What are telepresence experiences like in the real world? A qualitative survey

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Abstract

The experience of presence (short for telepresence) is usually investigated by having study participants use one or a few presence technologies and complete a set of standardized, closed- ended questionnaire items that together are thought to measure different types of presence. This paper reports on a study that instead used an online survey (N=329) that directly defined presence and asked people to use their own words to describe memorable presence experiences as they occurred in their everyday lives. Four research questions regarding the utility of this approach and the characteristics of the reported experiences are explored.

Scholars and professionals interested in telepresence technologies and experiences frequently disagree about the meaning of the term (often shortened to "presence") and what creates and maintains presence experiences, but they almost always measure the experience by exposing study participants to specific constellations of technologies and having them fill out some kind of standardized questionnaire. As a result we increasingly know about presence as it's experienced in the lab and measured with predesigned closed-ended questions. But how is presence experienced in the real world? This paper reports on a study designed to let people report on and describe in their own words memorable presence experiences as they occurred in their everyday lives.

1.1. How we study telepresence

Theory and research about presence has been developed for the most part deductively, based on existing theories and research findings along with a bit of personal experience and intuition. We develop theories about what the experience is like and its causes and consequences, and then we refine them through research studies that most often use the tools of social science and academic peer review, along with commercial success and failure of presence products.

A good example of this process is the evolution of scholarship regarding different types or dimensions of presence. Lombard and Ditton (1997) reviewed diverse literatures, some of which used the specific term telepresence to specify particular types of experiences (e.g., Minsky, 1980), others that used the term presence in various ways to refer to different phenomena (e.g., social presence – see Biocca, Harms & Burgoon, 2003) and others that didn't use either term but were describing similar phenomena (e.g., parasocial interaction – see Horton & Wohl, 1956). They identified commonalities that together described different types of presence and identified six types or dimensions in the literature: Presence as social richness, realism, transportation ("you are there," "it is here" and "we are together"/(shared space), immersion, social actor within medium (including parasocial interaction) and medium as social actor. Many others (Slater, Usoh, & Steed, 1994; Witmer & Singer, 1998; Schubert et al., 2001; Vorderer et al, 2003; Vorderer et al, 2004; Lessiter et al, 2001; de Greef & IJsselsteijn, 2001) have proposed types of presence and theories to explain them.

To confirm the existence of all these dimensions of presence, and test the validity of our theories about them, we usually devise a series of experiences to provide study participants and have them answer a few or many indirectly-worded, closed-ended questions on (printed or electronic) questionnaires. Then we use statistical tools to assess the patterns in their responses to see if the questions seem to capture distinct and/or overlapping dimensions that reflect our theoretical ideas.

The Temple Presence Inventory (TPI) illustrates the process. The authors took the first 5 of the six dimensions identified by Lombard and Ditton (1997) and questions scholars had developed to measure each theorized dimension, developed new questions where needed, and over a series of studies created experiences that varied form and content to winnow the questions. The eight dimensions identified statistically (via factor analysis and other tools) were consistent with several of the original dimensions but with more emphasis on distinct types of

social presence. The TPI dimensions (see Lombard, Ditton & Weinstein, 2009) are spatial presence (e.g., "How much did it seem as if the objects and people you saw/heard had come to the place you were? [Not at all - Very much]), social presence-actor within medium (parasocial interaction) (e.g., "How often did you have the sensation that people you saw/heard could also see/hear you?" [Never - Always]), social presence-passive interpersonal (e.g., "During the media experience how well were you able to observe the facial expressions of the people you saw/heard?" [Not well - Very well]), social presence-active interpersonal (e.g., "How often did you make a sound out loud (e.g. laugh or speak) in response to someone you saw/heard in the media environment?" [Never – Always]), engagement (mental immersion) (e.g., "To what extent did you feel mentally immersed in the experience?" [Not at all - Very much], social richness (e.g., "Please circle the number that best describes your evaluation of the media experience: Remote – Immediate"), social realism (e.g., "The events I saw/heard would occur in the real world" [Strongly disagree - Strongly agree]), and perceptual realism (e.g., "Overall how much did touching the things and people in the environment you saw/heard feel like it would if you had experienced them directly?" [Not at all - Very much]).

