

# Quality ‘Alone’ Time through Conversations and Storytelling: Podcast Listening Behaviors and Routines

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## ABSTRACT

Audio podcasts have been widely used for more than a decade where millions of people listen to digital content on mobile devices. Despite a large amount of research on podcasts, there have not been any studies that explore the detailed listening practices of frequent podcast users, in particular, with a focus on understanding how podcasts support alone time. We conducted an interview study to understand and learn from such practices. Our results point to the characteristics of podcast technology that made it suitable for supporting people’s ability to be alone yet still feel like they were connected to others. This included being able to multitask while listening to a podcast, escape from times of boredom, and even have experiential moments of self-reflection. These behaviors were supported by the flexibility of podcasts as a storytelling medium, a feeling of intimacy and connection with the podcast host, and podcasts’ ability to make people feel like they are part of a conversation even when alone. We explore how these features suggest direction for technologies that can support alone time.

**Keywords:** Podcasts, asynchronous media consumption, reflection, solitude.

**Index Terms:** H5.3. Information interfaces and presentation: Group and Organization Interfaces – Asynchronous interaction

## 1 INTRODUCTION

Audio podcasts consist of a digital audio file that can be downloaded on desktop or mobile devices such as smartphones and tablets. Users can also stream them online. Podcasting has been around for more than 10 years and has grown to be used for many purposes ranging from commercial use to education [2,31]. Over the past two years, podcast listening has grown significantly due to the continued proliferation of mobile devices [5,10].

There is a rich history of research on audio podcasts, given their relative success. For example, studies have looked at the characteristics of podcast services [14], their influences on subjects such as education [20], and measuring the correlation between podcast listeners and their online shopping habits [11]. Annual surveys by the Edison research group provide quantitative data on podcast listening, such as how many people listen and how many use each type of device (e.g., [10]). This is meant to provide an overview of listening behaviors. Instead, what we do not see are studies of the routines and practices that people have created for listening to podcasts as a part of their everyday routine. This includes qualitative explorations of the ways that the flexibility, mobility, and passive nature of podcasts—their ability to be listened to nearly anywhere without requiring interaction—affect listening behaviors. As such, the goal of our research was to explore people’s routines around listening to podcasts, including: when and where they listened; who they listened with, if anybody; what activities they did while listening; and, how they shared knowledge from podcasts with other people, if at all.

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While some people may refer to particular video stories posted on online sites (e.g., YouTube, Netflix) as video podcasts, our focus is on the more traditional form of podcast that comes in an audio format without accompanying video.

Our results uncovered the role that audio podcasts played in supporting people during moments when they were alone and could disengage from the world around them, yet still feel like they were connected, somewhat intimately, to a podcast host. In this way, listeners felt like they were part of an ongoing conversation or story that was unfolding, sometimes just for them. Our paper unpacks these experiences to draw out lessons for the design of technology that can allow people to, like audio podcasts, disconnect from the world around them and gain moments of solitude, while still feeling connected and not alone. Thus, while we study podcast listening practices, our design lessons are not focused on the design of podcasts or systems to support them. Instead, we use podcasts as a lens to understand how we might design for other types of asynchronous media consumption as well as technologies focused on supporting alone time and disconnection.

In our discussion, we shed light on new design paths to explore where the structure of podcasts suggests directions for designing slow technologies, designs that purposefully cause people to slow down, reflect, and reconsider everyday moments and things [16,18,19,26]. Mainstream technology usage typically focuses on feelings of continuous connection and consume attention (e.g., being ‘always on’ Facebook and other social media tools) [17]. There also exist new technologies focused around exploring people’s ability to disconnect and ‘turn off’ technology such as email and social media for portions of the time [6,24,32]. Our results and lessons point to a type of technology design somewhere in the middle where people are connected but not. Here we explore the ideas of designing for flexibility so that content can be consumed almost anytime, anywhere and even while one is doing other tasks; making it feel as though listeners are part of a conversation, even when they are alone; allowing people to listen to content that draws their mind away from their current task; and, designing in a manner that allows one to connect in a somewhat intimate way with another individual, the host or narrator of content. These ideas have not generally been thought about when thinking about the design of slow technologies or those aimed at disconnecting. We build on this idea to explore the possible rethinking of how families and friends might share information with each other over distance focused around more purposeful, reflective sharing and connection.

## 2 RELATED WORK

### 2.1 Podcasts

Podcasts have been around for more than a decade and are used for a range of purposes from commercial ventures to education [2,33]. Podcast topics vary from news items, to self-help, to fictional stories where podcasts featured on ‘popular lists’ in app stores are more likely to be played and subscribed to [14]. Telephone surveys have revealed the demographic details of podcast listeners and shown that people listen to podcasts at home

(51%), while commuting (25%), and at work (14%) [10]. On average, respondents listened to podcasts for 5 hours per week. While the sample size from these surveys is high (e.g., more than a thousand people), they do not provide a detailed understanding of the listening behaviors of podcast users, and results are mainly meant for marketing purposes.

Podcasts have, however, been extensively studied for their role in education. A comprehensive overview can be found in work by Hew [20]. In summary, we see that in educational contexts, podcasts are beneficial as they allow instructors to easily create content that can be shared with students [12,20,25]. For example, researchers have demonstrated the benefit of podcasts for teaching second languages [1-3] and computer programming [33]. Yet the challenge is that podcasts are not always easy for people to use as some do not understand the software needed to play them or where to go to find podcasts to listen to [20].

