afterschool sessions, keeping answers to our research questions as a byproduct of the valuable experiences created for the youth. Our study design was submitted to our IRB however it was determined to not be "human subjects" work as participants were collaborators rather than subjects and all activities were judged to be soundly within an educational mission. However, to protect the pre-teen collaborators we still collected signed consent/assent forms for pre-teen participants and received explicit permission from their parents to include their images in the paper. While we wish to respect the privacy of our contributors, they were just as much drivers of the activities and investigations as we were. It would be inaccurate and

unfair to our creative collaborators to not at least include the group's contributions as acknowledgements.

Limitations

We do not consider the opinions and experiences of our youth creators representative of all youth creators. Creation experiences were impacted by the devices and technology we were able to provide, the demographics of all of the co-designers, and by holding the Sanford Middle School workshops in a school, immediately after school. However, we highlight our particular cases of creation and collaboration, to contribute design implications that address some potential opportunities in social media.

4 RESULTS

In this section, we discuss the results for RQ1 and RQ2. For these we focus primarily on the results of the workshop sessions with the pre-teen youth. Findings from the undergraduate designers-in-training workshops will be included as points of comparison, but primarily discussed in the following section, Video Collaboration Opportunities.

Practices and Roles in Video Creation

Our analysis of workshop videos revealed that roles in video created depended on the type of video created. We investigated the roles that the pre-teen youth assumed in video creation to have a better idea of the kinds of collaboration that we could design to support. We developed seven categories that differentiate the roles and practices in video creation. For example, if a video was a scripted skit, youth worked together to tell a story, with everyone coordinating to do their part. Alternatively, a participant could also use the camera to tease classmates by recording them, in which case the video subjects clearly were not supporting the video. We also noticed that some of these categories came with really specific technical challenges (e.g. editing or wading through useless content). We describe the categories below (with screenshot images of examples in Figure 1) and include the main challenges and opportunities of each style of creation.

Skits. Videos with skits had scripted scenes and stories that showed a concerted effort by all participants to create the video. While videos were rarely scripted word for word, there were often assigned lines and repeated takes of the scenes that showed the planning involved. The roles of this category were of mutual collaboration between the creators. A repeated example of this was an effort by some of the students to make a news show about the school and afterschool program. Students filmed segments about school updates, interviews, sports, and weather that they planned to edit together. However, some technical challenges that came

with these videos were keeping track of multiple takes and editing separate videos together again. The editing process was much longer than it took to plan and record videos in the first place, although for one of the projects this extra time was because the editor simply enjoyed adding extra flourishes (like sound effects and typed jokes at the end).

Goofing Around. This category described moments of free play and improvisation between creators. We saw that roles were very relaxed but still collaborative. For example, some students developed goofy characters (like Jet, who lived in a locker, or a Scotsman that lost his leg in the War of 1812), while others recorded themselves hanging out. These videos usually displayed more back and forth banter between video creators than other categories. However, sharing these videos was a challenge — videos made with a lot of Goofing Around were sometimes too goofy to want others to see. For example, at the end of one session pre-teen youth picked videos they made to show the rest of the workshop, a group that made an especially goofy video turned away from the screen while it played so they wouldn't see their own video.

Documenting. This content focused on the camera holder's point of view and simply recording their experiences. Creators would pan to different objects or people in front of them and describe them to the camera/audience or they would face the camera at themselves to record their own opinions and reactions. In one session two students set off to explore the hallways and reflect on different rooms, while another filmed a "Behind the Scenes" video of the other's exploration. Towards the end of the year, 5 of the pre-teens got interested in Documenting with reaction videos of video games or other videos. Like with Skits, the challenge of these videos became combining the separate videos, although with Documenting there were more instances of creating more side-by-side or picture-in-picture views that were technically difficult, and entirely unsupported by the mobile technology.

Surveilling. Videos with surveilling were about the experience of filming and the anticipation of content more than they were about recording anything in particular. The primary example of this video is panning around a bustling classroom, when the camera never settles on anything in particular. These videos seemed to be more about signaling an interest in video creating than showing the same initiative or inspiration of above categories.

Bothering Others. This category of video recorded a fairly transparent effort to tease other people in the workshop and school, by filming them. While it's unfortunate that videos were made with unwilling participants, these videos demonstrate the need for more norms around video courtesy and the subtle impact of app designs. For example, a benefit

Figure 1: Selected examples for video categories (from left to right): Skits, Goofing Around, Disregarding the Camera, and Technical Moments.

of platforms with shorter video lengths, since a built-in end of the video limits the bothersome interaction.

Disregarding the Camera. These moments in video creation occurred when the camera was unnecessarily filming or when the recorded video was notably hard to watch. Videos would often be pointed at the ground while creators discussed the next recording, or the camera would be jostled while a creator ran so much that the images were too blurry. While the pre-teens learned to stop and start videos with more intention, it could be hard to tell when the camera was shaking too much during the recording process.

