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Audio Journaling for Self-Reflection and Assessment among Teens in Participatory Media Programs

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ABSTRACT

We examine the use of “Audio Journaling” as a multi-faceted practice and participatory research method to engage young participants in forms of creative expression, self and peer-based reflection, and participatory assessment. We share our experiences from incorporating this approach in three different participatory media programs conducted with adolescents in Gaza, Jerusalem, and New York City since 2011. In prior work, audio diaries have been used as reflective probes with young adults for conducting social research, and with the visually impaired to elicit rich contextual experiences informing HCI design. Our findings illustrate how audio journaling can be used with adolescents in participatory media programs to capture spontaneous and introspective experience-focused accounts with emotional resonance, while revealing the process of sense-making in a lightweight and unobtrusive manner. We believe these practices can enhance participatory learning, co-creation, and peer-based evaluation of program outcomes.

Author Keywords

Audio journaling; diary studies; digital media learning; participatory research; qualitative methods; assessment.

ACM Classification Keywords

CCS → Human-centered computing → Human computer interaction (HCI) → HCI design and evaluation methods

INTRODUCTION

This paper is motivated by a desire to examine new methodological approaches that engage adolescents in conducting forms of self-expression, critical reflection, peer-based learning, and participatory assessment. Most digital media and learning programs seek to undertake various forms of “evaluation” with young participants to assess the

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efficacy of the “interventions” and learn how they may be improved. These assessments are expected by funders and institutions supporting such programs, to understand how they benefit participants within their social or educational settings. However, program staff and evaluation specialists encounter many challenges in designing, implementing, and documenting the creative, pedagogical, and interpersonal effects experienced by young people involved. Participants themselves generally find the so called “evaluations” time-consuming and disruptive to the natural flow of their everyday activities, learning process, and creative work; they are understandably leery of being observed and their performance evaluated. Rarely are such evaluations devised to engage the participants themselves in a process of self-reflection and peer-based inquiry, as equal stakeholders in the process. While surveys, interviews and focus groups are commonly used, the process can be rather exhaustive and demanding of the limited resources and expertise available. In these contexts, the outcomes are difficult to measure or act on directly to improve the programs while they are still being conducted, rather than examined only retrospectively.

Participatory Action Research (PAR) embodies a crucial means of ensuring that participants are stakeholders in the process of research [1]; PAR may guide how participants engage more critically in research questions, reflect, and act on the outcomes emerging from their own participation over time. Peer research conducted with and by youth is an important approach for facilitating participatory inquiry, whereby the inclusion of young people as co-researchers may allow them to leverage their own cultural and “sub-cultural capital” to recruit and establish rapport with other young participants [2]. Undertaking PAR-based assessment is fairly challenging due to the limited duration and time available in such programs, the open-ended process of inquiry, its lack of familiarity among program staff, and an inability to easily analyze and document emerging outcomes. However, we believe the ethos of peer-based learning, reflection and action embodied within PAR offers a more engaging, ethical, and efficacious orientation within which to devise new forms of participatory assessment, particularly in the context of creative digital media and informal learning environments involving children and adolescents.

In this paper, we describe lessons learned from pilot research projects to conduct peer-based narrative and reflective assessment using a mixed-methods approach in the context of participatory youth media programs conducted with teens; these were designed by our research team at The New School and conducted in partnership with community-based organizations in Gaza, Jerusalem, and New York City since 2011. We examine the overall methodologies developed, while citing the challenges involved in implementing them. We focus on *Audio Journaling* as an exploratory method, and the distinct nature of outcomes it yielded from participants. We discuss how audio journaling offers a rich medium of expression articulated by children and adolescents, and a more transparent and lightweight approach for participants, teachers, and staff to easily incorporate into their programs. The paper is primarily meant to draw methodological insights from three inter-related case studies using audio journaling, rather than present detailed assessment outcomes.

DIARIES AS A RESEARCH METHOD

Use of Diaries for Research in the Social Sciences

Qualitative research in the social sciences has sometimes included the use of written diaries as part of participant-contributed data collected over time, in conjunction with data gathered from participant observation, semi-structured interviews, and focus groups. Diaries can be both structured and unstructured, whereby researchers provide instructional guidance and directed questions for participants to respond to on a regular basis or allow them to capture a free-flowing record of their experiences, activities, and emotions relating to a topic of inquiry. The results can be examined retrospectively or used as an opportunity for joint analysis and follow-up interviews between the researcher and diarist on a regular basis [3]. Solicited diaries provide information from key informants that may not emerge as easily using other methods, including rich intimate accounts of personal experiences, temporally ordered and real-time data revealing events unfolding over time, and opportunities for reflective introspection. Unstructured diaries may offer highly contextualized experiences, often unanticipated by researchers. Retrospective reporting (e.g. solicited through follow-up interviews) can miss crucial events experienced by participants which researchers may be unaware of, while the accounts provided by participants after the passage of time may be affected adversely by their current circumstances or flawed recollection [4]. Diaries as a method have been popular in fields such as sociology, social geography and medicine with diverse studies conducted to examine sexual behavior and violence related to HIV/AIDS [5, 6, 7], chronic illness and health experiences [8, 9], and domestic labor and workload during motherhood [10, 11]. However, the success of such diary-based methods relies on the motivation and commitment of participants involved while recruitment, compliance, and timely sharing of outcomes with researchers can be quite challenging. Using such written diaries regularly over an extended period is demanding on participants; it inevitably affects their daily routines and most likely also

their lived experience of the very events they are chronicling. Some participants may find the notion of writing about themselves awkward and uncomfortable, while others may simply lack the literacy or linguistic proficiency to contribute a rich narrative of their experience in writing. Researchers must design the diary protocol carefully as part of their wider toolkit of qualitative methods based on their research questions, while providing guidance to initiate first-time participants, non-prescriptive questions to avoid biasing responses, conduct regular check-ins to monitor usage, and provide support to alleviate any potentially harmful or stressful episodes emerging in the process [4].