Despite this large amount of research on podcasts, there have not been any studies that explore the detailed listening practices of frequent podcast users, in particular, with a focus on understanding how podcasts support alone time. Our research focuses on these aspects to draw out lessons for the design of asynchronous media-sharing systems with a focus on feeling connected while alone through storytelling.

## 2.2 Slow Technology

Slow technologies are designs focused on creating more meaningful connections between people and technology [16,26,28]. One aspect of the design agenda for such technology is to be used for solitary moments and mental rest for individuals [27]. In other words, slow technology has the potential to create quality alone time. This is done by designing for ‘slowness’ where it takes time for users to understand how a technology works and why it works in that way [16,26,28]. For example, the PhotoBox [26] included a physical box that randomly printed photos each month to connect users with their past. Users took time to understand and think about how the PhotoBox was working and what its printed photos meant to them. GoSlow [9] was a system designed to decrease stress for users by reminding them to reflect on themselves. The design is purposefully minimalistic and allows users to connect with themselves to reflect on their solitude as a mean to relieve stress. PostULater [18,19] targeted the way people connect over time. The system allowed people to send digital photos to family and friends where delivery would happen at a specified future date. Fieldwork showed that such systems are useful for sending reminders, sharing personal memories, and reflection where users continually reflected on the idea of themselves and media recipients in the future.

Together, research on slow technology has shown the value that can come from slow interactions with technology over time and in solitude. These designs focus on slow reveal of information to users such that people can connect in more meaningful ways with information. Podcasts, by its current definition, is not considered a slow technology but our results on podcast use during moments of solitude build on these ideas by pointing to the value in flexible and purposeful interactions with audio content.

## 2.3 Disconnecting and Solitary Moments

Research has also explored how people can limit their time using technology and being connected with others [6,7]. Many people in Western society struggle with feelings of over-connection and a loss of freedom over how they use their time [15,17,31]. This is exacerbated by increasing feelings of the need to ‘do more’ with our time [23]. As a result, researchers have started to think about technologies that allow people to disengage [29,35]. Studies have shown that even in cases where technologies are designed to purposefully disconnect people, it can be challenging to do so. For

example, Schoenebeck [32] studied people who tried to give up Twitter usage for Lent and found that it was hard for many people to do so. Mark et al. [24] studied information workers who tried to purposefully not use email for several workdays.

The HCI literature on designing for solitary moments has similarly gained attention [13,28]. This work shows a strong tie to research on slow technology when it comes the importance of solitude [9,16,27]. Several works argue that having access to large amounts of information continuously does not allow individuals to gain ‘peace of mind’ which will affect the connection that people have with their inner self [6,13,28]. Fullerton [13] compares it to when we connect to ourselves through the solitary act of reading a book. He encourages future designs to allow users to choose a time to not be distracted and feel completely focused on doing one task [13]. This is similar to several works encouraging less distracted uses of social media [7] or less usage of mobile phones in general [4,21,28]. A study of mobile music listening shows that people enjoy solitary moments while commuting and in domestic space where they listen to music [8].

As we can see, researchers are now exploring designs that are able to create a relaxing atmosphere where users can be connected to themselves for moments of reflection. We explore how podcasts fulfill the need that some people have for disconnecting from others around them and focusing on acts of solitude, while still feeling like they are connected with a host and podcast content.

## 3 STUDY METHODOLOGY

The goal of our study was to explore when and where people listened to podcasts; who they listened to them with, if anybody; why they listened to particular podcasts; what activities they did while listening; and, if and how they shared podcasts and the knowledge received from them with others. By addressing these points, we reveal the ways in which podcasts support disconnection and alone time.

### 3.1 Recruitment and Participants

We recruited participants who were current podcast listeners (listening at least once a month) using snowballing sampling, emails, flyers, and social media platforms such as Facebook and Instagram. We selected 18 participants (6 male, 12 female, age=23-55, average=32), all with experience with post-secondary education from different work backgrounds (e.g., acupuncturist, pharmacist, students, software engineers, and web designers) in order to get a diverse sample. 16 participants listened to podcasts weekly and 2 listened to podcasts biweekly while doing chores or on road trips. 12 of our weekly listeners listened to podcasts for at least 2.5 hours per week and 4 of them listened between 15 and 21 hours. 15 of 18 participants lived in a major metropolitan city in North America, while 3 of 18 lived in two different large cities. 16 of our participants listened to only audio podcasts and 2 used both video and audio podcasts (they considered certain YouTube and Netflix videos to be visual podcasts). Despite the use of video podcasts by some users, our results focus on audio podcast listening behaviors and routines.

### 3.2 Semi-Structured Interview Method

We conducted semi-structured interviews with participants lasting between 40 and 60 minutes. 15 of 18 interviews were conducted in person and three were done over Skype due to participants’ location. Interview questions focused on five main topics: 1) podcast types (what participants listened to and why); 2) timing, location and routines of listening; 3) the factors that made participants like certain podcasts more than others; 4) the challenges faced when trying to listen to podcasts and any

workarounds they used; and, 5) sharing patterns (how they learned about what podcasts to listen to and how they shared podcasts with others, if at all). For example, we asked them questions such as, “Can you tell me what kinds of podcasts you listen to? What are the names of them?”, “Where are you when you listen to podcasts? Why?”, “How do you find out about podcasts to listen to?”, and “Do you ever tell other people about the podcasts you listen to or information in them? If so, how?” To ground our interviews in actual practices, we had participants tell us about specific points in time that were memorable to them when listening to podcasts. Some participants showed us their podcast application and their subscribed podcasts.