A similar process of deductive analysis and testing has guided the development of most of the popular presence questionnaire measures (van Baren & IJsselsteijn, 2004). To test our ideas about what characteristics of technology, content and users cause presence experiences of different types and intensities, researchers usually present different combinations of technology and content to participants and administer one of these questionnaire measures and/or create their own questions. In very rare cases (McCall, O'Neill, Carroll, & Benyon, 2004; Murray, Arnold, & Thornton, 2000; Turner, Turner, Caroll, O'Neill, Benyon, McCall et al., 2003) we provide open-ended opportunities for participants to describe their experiences and factor that into our theories.

Although our views of what presence is like in the real world may already be close to correct, but we'll never know if we restrict the possibilities beforehand. Thus, while these deductive techniques have a long, successful history in scientific exploration, and many advantages including standardization and relative ease of coding and analysis, they also have limitations. By deciding what presence experiences are like in advance we shape research that excludes other possibilities.

By developing standardized closed-ended questions that only ask about specific types of presence (e.g., spatial, social, realism) and even specific perceptions (e.g., about particular objects, events, interfaces, characters, etc.), and just because people report those specific aspects it doesn't mean they experience them as a cohesive, whole experience. By letting individuals describe the experiences themselves, and seeing what specific aspects they identify as part of it, we gain a better understanding of what is—and what is not—presence.

1.2. Research questions

The observations above lead to the following research questions:

RQ1: Can a direct and open-ended questionnaire be used to effectively measure presence experiences?

RQ2: In what contexts (what media technologies, environments and social conditions) do reported memorable presence experiences take place?

RQ3: What dimensions of presence are prominent in descriptions of memorable presence experiences?

RQ4: What other features of the context, nature and causes and consequences of presence experiences will emerge in descriptions of memorable presence experiences?

2. Method

2.1. Survey Development

The Telepresence Experiences Survey was initially developed and pilot tested in a Spring 2010 Communication course at Temple University, which was composed of both undergraduate upperclassmen and graduate students. With the objective of gaining insight into how media users conceive and experience telepresence, the three graduate students and course professor began to design an open-ended questionnaire that would allow respondents to describe a memorable presence experience in their own words.

To aid in this objective, students in the class were asked to participate in a group project in which they contributed and helped to build an online dataset (via Google Docs) containing the verbatim descriptions of people's most memorable experiences of telepresence. These initial responses were compiled, coded, and analyzed (the coding sheet is here. The initial results are in a PowerPoint file here).

This class project allowed the first version of the Telepresence Experiences Survey to be pilot tested. Over

the next several months, the survey was subsequently revised and refined—items were added, and the definition of telepresence provided for survey respondents was clarified.

2.2. Procedures: Data Collection

In 2011, the final version of the Telepresence Experiences Survey was completed, and the following call for participants was posted online in a variety of presence (ISPR Presence News, Telepresence and HD Conferencing Users and Professionals LinkedIn Group), Communication (Communication Research and Theory Network (CRTNET); Association of internet researchers (AoIR)) and other venues:

> Please take a short break from work to help a research team at Temple University by completing a very short survey about your experiences with media. The survey is about a common media experience researchers call telepresence, in which media users feel present in or connected to the people or things in the experience. Your responses will help us understand these experiences and, we hope, lead to the creation of more engaging, useful and enjoyable media for us all. The survey only takes 5-10 minutes and you can take by going to this url: http://tinyurl.com/telepresence-survey
> Please forward this email on to any listservs, groups, or individuals that you think might be interested in helping with this study.

Responses were compiled from August-December of 2011.

2.2.1. Telepresence Experiences Survey (The online survey is here: https://spreadsheets.google.com/viewform?hl=en&formkey=dEdzbExXRUd1Umo2d3ozRVBaWGVFRFE6MA)

The survey is composed of basic demographic items (sex, country of residence, age, and education level) and items assessing general telepresence and media production knowledge. The majority of the survey, however, is devoted to qualitatively measuring the participant's own telepresence experience.