Audio Diaries and Journaling

In recent work, audio diaries have emerged as an extension of the diary method, though they represent more than a change of format to address issues of literacy [12] or time demands imposed upon participants. Audio diaries offer a highly convenient means to capture real-time experiences and provide a rich record of conversational narratives [13], often with greater emotional resonance unfiltered by the act of processing and writing (or re-writing) conventional diary entries. Researchers remark on the ways in which audio diaries capture non-linear narratives while being constructed, as a “discursive think-aloud process” offering deep and unintended “insights into an individuals’ sense-making activity” [14]. Recent literature has delved into the benefits and challenges of using audio diaries to capture participants’ lived experiences whether it be breastfeeding among new mothers [15], formation of professional identity among medical students through longitudinal narrative research [14], and understanding sleep experiences among adults [16], children and teenagers [17].

Audio diaries were used to conduct research with visually impaired young people (aged 16-25) in the north of England, examining their experiences of transition to adulthood [18]. The longitudinal study, conducted in the second stage of a multi-stage mixed methods project, used audio diaries as a follow-up tool to provide more in-depth data, 4-6 months after the initial narrative interviews with 26 participants. Each participant received an audio diary kit in the mail, consisting of a microcassette recorder (with Braille labels), an audio diary guide with brief instructions and questions in Braille or large print, an ethical statement from the researcher, and a pre-paid envelope to return the materials to the researcher. The questions for the audio diary were meant to work in parallel with the narrative interview which focused on their “fateful moments”, capturing how their stories of transition to adulthood changed over time. The questions included ice-breakers like “finish these three sentences” and “tell me about” questions to provoke open-ended responses. While it took many months to receive the audio diaries, active follow-up ensured an 80% response rate. The transcripts of the audio diaries tended to be longer and more detailed than some written responses received over email. The results were analyzed alongside prior narrative interviews providing a better perspective on the *active*

experience of events among participants, while the tone of voice and patterns of speaking provided richer context and meaning to the stories. Hence, the audio diaries offered more intimate, non-oral, and experience-focused accounts.

As noted in prior sleep research [16], while written diaries yielded factual elements, audio diaries included detailed narrative episodes giving insights into the intimate lives of participants along with their conflicting emotions, against a backdrop of their social circumstances. Researchers noted that audio diaries were an ideal fit for data gathering from young people (especially the visually impaired) as they are highly technologically competent and motivated to use mobile devices for capturing and browsing media; the novelty of using audio to privately record experiences allowed it to be a more engaging activity and aided better compliance (vs. written diaries). However, the “success of the audio diaries seemed to hinge on the audience aspect, and the rapport built up with the participants during the initial interview.” [18] The particular forms of knowledge, perspectives, and intimate accounts shared by young people in these diaries depended on their perception of who would be listening to them. Hence, the researcher has a crucial responsibility to carefully build trust, confidence, and sensitivity with participants as a knowledgeable and supportive listener for these youth narratives. In prior work, it has been shown that diarists write or speak with a particular audience in mind, shaping their performance of self [19]; hence researchers must navigate their own privilege, positionality, and the influence of power relations emerging in these contexts to critically interpret the narrative content produced by young people in such diaries.

While the terms “diary” and “journal” are often used synonymously, a diary is almost always written from a personal perspective and a private chronologically ordered record of one’s daily activities. Journals usually capture significant experiences, along with thoughts, emotions and reflections. They need not be chronologically ordered and may be topical in nature; finally, journals are not always private accounts but often shared more publicly. In our work we use the term “Audio Journaling” as a *multi-faceted practice* and participatory research method encompassing audio diaries, individual and peer-based practices such as autobiographical, self-reflective and narrative storytelling, place-based observational and conversational recording, as well as approaches to organize, review and analyze content. Activities can range from solicited to impromptu journaling activities over time. The key is to facilitate greater agency among participants to adopt audio journaling as a regular practice for self-reflection and narrative inquiry, aspects of which they may choose to share with others as needed.

Diaries and Probes in HCI Research

Media elicitation has been used in diary studies [20] to quickly capture a participant observers’ perspective of events as they are occurring; these include digital images, recorded audio clips, and physical objects that are “likely to evoke

different reconstructions and attitudes towards an event”, serving as “situated annotations” of captured events to improve recall or allow unobtrusive and often clandestine audio-based recordings. Cultural Probes [21] are similar to diary studies in that they allow participant-centric elicitation of unexpected or imaginative social and cultural experiences, through low-tech kits including disposable cameras, postcards, diaries, and single-use digital audio devices like the *Dream Recorder*. Technology Probes [22] build on this approach to deploy a set of simple creative tools in a real use context, through an open-ended and adaptive manner, to derive ideas for novel technologies from users over time. Unlike media diaries, they are not designed to capture everyday interactions. Audio diaries were used to elicit feedback for participatory design and prototyping with visually impaired users [23]. Participants were asked to conduct similar tasks in their homes or workplaces using their current accessibility technology, while sharing their reflections with the design team prior to each prototyping session. These audio diaries “expanded the space of reflection on designs to reach beyond the bounds of participatory sessions themselves” and gave designers “access to actual in-situ experiences”, capturing the participants’ speech-based interactions and commentary explaining their rationale and usability issues encountered. Researchers have also explored the role of sound as a “medium for social reminiscing” by having families record *sonic souvenirs* (audio-only mementos) of their holidays and discussing them upon return [24]. Researchers found that while both sounds and pictures “triggered collaborative reminiscing”, the sounds offered more “varied, familial, and creative” experiences and exploration among participants.