### 3.3 Data Collection and Analysis

Interviews were audio recorded and notes were taken during the sessions. We then transcribed the interviews. Next we conducted an open coding data analysis process where we generated codes from scratch and not *a priori*. We labeled findings according to themes about listening and sharing behaviors. This included codes around the specific places people listened to podcasts, their associated activities, and thoughts about what made a podcast favorable to listen to. Axial coding was used to group the key findings from these codes into main themes such as multi-tasking, locations, timing, sharing habits, and topics. Next the researchers discussed the themes as a group and selected what we thought were the most pertinent findings. These are reported in the results sections. Participant quotes are reported with a P# to maintain anonymity.

In the next section we describe the main themes from our analysis where we outline people’s feelings about using podcasts to support alone time, the activities that people did while listening to podcasts, how location and time affected listening, and the desirable characteristics of podcasts. Throughout these findings, we explore the characteristics of podcasts that emerge as being helpful for making podcasts a successful method for supporting solitary moments.

## 4 PODCAST LISTENING AS A SOLITARY PRACTICE

Participants listened to a range of different podcast types, including storytelling podcasts about history, life, science and literature. Some people listened to podcasts about the news or politics. Other types of podcasts were targeted around special interests of the participants such as video games, meditation, or self-motivation. Podcasts were selected and found based on web or app searches, as well as word of mouth recommendations from friends or family.

Across these behaviors, one of the strongest themes that emerged in our results was the idea that podcast listening was a very personal and solitary activity similar to listening to music with MP3 players while people are in public spaces [8]. All of our participants said that they listened to podcasts alone the majority of the time. Podcasts were seen as an individual activity despite that, many times, podcasts were listened to with others around (we describe this in more detail later). Participants really liked this attribute about podcasts and enjoyed their time listening on their own. For example, P13 told us that listening to podcasts was “me time,” indicating that it was valuable time dedicated to her.

The idea that podcast listening was a solitary activity was even so important for some participants that they strongly opposed the alternative, listening to podcasts with others. For example, P6 was disturbed by the idea of sharing the experience with a friend since she felt her bond the podcast was personal and special.

*“There is something about that intimacy and that specialness of the relationship that I guess I feel I have with these podcasts that I*

*almost don’t want to bring someone else into it. Like sometimes I am definitely eager to share the information I got from the podcast with my friends or my roommate for example...like sometimes you know, will be chatting and mention something I heard from podcast but I don’t think I ever or probably would never just be like ‘hey I am listening to this podcast would you like to hear also?’, no! It’s my special time.”-P6*

Similarly, P15 told us that listening to podcasts was a solitary experience for him as it helped him relax. Four participants even kept what they listened to secret. For example, some podcasts were about subjects that participants did not want to talk to their friends about either because of embarrassment or a lack of wanting their friends to know what they were interested in hearing. One participant liked to listen to a topic that was considered taboo in his culture. The show was hosted by two young men and one woman who talked about ‘hot topics’ of everyday life, much the same way a group of very close friends would hang around and talk about life. Topics were sometimes quite intimate, including the psychology behind homosexuality and sexual problems in general. These were typically not talked about as part of his culture.

Only in rare cases did some participants listen to podcasts with others. For example, P1 shared her podcast listening with her 5-year-old son while commuting. This sometimes included listening to meditation podcasts with him so that he would calm down. P11 told us about her boyfriend’s habit of listening to a song before bed, which irritated her. He changed his habit to something more enjoyable for her as well, which was listening to a podcast.

In the following subsections, we describe a series of ways that podcasts were used as a part of people’s alone time. This categorization emerged out of our data analysis.

### 4.1 Escaping the Mundane

First, our participants used podcasts as a way to ‘escape’ what was seen as being mundane, similar to how music players have been shown to ‘fill in the air and space’ while doing tasks such as commuting [8]. By escape, we refer to a mechanism to make somewhat simple everyday tasks more interesting. By doing so, participants were able to simultaneously perform an activity, while also engaging their minds in other topics of interest. This included the completion of activities that were not necessarily appealing. For example, ten participants regularly listened to podcasts while commuting to and from work. Listening to podcasts while cleaning or cooking was also popular.

*“I listen to them on my drive to and from work and I need something to occupy my time because the drive is so boring because it’s the same every day.” -P5*

These activities were solitary in nature and did not typically involve others. Podcasts helped keep our participants’ minds busy during these times since they did not need to interact with others. Such multitasking was possible for audio podcasts since they could be listened to rather than having to watch a screen. Some could also be listened to in somewhat of a passive manner.

### 4.2 Reconnecting with Oneself

Second, participants used podcasts to create a deeper, more experiential connection to themselves and an activity that they were engaging in. For example, P11 liked to garden and listened to podcasts while gardening. Gardening was an activity that she preferred to do alone as it allowed her to reconnect with nature. She sometimes forgot about the hours passing by while she was in

her garden listening. She found the process of listening to podcasts relaxing and comforting.

*"I worked on my garden this summer and I just totally got carried away while listening to podcasts for hours weeding the garden and I saw it's getting dark." -P11*

Three participants listened to podcasts while performing crafts or other creative processes as a form of inspiration. Again, such acts were seen as being solitary in nature. For example, P6 loved to paint in her free time and alone so she could focus. Since this was a creative process she tended to listen to podcasts that were thematic to what she was doing. One of the reasons P6 liked listening to podcasts more than music during these tasks was that she liked information and stories. Once she was drawing a Middle Eastern scene and tried to listen to a podcast that was about mythical stories of the Middle East. She believed that the podcast helped her to imagine the atmosphere in a way that helped her creative process. P6 also liked to listen to video game podcasts while she prepared slides for a class she taught.