Technical Moments. Instances in this category revealed a wide range of technical details that can go into video creation. These occasions demonstrated when the camera or phone itself dominated the recording, like if creators had to stop what they were doing to adjust the camera, or if they were testing a filter. These Technical Moments highlighted the fine line that extra features play in adding to or distracting from the other parts of the creation process. These categories of videos were not mutually exclusive. Videos could transition roles with scripted Skits that devolved into Goofing Around or perhaps start with a period of Surveilling before inspiration strikes and then start documenting a reflection on a teacher while looking at the door to their room. However, as the type of content created shifted, so would the social dynamics of the video.

Making Social Play a Priority

As the co-designers evaluated current video creation and sharing technology (RQ2), we found the desire and opportunity to make social media more social. Design activities and video creation sessions helped pre-teens develop and demonstrate their priorities in video creation. Our collaborators had strong opinions on their favorite video applications, but a hard time articulating their preferences between these

apps. The video filters and effects on Snapchat were held in high regard by the students, but generally students were split between preferring YouTube or the collection of Instagram, Snapchat, and Musical.ly. Instagram, Snapchat, and Musical.ly differentiate themselves with Snapchat sharing ephemeral media that disappears after viewing, Musical.ly (which is, again, now ‘rebranded’ as TikTok [37]) supports music and movie clips as the audio for video, and Instagram providing a more general media sharing platform. But these features don’t necessarily succeed in making any one app stand out, as one pre-teen collaborator said with a shrug, “they’re all kind of the same.”

All of the features in video apps can be a part of fun video creation, but none impacted the workshop videos as much as social interactions did. While groups of creators changed throughout the program, participants quickly lost enthusiasm to create videos if they weren’t with friends, one day when a pre-teen youth’s best friend was absent, she had a hard time feeling inspired, saying, “It’s just not as fun without [her].” To formalize this point, we drafted a short questionnaire to ask about their priorities around video apps. The questionnaire was completed by 8 participants, and other people (friends, subscribers/followers) were listed as the most important part of video apps. When choosing between “I would rather make videos by myself,” and “I would rather make videos with my friends,” 7 out of 8 participants chose making videos with their friends (though 3 insisted they like both equally), with the other leaving the question unanswered. The 5 undergraduates also completed the questionnaire, where 3 selected the social option (1 insisted on both, 2 preferred making videos alone). So as we designed technology, we were especially inspired by the possibilities of supporting this collaborative experience.

Figure 2: Selected screens from the interactive prototype of Video-Phone Game: Group Activity page (including activities status of all the people participated in the game), Groups Home page (allowing users to create new groups for a new telephone game), Select Prompt page (allowing users to select a prompt to start the game), and Describe Video Prompt (prompting users to continue the game by describing/summarizing the video from last participant). Through interactive prototypes like this one, undergraduate designers in training were able to help .

5 VIDEO COLLABORATION OPPORTUNITIES

We present designs and ideas created by the designers-in-training to address RQ3. The design ideas were developed in cooperation with the pre-teens and undergraduates, with technical implementations lead by the undergraduates. We provide these tool designs as instantiated design implications [50].

‘Video Chainz’

Inspired in part by the Snapchat Story behavior observed by one of our undergraduate designers, Video Chainz is a system of letting people add clips together one after another to create a single chain of videos. In the inspiring video, people on Snapchat would post an image to their story with a prompt to viewers like “screenshot and add a dog” collections of friends would get to see the image grow as the picture was shared and modified. We combined this idea with the pattern we noticed starting with the pre-teens’ news crew creating clips of videos from different people that then were to be edited together. To address the challenge of creating complex Skits, we wondered what if there was a system based around the idea many friends contributing? One undergraduate created a design sketch, and the lead authors prototyped this idea leveraging Snapchat on one mobile phone that was

passed around as if it had combined videos sent from multiple devices/accounts. The video prototype was presented to the pre-teens and it inspired them to create videos that incorporated more varieties and chains of people, like going around the school and interviewing people they found. This demonstrated collaboration in videos that directly incorporated playfulness and socializing.

‘Video-Phone Game’

The ‘Video-Phone Game’ was partially inspired by the game “Telestrations” [1]. Of the other top design ideas, it was chosen for development as an example of a different kind of ‘video game’ (see layout in Figure 2), and as an option that was not necessarily about posting the resulting video. The design of the game is that one person will film a video of themselves acting out their own simple action or one from a prompt (e.g., ‘dancing the jitterbug,’ ‘sitting and eating an apple’). Then the video will be sent to the next person playing who will record an audio clip description of what they just watched. Then the next person will record a video and the process of audio and video recordings will repeat until everyone playing has gone. The group then will get to watch the completed video of the process of the action as it changes between people. One designer created an interactive prototype, again the lead authors used Snapchat to prototype

the experience. The research lab members that participated in the video enjoyed the game, and encouraged more prototype development. Unfortunately, the pre-teens were not as excited about the game. As one participant explained, she did not actually enjoy the way things get misinterpreted in games like these, but it did inspire students to think of more games that could be modified to incorporate video creation, like charades.