We examine the use of audio journaling with young participants as a creative probe eliciting reflections from digital images, hand-drawn sketches, and physical artifacts; we found these better suited to our resource-constrained field settings, easily and reliably deployed, and quickly adopted by adolescents, without significantly distracting them from their learning and co-production activities. Allowing most participants to take audio recorders home during the workshops, the journaling expanded the space of reflection into their domestic settings. As many participants used the audio recorders during their soundwalks in urban neighborhoods, their on-site journaling also captured these soundscapes along with their spontaneous commentaries.

EXPERIENCES FROM PARTICIPATORY YOUTH MEDIA PROGRAMS IN GAZA AND JERUSALEM

Since 2011 we have conducted participatory media programs and pilot research examining the experiences, struggles, and identity constructions of Palestinian children and adolescents living under conditions of conflict in Jerusalem, West Bank, and the Gaza Strip. While previous studies have researched psychosocial stress and trauma among young people in the context of protracted conflict and violence, rarely have they considered the potential positive outcomes of adaptation and resilience. Sociologists and psychosocial researchers have

begun to examine these concerns through longitudinal studies conducted in areas of conflict such as Bosnia, Palestine, Sierra Leone, and Uganda [25, 26]. Their studies point to the use of culturally-appropriate framing and localized mixed methods as well as positive indicators of resilience and pro-social attitudes emerging among affected youth under certain conditions of community engagement, narrative, and civic agency.

The role of narrating was examined among adolescents in highly contentious situations after the war in the Balkans, as self-expressions of identity and critical understanding of their socio-political environment [27]. Storytelling was used as a cultural probe to understand social-relations, emerging ideologies, situational coherence in crisis, and as opportunities for imagination and transformation of one's circumstances. The study conducted workshops and writing exercises with 108 youth across four locations to elicit hypothetical narratives that were subsequently analyzed linguistically. The results revealed the emergence of coherent and moral narratives with a "relatively universal script of inclusive and collective human action to overcome obstacles". Most adolescents used the relative freedom of fiction writing (and fictional characters) to handle intense emotions surrounding war and conflict as experienced by them and their communities, which could not easily be expressed in direct interviews or autobiographical accounts.

Since 2006 a nonprofit initiative, *Voices Beyond Walls*, has conducted digital storytelling and participatory media programs in Palestinian refugee camps in East Jerusalem, West Bank, and Gaza. While many pedagogical lessons have emerged from these experiences [28], critical research is needed to probe the value of participatory engagement in creative media expression to support resilience, pro-social attitudes, and civic action. Participatory content analysis was used for reflective peer review of visual narratives collaboratively produced by participants [29]. We illustrate here how audio journaling offers a lightweight and expressive means for self-reflection and assessment with adolescents in pilot research studies conducted as part of such participatory media programs in Gaza and Jerusalem.

Program Design and Capacity Building

The first pilot research project was conducted at the U.N. Woman's Center in the Jabaliya refugee camp near Gaza City in July 2011 with 20-25 Palestinian adolescents (aged 12-16), including their caretakers and teachers. A similar project was conducted in January 2014 as part of a participatory media workshops with two gender-separated cohorts of 12-15 Palestinian adolescents each (aged 13-17) at the Burj Al Laq Laq community center in the Old City of Jerusalem. Both projects used a mixed-methods approach drawing insights from questionnaires, creative probes about family and self, focus group discussions, semi-structured interviews, and narrative exercises conducted (in Arabic) with participants to learn about their interests, backgrounds, and life experiences; thereafter photography-based portraits,

neighborhood photo/mapping activities, and video-based storytelling activities were conducted to engage the young participants in creative media-based expression, followed by focus-group debriefings at the end of the week-long workshops. We share our experiences and some outcomes from the narrative audio journaling aspects of the project.

A crucial aspect of these projects was the involvement and capacity-building for the local staff and young researchers based in these communities. Both in Gaza and Jerusalem we conducted comprehensive 3-day training workshops with 12-15 young adults (aged 18-25), with backgrounds in youth counseling, child development, and clinical psychology. Taking an orientation towards Participatory Action Research (PAR), we developed the research goals, methods, and analytic approaches in conjunction with the young Palestinian researchers whom we considered domain experts and joint stakeholders in the research. This not only aided in much needed capacity-building in qualitative research methods with the team (who were mostly trained in quantitative and clinical methods), but also leveraging their own childhood experiences growing up in similar socio-political conditions and neighborhoods as the adolescents we wished to engage. Consequently, the young researchers were able to use their "sub-cultural capital" to forge meaningful relationships with the teenagers in the workshops during the process. In particular, they were able to better facilitate participants' use of audio journaling to capture seemingly authentic and intimate narratives, while jointly reviewing and analyzing their meanings. The young researchers carefully navigated their "insider status" with the teenagers to establish a familiar "big brother/sister" mentoring relationship as captive listeners, but also better recognized the "performance of selfhood", social and cultural constructs expressed by participants.

Audio Journaling

Audio journaling was incorporated in many key aspects of the participatory media workshops (using several hand-held H2 Zoom digital audio recorders). The workshops began with ice breakers and focus-group de-briefings (audio recorded with consent) among all participants about the goals, activities, and outcomes expected during the program. Thereafter, the young researchers were assigned to lead small groups of 3-5 participants in audio-recorded activities, including hand-drawn representations of the self, family and neighborhood, illustrations of a day in their life, and creative photo portraits of one another. Researchers also asked participants to lead their own audio interviews in pairs, asking each other to reflect on what the drawings revealed to them, while listening in and facilitating their discussions. With this warm-up exercise, as participants became more comfortable using audio recorders, the researchers asked them to undertake narrative audio journaling activities whereby participants recited short stories to one another about significant events in their lives over the past year, and why they felt they were memorable. Audio journaling hence offered more detailed profiles of most participants over time.