#### 4.3 Physical Activities

Nine participants listened to podcasts while performing physical activities. Here they were able to engage in a physical activity on their own, without others to interact with, while the podcast allowed them to mentally engage in content beyond just their physical activity. For example, P6 enjoyed nearly an hour of walking time every day before going to work. Her route consisted of an urban location and a short walk in the forest. While she walked in the forest area she enjoyed listening to the sounds of nature around her and did not need to listen to anything while she was walking there. Yet when she walked alone in urban areas she listened to informative podcasts to stimulate her mind. This, again, contrasts the way one might listen to music in a somewhat passive manner. For P6, it was important to have a story or information being shared with her. Thus, there was more of a point to listening. Similarly, P4 listened to podcasts while she walked her dog alone, which she said usually took a long time. Podcast listening was a motivator to continue walking in her case. Again, the importance lay in hearing an interesting story about a particular topic.

*"I listen most commonly when I am walking my dog because he is very slow and it's quite boring... It's something that makes it less of a chore because I get to listen to a story." - P4*

When P11 was going to the gym frequently, she listened to podcasts when she was working out. She preferred to listen to podcasts that empowered her to push for the most out of her physical abilities and feel more confident. These involved stories where she felt the content within them could influence her physical performance. Thus, she used the podcasts as a form of personal motivator, somewhat akin to having a personal trainer encourage her to keep working, yet she could now do the activity on her own.

*"When I used to go to the gym every day I would listen to podcasts or TV shows ... I imagine myself that I tried to pick more success stories to give me energy rather than something mellow." -P11*

#### 4.4 Relaxing and Reducing Stress in Alone Time

Podcasts provided a release for some participants from their stressful daily routines. P15 told us that his job was too stressful and that he usually used podcasts as a way to relax and release his

thoughts from everyday complaints, which he needed to take care of at his work. He started to listen as soon as he arrived home from work. Again, this behavior was solitary.

*"Most of the time my job is just too stressful. You are listening to people all the time, all the problems they have with the motors and everything else, yeah so I just want to have a relax time that is releasing." -P15*

As a masseuse and acupuncturist, P1 felt she was required to be energetic all the time and to have a positive feeling towards clients. For this reason, while she rested between clients, she listened to meditative and spiritual podcasts such as Deepak Chopra's podcasts. P1 even wanted to listen to them more, such as while working with clients, but her work place regulations did not allow her to do so.

*"For meditation I'm doing it several times a day! Sometimes I need it! I need to get relaxed and get energy. Because of my work I have to keep my energy always positive and boost up. I cannot drain my energy because I am working in the aura of people - people's energy field -so I need to revive it every couple of hours." -P1*

Listening to podcasts also helped some participants 'collect their thoughts' and mentally get ready for falling asleep. For example, P3 liked hearing stories that she could then think about while falling asleep.

#### 4.5 Filling Time and Spontaneous Listening

Some of our participants experienced situations where they had to come up with something to do because they had time on their hands. In these situations, they were alone and podcasts were spontaneously thought of as a way to help fill the void in time similar to how music has been shown to fill in time [8]. Thus, they tried to make the 'best' of their situation. For example, P5 told us about a time that he needed to be at a football field for his child's practice. He felt he did not need to watch his child constantly so he decided to listen to podcasts. This was possible since he was not actively engaging with other parents around him and it was easy to watch the practice while doing something else. Thus, even though he was present with other people at the practice, his watching of the football practice was somewhat solitary.

*"Anytime there's kind of nothing else happening. Which I think is actually kind of critical that there's nothing else better going on that I can do. It's like supplements an activity, it's never an activity on its own for me." -P5*

P12 told us about a memorable time where she was stuck in a hotel room and did not have Internet or any other means to entertain herself. She suddenly remembered that she had several podcast episodes on her phone that she could listen to offline. Listening to the podcast episodes helped to fill her alone time.

*"Once I was in a hotel in London and my phone didn't have Internet... I had 3,4 hours until my sleep time, suddenly I remembered I have my podcasts and I can listen to them without the internet. I remember I enjoyed listening to them so much." -P12*

#### 5 TIMING, LOCATIONS, AND THEIR CHALLENGES

Participants felt that audio podcasts were easy to listen to because they could access them on their phone or computer while either online or offline. In other words, they could access them almost

everywhere and at any time. As a result, participants said they listened to podcasts in different places such as at home, while riding public transit, and also while in their vehicles. Yet locations did not dictate what kind of podcasts people listened to. The selection of a podcast was far more related to the task that they were doing in addition to listening to the podcast.

*"I guess when I am home I am listening to the science podcast most but when I am on the road I would listen to the literature. When I am on the road I want to be relax and not to think about anything else. That's the only reason I can think of but it's not something conscious." –P3*

Participants told us that some locations were more challenging to listen to podcasts in. Loud sounds, such as that found on public transit with railroads and noise at a gym, made podcast listening more difficult. P11 was so dedicated to her podcasts that she bought a new pair of noise cancelling headphones to listen to her podcasts on what she considered to be a noisy train.

Some participants felt that time dictated when they listened to podcasts. Here they mentally associated particular times of the day with connecting with the larger world and events unfolding in it. For example, when P6 was a child, she loved bedtime stories. She also remembered how her father listened to the news in the evenings in her early ages. As a consequence, she felt that she now finds podcasts about news comforting to listen to in the evening since subconsciously it reminds her of her childhood and her father.

*"I do enjoy sometimes listening to the news in the evening. I find it comforting somehow maybe it's because when I was a kid and my dad used to listen to the news at the evening." –P6*

P6 also talked about how she liked to listen to podcasts about elections in the morning because she felt she was most alert in the mornings. On the other hand, P10 liked to hear the news in the afternoon because she believed the news was full of tragic stories and she would rather listen to it in the afternoon so it would not ruin her day. P15 talked about his habit of listening to podcasts whenever he wanted to be relaxed, which was often at night after work.