6 DISCUSSION

We propose a model of social video creation, and discuss design implications for making content creation more social on social media. We also consider the ways that our findings in collaborative video echo the collaborative process from this workshop series. Finally, we consider the impact of our collaborators' ages and the use of social media by youths under 13.

Making Social Media More Social

Preparing and performing the app critique sessions revealed how similar many video apps are, and it appears these similarities are somewhat intentional [21, 33, 34]. However, videos created in our workshops actually reveal there is room for many different types of social creation and sharing with video. The designs that came from working with the undergraduate designers-in-training also highlighted the possibilities of creating videos across a group of friends, or with video creation as an important part of the game itself. As other research has found, play is an essential role in developing a collaborative community [8]. Games and tangible items can serve as tools for youth storytelling [20, 53]. However the processes and play that these pre-teens developed to collaborate and distribute creation could also be extended to online creative projects in similar ways. [41]. Working with these youth, we were able to see how formal and spontaneous collaboration contribute to the video creation process.

While our results also highlighted editing challenges in the video creation process, supporting youths with editing tools is detailed in previous work [43, 62]. The editing challenges in this work highlight the difference in experience of creating videos for a product versus for the experience itself. In our workshops, we found that it is more fun to make the videos, than to necessarily show them. Other work has found that different social circles and context collapse on social media may also play a part in creators hesitation to share their creations on social platforms [29, 39, 44]. Future work could further investigate how playful media development impacts expectations around audience. If media creation itself were more social, perhaps that would change how people choose to share their creations.

Collaboration and Creativity in Design

Collaborating with both pre-teens and undergraduate designers-in-training helped us bring a wider range of skills to bear. Dividing design activities in a way that supported everybody's desired and existing skills offered a chance for each team member to provide feedback in a way that felt most valuable for them. Other research on creative collaboration has found that teams of different ages and skills can still collaborate on creative efforts [8]. This work also reflected the importance of taking time to encourage equality and take feedback on all levels. Additionally, it takes compatible interests and status to build a successful team [51]. To build this sense of equality we also recommend taking time for reflection [52]. In our study that generally meant taking time to re-watch videos and review design ideas. But we also made sure to incorporate feedback [64] between groups as a part of the reflection process, sharing and responding to progress from each team. The undergraduate designers might have over invested in the "Video-Phone Game" without bringing it to the pre-teens, but without showing the design opportunities to the pre-teens they might not have expanded their video creation styles (like the video montage of everyone's smile, and the interview structure for videos).

Mainstream Media and Youth's Voices

We also want to acknowledge that as people under 13, our pre-teen collaborators may not be in strict adherence with their social network terms of service. While some are using social apps with parent consent and guidance (5 participants did report that they access the internet and mobile apps on parent-controlled devices), it is likely that some are not. It is also clear that social applications are available and appealing to youths as young as 8 (the youngest our pre-teen collaborators reported using social media accounts). While there is little academic work to show the full breadth of underage engagement online (Pew neglected to include youth under 13 in their latest account of social media use [38]), the BBC has reported internet access for those ages 12-15 to be 'on the rise' [16]. As researchers and technologists, it is important to understand all *de facto* users of the systems we create, whether or not we are actively inviting them and whether or not their participation is allowed by laws. And to that extent, some of the possibilities for these pre-teen users can still be appealing to people of all ages. This multigenerational work opened the door to designing technology that all of us look forward to using.

7 CONCLUSION

To obtain a better understanding of youth content consumers and creators on online video platforms, we conducted a 30-week series of design workshops. We worked with both

pre-teen youth and undergraduate students being trained as designers throughout the design process. We qualitatively analyzed field notes and the contents of the workshop videos. From our analysis, we contribute an empirical understanding of the challenges faced in the social dynamics of the video collection process and empirical evidence that social aspects are the primary reason motivating youth to create and share video. Based on our findings, we present challenges and opportunities on how video technologies could be built to support collaborative video creations between youth. Finally, we contribute co-created design instantiations that address these challenges and capitalize on these opportunities.

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8 SELECTION AND PARTICIPATION OF CHILDREN

All students participating in the after-school programs at the middle school were provided with the opportunity of participating in the co-design workshops. Students were welcomed to join the workshops if they expressed interests in the topic. Students were not required to attend all the sessions during the semester and might not be able to attend a session if they had other obligations (e.g. detention, appointments) or sickness. Overall, the group of children varied from 5 to 12 and are between age 11 and 13 (6th and 8th grades). Students participated in the workshops were given parental consent forms to take home which were later collected either by researchers during the following workshops, or by school teachers.

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