Figure 1: Young participants conducting peer-based audio journaling during media workshops in Jabaliya camp, Gaza

On subsequent days, researchers asked participants to lead neighborhood walks to share meaningful places and routes traversed in their everyday lives, while photographing them and audio recording their own reflections. These narrative audio activities complemented the digital storytelling activities conducted, helping generate characters and scripts for autobiographical stories or fictional scenarios they recreated in their short films or video postcards (which they later shared with youth in similar media workshops held in New York City). Collectively, their audio journaling, photography, and digital storytelling provided a rich source of narrative and audiovisual content used by the team to analyze complex issues of adolescent identity, self-esteem, gender norms, domestic life, and socio-political struggles whether it be living in the impoverished Jabaliya refugee camp in Gaza or the contested Old City of Jerusalem.

With 25-30 young participants engaged in activities over the week-long workshops, conducted for 5-7 hours each day, an overwhelming amount of materials was generated, including many hours of audio recordings. These written materials were carefully archived and organized at the end of each day by researchers and regularly discussed in de-briefing sessions held after the workshops. The data was used to draw out individual and collective themes, patterns, and psychosocial constructs that the teenage participants perceived, and how it shaped their sense of self, belonging, and agency despite the daily struggles, injustice, and violence they regularly experienced. While only a small portion of the data collected has been translated and transcribed from Arabic, we share some findings primarily drawn from a selection of the audio journaling activities. Key segments were selected in discussion with our translators and co-researchers to identify the most salient themes and issues. Some analytical categories were established in pre-workshop sessions with co-researchers, while others emerged later. Given the small sample size of participants, these findings are not meant to be representative but rather highlight their individualized concerns and emerging expressions, which were not easily elicited in questionnaires and interviews.

Outcomes from Gaza Workshops

In the Gaza workshops, when asked to audio record a significant moment in their lives over the past year, most children and adolescents mentioned narratives that included adverse effects experienced during the war (in January 2009), the personal loss of a family member or challenging events occurring in school. Many mentioned the regular

electric power cuts experienced in the Gaza Strip each day; peer journaling between two young participants provides additional nuance about why this may have been disturbing.

Boy A: "I am disturbed when the electricity is shut off... because this is unacceptable."

Boy B: "What disturbs you?"

Boy A: "When the electricity is shut off, they turn on the generators, and that disturbs me. It hurts my head."

In this segment their tone of voice becomes more subdued, and less enthusiastic than in the prior discussion. Later on, as the boys appear to discuss an everyday scenario through storytelling, even the mundane reveals something unusual for childhood experience in Gaza.

Boy B: "Can you tell me a true story from your life?"

Boy A: "Yes, of course, this is possible. One time my friends and I decided to go to the beach. We put together our money and we bought fruit, lunch and mixed nuts. We went to the beach from 7:00 in the morning until 9:00 in the evening and we did not encounter *any problems*. And we swam and we were happy, and we did not face *any problems*."

Success and achievement comes out in the boy's voice; a happy day, without problems; that's the day the boy chose to describe after only being asked to tell a true story from his life. While their tone becomes eager in this segment, it's interesting to note the emphasis on not facing any problems, repeated twice. The passage only highlights how a normal day by the seaside in Gaza (a very dangerous area) is considered extraordinary for these adolescents. Several participants discussed turmoil in the local political situation, which they were highly aware of through the media. Interestingly, the research team found that adolescents who reported watching TV and using social media regularly, and had more opportunities to socialize with friends outside school seemed more optimistic about their future, as expressed in the positive themes in their storytelling. Some children clearly used media-based engagement as a means for coping and making sense of their own everyday reality; this emerged from focus groups we conducted with the mothers of participants. Many of them also appeared to adopt prosocial attitudes, support networks, and forms of agency and solidarity through their interactions with peers in their neighborhoods and online networks. This may have allowed them to alleviate some of the stressors experienced in daily life and the political injustices that they perceived.

In the peer-based storytelling component of the assessment, participants recorded each other reciting a fictional story (1-3 minutes long) which they had prepared in writing earlier. One set of stories tended to evoke simplistic and mundane themes recurring across them, including the despair of living in Gaza, a thirst to go to the seaside, and to travel abroad freely; others emerged as metaphors for the political infighting and violence of war in Gaza. The intonation in their voices usually demonstrated an apathy and calm acceptance of the everyday reality surrounding them. They were mostly spoken in a monotonous and unexcited manner

using formal Arabic. As we later realized, these most often emerged in readings of pre-written stories to older teachers in a classroom setting. In another set of stories, that were spoken and recorded primarily among peers, many explored similar concerns but in slightly more imaginative ways using magical themes and comic book characters. More significantly the peer-based conversational mode allowed the young interviewees to ask probing follow-up questions about the plot and characters, while the storyteller offered more enthusiastic and spontaneous responses. The peer-to-peer dynamic and subcultural access available among young participants likely evoked a more playful and fluid narrative delivery, breaking out of the formal scripts expected and which they may have felt imposed otherwise.

Outcomes from Jerusalem Workshops

Audio journaling in the Jerusalem workshops was designed to better elicit open and spontaneous responses from participants about the activities conducted through drawings, photography, and physical artifacts they brought with them (e.g. objects of personal significance). The audio recordings appeared to be more expressive and dynamic informal exchanges, exhibiting the participants' train of thought, sense-making, and an ease of flowing into new topics. Listeners and translators remarked that they learned more about these young participants through their recordings (vs. ones from the Gaza workshops). This was in part affected by the young researchers who were able to leverage their subcultural capital to facilitate more natural discussions and also create a safe space for the participants to share similar life struggles living in Jerusalem. Consequently, the audio journals presented seemingly honest and realistic rendering of personal lived events; there is a spontaneity in recounting stories of everyday violence, abuse, and detention by police authorities as experienced by themselves or their siblings. Still some participants seemed reluctant to elaborate and express the details of their stories fully, due to an ingrained fear of being arrested or detained.