*"It's the time when I can relax. Meanwhile I am playing or taking a shower or going to sleep I can listen to something fun and it helps me imagine." –P15*

In contrast, some participants did not feel that timing played a large role in determining when they listened to podcasts. Instead, listening was tied more strongly to their current activity, which might vary from day to day.

*"My listening isn't that regular. It's just what I'm doing, rather than time of day. So if we're driving somewhere in the morning, I'll listen to it in the morning. If we're driving somewhere at night, I'll put it on at night." –P18*

## 6 DESIRABLE CHARACTERISTICS

Our analysis revealed several characteristics that attracted people to particular podcasts. While our participants' routines showed that they were largely listening to podcasts on their own, in solitary, they selected podcasts to listen to that allowed them to feel connected to the podcast's host and its content. Thus, while disconnected from others and exploring solitary time, they wanted to feel mentally connected with someone else.

### 6.1 Being Part of a Virtual Conversation

First, participants especially enjoyed podcasts that made them feel the social effect of 'being part of a conversation.' That is, they preferred podcasts where it felt as though the podcast hosts were having a friendly conversation with them, the listener. Some said it was like having a friend or group of friends that they could listen to. This created a sense of attachment and belonging.

*"It's kind of listening to a conversation which is relaxing, as more people it will feel more like a conversation that you are listening to." –P4*

In some cases listening to podcasts helped our participants avoid the feeling of being lonely, even though they were still listening on their own. For them it was similar to being part of a peer group without actually being in one.

*"There's a podcast I listen to that's just people basically just talking about video games. I think I'm sort of struck sometimes by how their conversations that they have are very similar to the conversations that just my friends have...Listening to their conversations I can kind of feel like I'm part of the sort of social group in a way." –P6*

### 6.2 The Influence of Hosts

We asked our participants whether the host of a podcast affected what podcasts they chose to listen to and follow. For most of our participants, the character of the host played an important role along with his or her voice. Participants said that being able to mentally and emotionally 'connect' with a host was critical. Sometimes this happened very quickly, but other times it took listening to a few episodes. These feelings extended, in many cases, to feeling like one was a friend of the host. At times, participants even missed a host if the person was gone for a period of time. For example, P6 missed the host of her podcast when he was on vacation for a couple of weeks. P14 felt a strong sense of connection with the hosts of a show who talked about everyday life matters.

*"I also listen to 'stuff mom never told you' [name of the podcast]. Because it's two ladies who host it and it's just like having your friends talk to you and they are really funny and they talk about female issues." –P4*

For some of our participants the relationship moved beyond 'just a voice you like to hear' to a trusted relationship and a degree of intimacy with the host. For example, P6 told us that she considered the recommendations of podcast hosts more often than recommendations from her friends. This reflects the depth of the bond that many participants felt with the hosts of the podcasts they listened to.

*"It's kind of funny! Like I sort of trust the recommendation of the podcasts that I listen to but not my friends...Hearing news that I think it might disturb me from a voice that I trust is important.... I blocked my Facebook feed because I felt like I was way too anxious ... getting news from CBC is better because it's more like this is kind of trusted voice. In particularly hosts that are talking about issues that could disturb me a lot, I have a pretty strong sense of attachment to them I think because I associate with them like a secure person." – P6*

For most of our participants, listening to a podcast was not just about 'listening to a podcast.' Instead, it also involved trying to uncover and imagine if and how the host's character was or was not based on his/her own voice and opinions. That is, participants

wanted to understand the authenticity of the person they were listening to and whether it reflected the host in 'real life.' This desire to know was strongest for podcasts where our participants felt they had created an intimate connection with the host and considered them as their friends. For example, P15 said that because he only heard the host's voice, his imagination was open to think about who the host was and what kind of person this entailed. Like a book, his imagination could fill in the details beyond the voice.

*"[The voice] it's really important, because it makes everything, it makes the mentally image you have of them at the end so if they are happy it sounds, you can hear it in their voices the attitude they have toward the subject... so at the end it gives you whether you are going to listen to it more or not."* -P15

Sometimes it was not possible to establish a level of closeness with a podcast host. This depended on the host and the subject matter. For example, P2 only listened to journalistic pieces and he did not feel any kind of connection with the hosts of the program he listened to.

*"I don't think there is an emotional connection... well I guess when there is a personal story related to a specific person yeah... [Podcast name], it's a very detached journalism ... the host doesn't matter."* -P2

### 6.3 Content and Expertise

The content of a podcast was also an important factor that determined how much participants liked it and whether they would continue listening. This related to the specific topic, but also the level of content that was shared in the podcast. Participants were looking for information that was unique and they wanted it to be shared by a host who could be considered an expert on the topic area. For example, P2 felt that if the information in a podcast could be reachable through an online search, then he was not interested in it.

*"If I was interested in knowing how things work, it's much faster to go to Wikipedia. Whereas a story about a country selling its drinking water, I don't know where else I can get this information. Maybe a magazine like Economist or something like that."* -P2

P11 tried to listen to a podcast that explained the different functionalities of devices. Yet she stopped listening to it once she realized that the host did not have any depth knowledge about the subject. She said she was not looking for 'an online search result' to be talked about in an 'hour long podcast'.

We asked participants whether they would revisit podcasts in similar way to how one might reread a good book or watch a favorite movie again. Music and spiritual podcasts were listened to many times by our participants. Participants also talked about re-listening to podcasts that contained 'laid back' conversations between hosts, which were filled with funny moments.

*"The 'Acquisition Corporates [name of the podcast] episodes I have listen to them more than just once because they are very funny."* - P15

Podcasts that had a lot of detailed information were listened to multiple times. This allowed the content to 'sink in' and was the case for two of our participants regarding a crime solving podcast series named Serial. This is similar to how one might listen to the same song multiple times while listening to music, yet the behavior was different in that people were trying to acquire specific details from the podcast so they could think more deeply

about it. This also made podcasts different from radio talk shows that might be hard to replay since sometimes they were only heard at certain times and not recorded.

*"Yeah so I guess with that [Serial Podcast] I played it over a little bit just because they are throwing lots of information..."* -P2

## 7 DISCUSSION

Our study of podcasts describes the ways in which people listen to podcasts and highlights some of the key characteristics of podcasts that have likely led to their relative success and their usage during people's alone time. In the following sections we summarize our findings and draw out design implications for technology that might similarly be used by people as a part of 'alone time' where they are able to reconnect with themselves, fill time, or engage in multitasking without directly connecting with others. Overall, we found podcasts to be an interesting medium for supporting such activities. We explore what we feel are interesting and important design directions for considering and supporting 'alone time,' which are found in the way podcasts are designed and presented to users.

### 7.1 Flexibility

First, our work points to the value in supporting alone time through designs that are highly flexible in terms of how they can be used. This speaks to the need for designs to offer features that support the private review of content, access to content anytime and anywhere, and the ability to review content while doing other activities. Podcasts present one way in which this might be done, but there are certainly others. Because podcasts are an asynchronous medium, our participants could playback pre-recorded podcast episodes at any time and any place. Ear buds or earphones made it easy to listen to content without others hearing it. The fact that podcasts came in an audio format meant that participants did not have to continually look at a screen. The ability to multitask while using podcasts was different than current asynchronous media sharing systems, such as social media applications (e.g., Facebook, Twitter), as social media tends to consume our attention and requires reading [28]. This can be hard to do while fully engaging in other activities [28]. Instead, podcasts allowed users to listen and reflect on their thoughts while keeping busy with other activities. This is similar to how one might listen to music while doing activities, however, a large difference was the level at which participants could connect [8]. Music selection has been shown to be based on a person mood's [8], while in our study, audio podcasts were chosen based on tasks and feeling the need to be connected with the content because it was part of a story or made participants feel like they were part of an ongoing conversation. This may be similar to how one might listen to a radio talk show, yet podcasts were available at any point in time and could be listened to as desired.

### 7.2 Shifting Thoughts to Reflect and Relax

Second, our results suggest value in designing systems that can take people away from their present activity, where they are engaged with content that is not a part of their own history or collection of information, or that of their social network. This can allow them to refocus their mental efforts, reflect, and relax. In many cases, our participants were able to use podcasts to shift their thinking from their own activities to other thoughts because they could engage with content that was about different things than the activities they might presently be doing. Moreover, the content was typically rich with information because it was story-based. The shift in mental focus helped create a sense of tranquility and comfort amongst our participants, which led to

feelings of relaxation. Other people enjoyed listening to content about their current activity when doing it and it created a very experiential moment. In this way, there were two ways that podcasts could help people create a deep connection that either shifted or enhanced their thoughts.

Currently, most systems that have been designed to support solitude and disconnection are focused on task efficiency or connecting users with their environment rather than just the user and their thoughts [13,21]. Thus, users are meant to focus more on their own self and what they are doing. Thinking about social media, we tend to see similar things.

### 7.3 Intimacy with a Narrator

Third, our findings suggest that designs that are able to connect people with a single person might create a very personal connection to support people's ability to disconnect. Here the details of the person can be both partially understood and imagined at the same time. We found that listening to podcasts was nearly always a solitary activity though it often involved feelings of a deep connection with the podcast host. The experience was somewhat akin to having someone whispering in your ear. Naturally, getting that 'close' to someone is quite intimate. We found that such a bond created trust between listeners and hosts, albeit the connection was one-sided (only the listeners felt it). Moreover, listeners were only able to get to know the host by the sound of their voice. This limited knowledge gave people the opportunity to 'fill in the details' and imagine the host and his or her character. For these reasons, people liked high quality narration and a host with a 'good' voice.

Comparing this attribute to existing technologies supporting solitude such as slow technologies (e.g., [16,18,26,28]), we see a lack of host or narrator. Instead, content is presented to people either in a random way (e.g., [16,18]) or the timing of content is pre-selected by friends or family (e.g., [26,28]). The idea that content is carefully crafted and narrated is generally non-existent. Thus, we feel podcasts present a different direction for technology

### 7.4 Being Part of a Conversation

Fourth, our work suggests that there might be ways to more generally design systems to support people's ability to be alone by focusing around the way content is presented. If the content is presented so that it unfolds like a conversation, where a person could imagine herself as part of this conversation, people may enjoy their alone time and not feel lonely when doing so. Podcasts tended to take the negativity associated with loneliness away by 'including' listeners in a friendly conversation over topics they enjoyed without the pressure to be physically present in a real social group. Being part of a conversation as a passive listener allowed our participants to enjoy their alone time and bond with hosts over the subject matter of the podcast. People react to social media content like a conversation through comments, replies, and posts. Yet people must actively engage within the conversation for it to unfold (though some individuals can still passively watch). With podcasts, engagement is not necessary. People can just listen and still feel like they are part of the conversation. On the other hand, slow technologies are typically designed to create a type of conversation where conversation might come from people's periods of reflection [15]. That is, people might talk about their past experiences when engaged with a slow technology or they might simply think about them. In this way, the conversation is somewhat different than what we see with podcasts. One could argue that slow technologies are not necessarily designed to present content such that the content itself unfolds like a conversation.