Despite the daily hardships they experienced, a recurring theme was the strong physical and spiritual connection with Al Aqsa mosque (revered as one of the holiest sites for Muslims) and the Old City of Jerusalem; one participant mentions, "I cannot live outside the Old City, it would be like a fish out of water... even if I went elsewhere I would return." Another theme that emerged was the joy of playing football with friends; however, there were concerns about the freedom to play given the ever-present restrictions on movement there. Themes of friendship, familial love, and solidarity with the community was also strongly expressed.

Audio journaling was used to elicit peer-based discussions around drawings and photographs taken by participants symbolizing the Old City during the workshop. In addition, this method was used during a walk throughout the city, as participants discussed how it's geographical, psychological, and physical contours impacted their lives and sense of identity. During this portion of the study, participants led

researchers through specific parts of the Old City, some to their homes or their neighborhoods, to discuss the role of these physical spaces in their lives. Throughout these audio journals, participants used specific images of the city as symbols marking their experiences as Palestinian youth in Jerusalem. In this excerpt two young participants capture their discussion of the historic wall protecting the city.

Girl: "What does the Old City wall mean to you?"

Boy: "...it's like the wall around our house." (chuckles, while pointing to his drawing)

Girl: "The wall of your house? What does the wall of your house mean to you?"

Boy: "I mean... like our homeland, our country."

Girl: "Well, would you like to climb it?"

Boy: "It's forbidden to climb the wall."

Girl: "Forbidden? Really?" (in a tone of disbelief)

Boy: "Yup, if they see us they'll chase us... I mean, the police. They have guards (positioned) on top. It's for foreigners. You only see foreigners walking along it."

Girl: "Do you think you'll cause trouble (if you climb it)?"

Boy: "I mean it's just a wall... but we do climb it. I've climbed it and sat on it and took pictures on it... did everything on it." (speaking defiantly)

Here the segment invokes the deep symbolism of the wall and how it envelops the Old City to establish a sense of home for many living there, while participants remain mindful of its precarious dangers. The sense of comradeship emerging between young participants and researchers, cultivated an ability to delve into intimate experiences during the study, enabling participants to draw greater meaning from their experiences through audio journaling.

PARTICIPATORY ASSESSMENT WITH YOUTH MEDIA PROGRAMS IN NEW YORK CITY

Many wide-ranging and innovative digital media and learning programs are being offered to youth in New York City, in after-school settings or in summer camps. Some are targeted towards marginalized, underserved or at-risk adolescents to improve school retention, media literacy and technological fluency. In 2012, The New School partnered with the Eyebeam Art and Technology Center and People's Production House (PPH) to devise a program engaging teens in experimental media, digital storytelling, and social action projects. For this program, we expanded our audio journaling methodology, combining it with standardized psychological assessment. This was conducted with a small group of 10-12 adolescents from several public high schools in New York City, recruited through a systematic selection process.

Design of the Participatory Media Program

The program began with a 6-week workshop hosted at Eyebeam called "*White Noise/Blind Spot*", focusing on digital self-expression and urban exploration using experimental media and technology. This was followed-up with another 6-8 weeks of training and paid externships at the author's university on filmmaking and creative production of collaborative media projects focusing on

neighborhood, political issues, and social justice in the city. The intensive workshops required participants to meet for 2-3 hours, twice a week, and conduct fieldwork on weekends. The goal was not only to improve creative media expression and technological fluency, but also to foster a sense of professional responsibility, self-esteem, civic engagement, and leadership skills among participants. The workshops and trainings were led by a team of 4-6 educational staff members from Eyebeam and PPH as well as graduate research assistants from the author's university.

The workshops began by having the teenage participants work in groups to explore urban neighborhoods using digital photography, sound walks, and audio interviews in the community. Deepening the act of seeing and listening to their everyday environments in new ways, was meant to develop perceptive and artistic skills for critically understanding and representing neighborhood issues, not unlike young journalists. The participants would learn to produce brief audio stories and use photomontage to construct interactive media installations, digital narratives, and dynamic maps using a web-based interactive platform called *Mozilla Popcorn*, designed for editing, remixing, and sharing media online. The participants maintained a collective blog about their work, discussed their interim projects at Eyebeam in mid-April, and presented their final work at the author's university in late-June 2012.

Pilot Research to Assess Emerging Outcomes

An exploratory pilot research study was designed to assess the outcomes emerging from this program. The goal was to examine how the trajectory of informal learning, narrative expression, and self-esteem was fostered in the program, while supporting increased community engagement and school retention over time.

The study implemented a rigorous mixed-methods approach in three main phases: 1) a baseline study using semi-structured interviews and a pre-workshop online survey consisting of three self-report questionnaires (using standardized youth development measures adapted to this study), 2) ongoing participant observation, audio journaling, weekly teachers' survey assessments of participants, and weekly debriefing sessions conducted among teachers and participants during the workshops, and 3) a post-program assessment with all participants which included re-administering the online survey, conducting closing interviews, and a focus group discussion held during the final project screenings.