Overall, we can think about ways that our design lessons might apply more broadly to technology design beyond just podcasts.

One possible avenue, for example, is to rethink how family and friends might share information with each other over distance through technology. Family and friend communication often involves synchronous exchanges of information via phone calls or video chat where both parties are available at the same time, while asynchronous exchanges via social media support short back-and-forth conversations [19]. In contrast, family communication technologies designed more akin to podcasts where people tell longer stories for their loved ones, such that they can be played back in a flexible way where the listener can feel like he or she is a part of a conversation across space and time, may find value in helping people connect with each other in a deeper, more meaningful way. Of course, this is speculative, yet it presents interesting and possibly fruitful future work.

### 7.5 Generalizability

Our study focuses heavily around the reactions and experiences of young to middle-aged North Americans who listen to podcasts on a regular basis. This is valuable in that these participants had a very nuanced understanding of when and how shared audio might be valuable and how it could be best listened to. Yet we do not include details on behaviors that might be found with those who are new to podcasts or less experienced in listening, or who are located in other parts of the world. This might suggest alternative design directions. Such users should be included as part of future studies and could be compared to our results. Our work is also limited in that we draw out design lessons from podcasts to illustrate how other technologies might benefit from similar designs and experiences. While ground in our study data, these suggestions are still speculative and meant to offer design inspiration rather than clear and concise design directions. Future work should explore our design lessons further as a part of design processes or empirical evaluations of technologies that might similarly focus around supporting people's alone time.

## 8 CONCLUSION

In this work we focused on people's behaviors and routines around podcast listening, which includes using the technology to support alone time and solitary moments. We interviewed 18 participants and uncovered the ways that users thought about podcasts as somewhat intimate connections with a host where they valued being able to listen and engage with content while doing other activities in their alone time. The manner in which podcasts were designed and used by our participants suggests value for the design of technologies to support alone time. Here we found value in designs that: are flexible to support engagement at nearly anytime, anywhere; allow people to shift their thinking to topics that are different from their current activity; allow people to intimately connect with a narrator or host; and, content to be created and presented in such a way that it can allow people to feel like they are part of an unfolding conversation or story, even while listening passively. Our future work involves using the findings of our study to guide the design of systems for alone time and connecting people asynchronously.

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### REFERENCES

- [1] M'hammed Abdous, Margaret M. Camarena, and Betty Rose Facer. "MALL technology: Use of academic podcasting in the foreign language classroom." *ReCALL* 21.01 (2009): 76-95.
- [2] M'hammed Abdous, Betty Rose Facer, and Cherng-Jyh Yen. 2015. Trends in Podcast Download Frequency Over Time, Podcast Use,