Baseline Questionnaires and Interviews

After obtaining informed consent, the adolescents involved in the study were asked to fill out online questionnaires administered using Survey Monkey and interviewed with audio recording of their responses. The questionnaires administered included the *Rosenberg Self-Esteem Scale* or RSE [30], *The Life Effectiveness Questionnaire* or LEQ [31] and a newly devised *Youth Media Program Evaluation Tool* or YM-PET, which was adapted for this pilot study from the

Youth At Risk Program Evaluation Tool or YAR-PET [32]. The latter was designed as "an administratively efficient and psychologically valid method for assessing typically targeted youth development objectives for adventure-based youth at risk programs." The underlying style of the items and measurement scales was derived from the LEQ instrument. For the purpose of the study, modifications were made in order to measure the current research study's goals, particularly in areas of assessing media skills, mentorship abilities, and social engagement in community or neighborhood contexts. The RSE and LEQ were primarily used to validate the YM-PET and ensure this adapted tool provided consistent reporting of outcomes.

A semi-structured interview was designed to gain more in-depth understanding of the participants' responses within the study. Open-ended questions were elicited in five main thematic areas: 1) personality, identity, and social relationships, 2) perceptions of school and neighborhood, 3) fluency with technology and media tools, 4) community engagement, and 5) expectations of the program.

Audio Journaling

As the program began, participants were provided with their own hand-held audio devices (either Apple iPods or H2 Zoom digital audio recorders) and trained to use them regularly for a series of audio journaling activities and creative media projects. At the beginning of the program, the participants were asked to briefly narrate an imaginative story within 2-3 minutes, to gain a sense of their creative expression, self-esteem, and life issues on their minds. During their explorations in neighborhoods, participants were encouraged to use the audio recorders to listen attentively (through headphones) and regularly capture soundscapes of the environment, which they would later reflect on. At the end of each week, participants were asked to independently respond to three short reflective questions (provided on an index card) in order to assess their progress, satisfaction, and possible challenges encountered during the program. Participants would privately record brief responses (3-5 minutes in duration). The three pre-designated questions posed each week included:

1. Describe what skills you learned this week and what you enjoyed the most.
2. What was the most meaningful experience you had this week and why?
3. Was there anything you did not enjoy doing or what would you have changed?

While participants were encouraged to take their audio devices home and use them for audio journaling at any time, the recordings were collected and archived securely on a weekly basis. The original recordings were not made available to any other participants or teachers. After most interviews were transcribed and online data collated, the research team began categorizing, coding and analyzing the study outcomes. In the following sections we summarize some of the key findings from the audio journaling.

Participant-Centric Journaling Outcomes

We examined audio journaling from participants over 6-weeks in the first stage of the program; here we follow the narrative progression and reflections from three participants, who initially seemed noticeably reserved and introverted.

Participant A begins by mentioning how he already knew how to use the audio recorder as his father was a pianist and he would make recordings for him, but he learned how to improve the gain levels. Early on his most memorable experiences in the program were soundwalks and learning to listen to urban soundscapes; even in the same recording he remarks about this twice. He picked up audio editing tools easily and found the weekly tutorials boring, but enjoyed more conceptual activities acting out characters, photographing the unusual textures and “small things” he found in the streets, and mounting a camera on his bicycle to capture first-person video experiences. His gradual excitement over the course of six weeks was notable, as he incorporated the “boring skills” he was learning into more conceptual and artistically engaging projects.

Participant B enjoyed audio recording and soundwalking as she was learning a musical instrument in school. She delights at finding new sounds fused with objects in her environment, saying how “I heard a hose and it had a buzzing sound, and I didn’t expect that from a hose!”. She later mentions how this inspired her to record her own voice to narrate inanimate objects and learn to tell audio-only stories. She mentions that “I’m not used to hearing myself in recordings, so when I listened back to myself I wasn’t like afraid to hear myself, and now every time I listen to my recordings I get used to it”; she later remarks how this somehow made her less anxious speaking in public. She reflects on the need for solitude to “spend time outside and just sitting there and thinking what’s the point of my story”. The tone of her voice at the end gives a sense of gratitude, while cherishing being introspective.

Participant C enjoyed listening attentively to the world around her and letting her senses take over, ironically calling the soundwalks “an eye-opening experience”. She later mentions how “it helped me understand more about the world, and about me I guess”. After one activity where she had to mimic the movements of people walking outside, she remarks how it let her “sort of step out of your own boundaries and I guess project yourself and really explore who you are”; she later mentions how she was embarrassed at first to speak up in groups but has started opening up; she finds the peer critique helpful for her project, even though she was often “scared, shaking and fidgety” through it. She often used audio journaling to “think out loud how to proceed” in her project and set goals to plan ahead.

These brief summaries of audio journaling entries provide a sense of free-flowing, introspective, and experience-focused accounts, rather than retrospective descriptions of events or directed responses to questions. While they are often non-linear narratives, we hear the young participants constructing their reflections actively as they think-aloud and make sense

of their own unexpected observations, perceptions, and emotions while undergoing these experiences. The nature of these responses provides a valuable opportunity to examine the active processes driving choices and behaviors at the heart of participatory media programs. Below we share additional characteristics observed across wider audio journaling responses.

Periodic and Temporally Sensitive Responses

It appears that different issues are salient for youth at different times in the program. What seems very important one day may hardly cross their mind the next. This is an important issue when assessing and improving a program; adolescents may not always recall an issue when one asks them about it. The more opportunities we provided participants to offer feedback, the more likely they were to engage more fully in discussing their concerns. One participant, for instance, commented after four weeks into the program on an issue he’d had since the start: “one thing... make the homework details more clear, cause... and that’s been from the beginning, but I didn’t mention it before...”. Another noted, after using the video-editing program for several weeks, that a handout to supplement class lectures on its use would have been extremely useful.

The periodic nature also allowed researchers and teachers to track how changes in the program were reflected in the participant’s experiences. Post-program interviews did not easily delineate real changes from week to week, as participants were asked to reflect over the entire program. As expected, the program was not uniformly effective; there were clearly weeks that participants found certain activities to be more or less challenging, with differing reactions by participants about what each found most effective. Ad-hoc review of weekly audio journals allowed the evaluation team to discuss how some of these issues could be addressed by teachers, during regular debriefings.

All participants enjoyed the third week of the workshop which included on-site activities and a psychologist invited as an engaging guest speaker; Some responses included “actually this week I really enjoyed both days...”, and “I really liked that we get to go around the neighborhood, and sort of, interact with, the places around us”. Reactions to the fifth week of the workshop, which focused on their individual projects, by comparison were much more varied; one student said “I know I’ve edited interviews before, but personally I don’t really like editing interviews...”, while another student spoke about building an overall message in her audio-based interactive art installation, ending with the statement “I enjoyed it... I personally enjoyed it.”

Assessing Emotions from Vocalizations

Emotions are often less regulated in the teenage experience; they are thus likely to be conveyed in personal reflections and add meaning in the context of the program. Moreover, emotions are more easily expressed vocally, providing rich information on both implicit and explicit concerns [33]. Often a participant’s mood was immediately obvious from

their tone and rate of speech, which provided context for understanding many “neutral” narrative statements. A phrase like “I think I need to make a few changes in my script” could be interpreted in many ways, but when spoken with a light tone that is neither hurried nor halting, it is more likely a reflective and goal-oriented statement rather than a negative or depressed one. Audio journaling provides a steady source of vocal expression to examine for emotional content. While assessing the reliability of such content may be less straightforward than measures such as the *Positive Affect Negative Affect Scale* (PANAS) [34], it does not require frequent administration of questionnaires, which all participants found distracting and unpleasant.

Self-Corrective Articulation

Written work in journals, blogs and essays offers rich reflection but may not always provide spontaneous expression; a participant writing a blog entry may deliberate his or her thoughts carefully, and choose to refine it several times before completion. Audio journaling provided an opportunity to not only hear the participant's response to a question, but also, in many cases, revealed the implicit intentions leading to it. The audio journals recorded pauses, corrections, and iterations of their thoughts, allowing researchers to notice subtle changes in the ways things were expressed, even when the overall response did not significantly differ. For instance, given the question “what is one thing you learned this week”, participants always identified something they had learned; however different participants had more or less difficulty in identifying this information from their experience every week.

Comparison with Quantitative Data Collected

As mentioned, participants completed three questionnaires at the beginning of the workshop at Eyebeam and at the end of their externship. While our sample was too small to make any strong inferences from data captured, findings do suggest possibilities worthy of further exploration. For instance, interpersonal measures on the intake survey suggest a reasonably high level of social competence, with mean self-report scores on all interpersonal scales substantially above average (on an 8-point scale, where 4.5 is the population mean). This included measures of Social Competence ($M = 6.14$, $SD = 1.08$), Communication Skills ($M = 6.74$, $SD = .89$), Leadership Skills (LEQ: $M = 6.78$, $SD = 1.01$; YMPET: $M = 6.85$, $SD = .97$), Team Cooperation ($M = 7.33$, $SD = .50$), and Conflict Resolution ($M = 6.74$, $SD = .60$). We believe this may indicate that participants likely to apply to this type of program self-report higher than average social competence. Participants seemed aware of building strong interpersonal connections during the program. One participant recruited several others for his high school dance project. Another commented, “The most meaningful experience I had so far... was meeting a lot of new people”.

In considering differences between participants who completed the program (including the externship) vs. those that dropped-out after the workshop, preliminary analyses

suggested a key factor was *achievement motivation*. Interestingly, participants who dropped out indicated notably higher levels of achievement motivation ($M = 7.80$, $SD = .30$) compared to those who stayed ($M = 6.92$, $SD = .50$). While further study is required to make firm claims about this finding, one interpretation consistent with the results is that participants who stayed in the program were interested in process, in learning and growing, whereas participants who dropped out were more interested in completing a final product. Comments in an audio journal made by a participant as he entered the externship phase may also provide a window into why some stayed while others did not: “Well I understand that we’ve been doing Audacity (audio editing software) but in my opinion we’ve been doing the basics so I want to like get into it. And I also want to learn more about Photoshop, cause like I said we touched on it but we didn’t really do much”. The focus on learning basic techniques in the workshop at Eyebeam may have left some students feeling underwhelmed and lacking confidence in the value of their completed projects.

Highlighting this fact, the average length of audio-journals differed substantially between students who remained in the program ($M = 192$ secs) and those who dropped out ($M = 100$ secs); audio-journals for participants who stayed in the program were, on average, almost twice as long as audio-journals for those who did not. Findings that dropouts reported greater achievement motivation may at first glance appear to be at odds with other findings (e.g., that dropouts occurred just after focus turned to the final project, or that participants who dropped out spent less time on audio-journals). However, by considering that achievement motivation focuses on attaining excellence, it is possible to bring these findings together—placing a high value on excellence might lead participants with low commitment or engagement to abandon a project rather than do a sub-par job. It suggests that providing strong incentives to boost engagement early on in the program and monitoring skill levels or competency to match training provided to individual participants, may be crucial for program retention. Finally, providing enhanced mentoring in the final stages of a project can be transformational for many of the participants indicating higher achievement motivation.

Self-esteem scores also decreased a small but consistent amount between the beginning and end of the program. For participants who completed the whole program from beginning to end, self-esteem scores on the Rosenberg Self Esteem (RSE) scale fell on average 2.25 points (out of 40) from 34.25 to 32.00 ($SD = .5$). Comparing participants who joined late but experienced the end of the program with dropouts shows a similar pattern, with participants who completed the program scoring on average 6.2 points less ($M = 29.00$) than those who did not ($M = 35.20$, $SD = 1.95$). Although lack of a control group precludes us from firmly identifying the drop-in self-esteem scores as a result of program participation, this consistent decline in self-esteem scores is notable.