- and Digital Literacy in Foreign Language and Literature Courses. *Int. J. Distance Educ. Technol.* 13, 2 (April 2015), 15-33.
- [3] M'hammed Abdous, Betty Rose Facer, and Cherng-Jyh Yen. "Academic effectiveness of podcasting: A comparative study of integrated versus supplemental use of podcasting in second language classes." *Computers & Education* 58.1 (2012): 43-52
- [4] Morgan G. Ames. 2013. Managing mobile multitasking: the culture of iPhones on Stanford campus. In *Proceedings of the 2013 conference on Computer supported cooperative work (CSCW '13)*. ACM, New York, NY, USA, 1487-1498.
- [5] Jay Baer. The 5 Key 2016 Podcast Statistics. 2016. Retrieved Sept 11, 2016 from <http://www.convinceandconvert.com/social-media-measurement/the-5-key-2016-podcast-statistics/>
- [6] Eric P.S. Baumer, Phil Adams, Vera D. Khovanskaya, Tony C. Liao, Madeline E. Smith, Victoria Schwanda Sosik, and Kaiton Williams. 2013. Limiting, leaving, and (re)lapsing: an exploration of facebook non-use practices and experiences. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '13)*. ACM, New York, NY, USA, 3257-3266.
- [7] Eric P.S. Baumer, Morgan G. Ames, Jed R. Brubaker, Jenna Burrell, and Paul Dourish. 2014. Refusing, limiting, departing: why we should study technology non-use. In *CHI '14 Extended Abstracts on Human Factors in Computing Systems (CHI EA '14)*. ACM, New York, NY, USA, 65-68.
- [8] Michael Bull. 2005. No Dead Air! The iPod and the Culture of Mobile Listening. *Leisure Studies*, 24:4, 343-355.
- [9] Justin Cheng, Akshay Bapat, Gregory Thomas, Kevin Tse, Nikhil Nawathe, Jeremy Crockett, and Gilly Leshed. 2011. GoSlow: designing for slowness, reflection and solitude. In *CHI '11 Extended Abstracts on Human Factors in Computing Systems (CHI EA '11)*. ACM, New York, NY, USA, 429-438.
- [10] Edison Research. 2017. The Podcast Consumer. Retrieved Sept 17, 2017 from <http://www.edisonresearch.com/the-podcast-consumer-2017/>
- [11] eMarketer. 2009. Podcasting Goes Mainstream. Retrieved Sept 11, 2016 from <http://www.emarketer.com/Article/Podcasting-Goes-Mainstream/1006937>
- [12] Chris Evans. 2008. The effectiveness of m-learning in the form of podcast revision lectures in higher education. *Comput. Educ.* 50, 2 (February 2008), 491-498.
- [13] Ben Fullerton. 2010. Designing for solitude. *interactions* 17, 6 (November 2010), 6-9.
- [14] Dinan Gunawardena, Thomas Karagiannis, Alexandre Proutiere, and Milan Vojnovic. 2009. Characterizing podcast services: publishing, usage, and dissemination. In *Proceedings of the 9th ACM SIGCOMM conference on Internet measurement conference (IMC '09)*. ACM, New York, NY, USA, 209-222.
- [15] Gilly Leshed, Maria Håkansson, and Joseph Jofish Kaye 2014. "Our life is the farm and farming is our life": home-work coordination in organic farm families. In *Proceedings of the 17th ACM conference on Computer supported cooperative work & social computing (CSCW '14)*. ACM, New York, NY, USA, 487-498.
- [16] Lars Hallnäs and Johan Redström. 2001. Slow Technology – Designing for Reflection. *Personal Ubiquitous Comput.* 5, 3 (January 2001), 201-212.
- [17] Ellie Harmon and Melissa Mazmanian. 2013. Stories of the Smartphone in everyday discourse: conflict, tension & instability. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '13)*. ACM, New York, NY, USA, 1051-1060.
- [18] Dan Hawkins, Jason Procyk, and Carman Neustaedter. 2014. Postlater: slowing the pace of media sharing. In *Proceedings of the 2014 companion publication on Designing interactive systems (DIS Companion '14)*. ACM, New York, NY, USA, 89-92.
- [19] Daniel Hawkins, Carman Neustaedter, and Jason Procyk. 2015. Postlater: the design and evaluation of a time-delayed media sharing system. In *Proceedings of the 41st Graphics Interface Conference (GI '15)*. Canadian Information Processing Society, Toronto, Ont., Canada, Canada, 249-256.
- [20] Khe Foon Hew. "Use of audio podcast in K-12 and higher education: A review of research topics and methodologies." *Educational Technology Research and Development* 57.3 (2009): 333-357.
- [21] Alexis Hiniker, Sungsoo (Ray) Hong, Tadayoshi Kohno, and Julie A. Kientz. 2016. MyTime: Designing and Evaluating an Intervention for Smartphone Non-Use. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16)*. ACM, New York, NY, USA, 4746-4757.
- [22] Glenn Leibowitz. 2014. The Podcast Consumer. Retrieved Sept 19, 2016 from <https://www.linkedin.com/pulse/why-2015-could-year-podcast-glenn-leibowitz>
- [23] Siân Lindley. 2015. Making Time. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '15)*. ACM, New York, NY, USA, 1442-1452.
- [24] Mark, G., Voids, S., & Cardello, A. 2012. A pace not dictated by electrons: an empirical study of work without email. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 555-564). ACM.
- [25] O'Bannon, B. W., Lubke, J. K., Beard, J. L., & Britt, V. G. (2011). Using podcasts to replace lecture: Effects on student achievement. *Computers & Education*, 57(3), 1885-1892.
- [26] William T. Odom, Abigail J. Sellen, Richard Banks, David S. Kirk, Tim Regan, Mark Selby, Jodi L. Forlizzi, and John Zimmerman. 2014. Designing for slowness, anticipation and re-visitation: a long term field study of the photobox. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '14)*. ACM, New York, NY, USA, 1961-1970.
- [27] William Odom, Richard Banks, Abigail Durrant, David Kirk, and James Pierce. 2012. Slow technology: critical reflection and future directions. In *Proceedings of the Designing Interactive Systems Conference (DIS '12)*. ACM, New York, NY, USA, 816-817.
- [28] Erick Oduor, Carman Neustaedter, William Odom, Anthony Tang, Niala Moallem, Melanie Tory, and Pourang Irani. 2016. The Frustrations and Benefits of Mobile Device Usage in the Home when Co-Present with Family Members. In *Proceedings of the 2016 ACM Conference on Designing Interactive Systems (DIS '16)*. ACM, New York, NY, USA, 1315-1327.
- [29] Ethan R. Plaut 2015. Technologies of avoidance: The swear jar and the cell phone. *First Monday*, 20(11).
- [30] Christine Satchell and Paul Dourish. 2009. Beyond the user: use and non-use in HCI. In *Proceedings of the 21st Annual Conference of the Australian Computer-Human Interaction Special Interest Group: Design: Open 24/7 (OZCHI '09)*. ACM, New York, NY, USA, 9-16.
- [31] Phoebe Sengers. 2011. What I learned on Change Islands: reflections on IT and pace of life. *Interactions* 18, 2 (March 2011), 40-48.
- [32] Sarita Yardi Schoenebeck. 2014. Giving up Twitter for Lent: how and why we take breaks from social media. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '14)*. ACM, New York, NY, USA, 773-782.
- [33] Glenn Smith and Colin Fidge. 2008. On the efficacy of prerecorded lectures for teaching introductory programming. In *Proceedings of the tenth conference on Australasian computing education (ACE '08)*, Simon Hamilton and Margaret Hamilton (Eds.), Vol. 78. Australian Computer Society, Inc., Darlinghurst, Australia, 129-136.
- [34] Anna Wingkvist, Tim Bell, Andy Cockburn and Richard Green "Podcasts as a supplement in tertiary education: An experiment with two computer science courses." (2007).
- [35] Ko, M., Yang, S., Lee, J., Heizmann, C., Jeong, J., Lee, U., Shin, D., Yatani, K., Song, J., and Chung, K. 2015. NUGU: A Group-based Intervention App for Improving Self-Regulation of Limiting Smartphone Use. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '15)*. ACM, New York, NY, USA, 1235-1245.