While at first glance lowered self-esteem seems like a negative outcome, that may not be the case. Indeed, much has been written about the dangers of overly high self-esteem [35, 36], and it is generally acknowledged that self-esteem tends not to be beneficial when based on an unrealistic view of the self. More research is necessary to draw firm conclusions, but it seems possible that the decrease in self-esteem scores reflects participants' more realistic view of themselves following completion of a difficult and novel task. The audio journals lend credence to this interpretation, as their tone and content reveal a narrative of accomplishment and overcoming challenges to succeed. As one participant noted in his last audio journal: "It took a lot of criticism, but it finally became the perfect video, or at least somewhere close to it. Yeah, so Eyebeam was fun. I really wouldn't change a thing." In the future, the inclusion of another well-being measure (e.g., self-compassion) may help clarify the impact of similar programs on self-esteem.

While it's challenging to draw conclusive outcomes from data emerging from a small sample, by triangulating it using participant observations (from mentors and teachers) and the rich spontaneous and introspective narratives captured through audio journaling, provides meaningful insights that can be used to steer the pedagogical process and mentorship support needed during the workshops, while adopting improved practices in future programs.

CONCLUSIONS AND FUTURE WORK

Conducting a thorough and rigorous mixed-methods assessment for such participatory media projects requires a systematic and labor-intensive process with a great deal of dedicated resources; this is unlikely to be available for most after-school programs, however we believe that lightweight and participatory modes of assessment can be successfully adopted. In subsequent work, we piloted a newly devised participatory assessment for a digital storytelling and participatory media program with adolescents at the *Arab American Family Support Center (AAFSC)* in Brooklyn, NY. The revised approach eliminated all quantitative questionnaires and interviews, while emphasizing weekly focus group discussions led and recorded by participants, audio-journaling using pre-defined and participant-devised questions each week, and a final focus-group to be led by participants at the end of the program, in conjunction with project screenings. This assessment approach was designed to be more resource-efficient, peer-oriented, youth-led and aligned naturally with the pedagogical form, creative goals, and structure of the program. A greater focus on assessment of the "process" of shared learning, experimentation, and empowerment, rather than on acquiring skills, technologies, and finished outcomes simplifies the nature of assessment as a more participatory and reflective tool.

Through our experiences we found audio-journaling to be a fairly promising and complementary tool if incorporated as a regular activity among participants, especially for media-based programs. Audio journaling can be self-administered,

which offers the possibility of reducing some demand characteristics for program staff involved, and receiving more honest or frank responses [37]. It can be conducted as a private activity, which may increase the validity of responses to more sensitive topics [38]. Audio journaling also provides an alternative to written journaling and questionnaires for populations with limited literacy or linguistic capacity, including new immigrants, young children or those with certain disabilities. Among the young participants in the intensive media workshops, audio journaling provided a less strenuous and more immediate alternative to writing-up reflections on paper or in online blogs. Audio journaling was easily incorporated into the program structure; participants could capture their reflections at many opportune moments in the program or at home and while actively engaging in outdoor experiences.

As with any tool, audio journaling is not effortless to setup or ideal in every situation. It requires specialized equipment (such a digital audio recorders or Apple iPods), which also adds an expense. However, affordable audio recorders are becoming more widely available and most mobile phones allow audio capture. Training participants to use the devices for audio journaling requires some preparation and time. In many cases the devices may have been acquired as part of the educational media program itself, whereby participants are expected to learn to use them for their creative media projects and interviews; hence they can be leveraged for participatory assessment. Audio journaling does currently require time and effort, on part of program staff, to carefully transfer, organize, transcribe, anonymize and analyze; hence it may not always be ideal for programs with very limited resources. However, this can be streamlined with newly emerging dynamic audio tools and platforms. Overall, we believe audio journaling is a worthwhile approach that is relatively easily incorporated into existing media-based workshops or as part of program assessment methods to support a rich, engaging, and reflective experience for participants, educators, and program staff.

In the future, audio journaling can be augmented using digital tools for capture, annotation, sharing and analysis. In prior work, mobile interfaces have been devised to capture audio recordings synchronously with hand-written gestures on tablets for note-taking and retrieval [39], while prototype applications have been designed for adolescents to capture, annotate, and share audio-visual media as story threads on handheld devices [40]. *Sonic Gems* have been proposed as wearable devices to unobtrusively record fragments of domestic sounds [41]. These can be coupled with *embodied digital mementos* like the *Family Memory Radio* [42] or mobile tools for audio blogging, sharing, collective reflection, and participatory analysis among the adolescents themselves. Designing such ubiquitous audio-based tools in conjunction with audio-journaling practices, may support a more cooperative and participatory approach to learning, creative expression, and assessment among young people.

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SELECTION AND PARTICIPATION OF CHILDREN

For the participatory media workshops conducted in Gaza, 25 Palestinian mixed-gender adolescents (aged 12-16) were recruited. In Jerusalem, two gender-separated cohorts of 15 Palestinian adolescents each (aged 13-17) were recruited. The participants self-selected into the programs in response to announcements sent to their families. For the workshops in New York City, 12 mixed-gender adolescents were recruited from local public high schools by the Eyebeam Art and Technology Center. Informed consent was administered with all participants, caretakers and teachers. All responses were anonymized and digitally archived securely at the author's university. The research protocols were approved by the Institutional Review Boards (IRB) at the Massachusetts Institute of Technology (Gaza) and the author's university (Jerusalem and New York City), with oversight from local children's mental health institutes.

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