In order for respondents to identify and describe a memorable telepresence experience, it was necessary to provide a brief introduction to the concept of telepresence. The conceptual definition of telepresence provided on the survey is:

> Telepresence (which is often shortened to just "presence") is something that often happens when people use media technologies. When telepresence happens, the user feels present in or connected to the people or things in the media experience. We still know we're using a technology, but at some level we ignore the technology and just perceive the people, things and events of the experience. For example, we get "lost" in the world of a novel, TV show, movie, videogame or theme park ride; we're convinced by the realism of paintings or graphic designs; we treat our cars, computers or other machines as if they have personalities of their own, and we feel like we're "with" a person we talk to on the phone or in a videoconference. These are just a few examples; telepresence can happen with many other media too. But in every case of telepresence, we know we're just using technologies but at some level we ignore that and just experience the people and places the technologies provide.

After reading this description, participants were first asked whether, and how often, they have experienced telepresence. The respondents who indicated they'd experienced telepresence at least once were then asked to report the following about a memorable experience: the medium they were using, the setting in which they experienced telepresence, and who they were with when they experienced telepresence. Participants were then prompted with the open-ended question: "What was the experience like?" with this additional instruction: "Please use the space below to describe your experience IN AS MUCH DETAIL AS YOU CAN - what happened and what did you think and feel during and after the experience?" The text box accepted responses of any length.

2.3. Sample

Of the 329 individuals who completed the online survey, 206 (62.6%) reported their sex as "Female" and 123 (37.4%) reported their sex as "Male." They indicated that they resided in 19 different countries; the "United States" was the most represented at 69.3 percent (n=228), followed by Singapore (14.6%, n=48), the United Kingdom (4.6%, n=15), New Zealand (3%, n=10), and Canada (1.8%, n=6). The following countries were also reported (each composing less than 1 percent of the total sample): Hungary, Japan, Italy, Australia, Romania, Denmark, Iraq, Brazil, Russia, Belgium, China, Greece, Germany, and the Netherlands.

Rather than using an open-ended item to measure age, participants were asked to indicate their age within 8-year spans, from 6-13 years to 78-85 years old. Of the 329

participants, more than one-quarter of the sample (27.7%, n=91) reported their age as "22-29" and approximately one-fifth of the sample indicated their age as "14-21" (20.1%, n=66). Sixty participants (18.2%) reported their age as "30-37," 40 respondents (12.2%) were "38-45," 31 (9.4%) were "46-53," 26 (7.9%) were "54-61," and 10 (3%) reported their age as "62-69." The remaining age groups (6-13; 70-77, and 78-85) were all represented, each composing less than 1 percent of the total sample.

Education was measured categorically, with the lowest level of education being "Some high school" and the highest level being "Graduate school degree." Of the 329 participants, more than half (55.6%, n=183) reported having a graduate school degree. The second most reported level of education was "Some college" (21.3%, n=70); 35 participants (10.6%) each reported their education level as "College degree" and "Some graduate school." One participant reported their education level as "Some high school," and the remaining participants (1.5%, n=5) reported their education level as "High school degree."

Finally, participants were asked to report their level of knowledge/expertise in media production and telepresence. The first item, "How much do you know about media production?" was measured on a 5-point Likert scale (Nothing—A lot/Expert). The average score regarding media production knowledge for the sample was 3.14 (SD=1.13). The second item, "How much do you know about telepresence?" was measured on a 5-point Likert scale (Nothing—A lot/Expert). The average score regarding telepresence knowledge for the sample was slightly lower than knowledge regarding media production (M=2.35, SD=1.28).

2.4. Analysis of open-ended response

Responses to the closed-ended survey items were analyzed via SPSS. All of the responses to the open-ended items were separately reviewed by each author to get a sense of the range of responses and then again to identify consistent patterns within them. Following lengthy discussion about these patterns each author separately identified prototypical responses (some of which are reported below).

3. Results

The diverse responses to the survey provided at least tentative answers to the four research questions.

3.1. A direct and open-ended presence measure

The first research question asked whether a directly worded, open-ended questionnaire could be used to effectively measure presence experiences. Tentative evidence that this is the case includes the fact that of the 329 respondents, 274 (83.3%) reported that they had experienced telepresence as described in the survey instrument; 210 (63.8%) reported experiencing it many times. The descriptions of the experiences varied considerably in length but nearly all indicated the respondent understood the concept; no respondent wrote that they were unclear about what was being asked.

Another indication that the approach succeeded is the breadth of technologies, contexts and forms of presence reported by the respondents. As the excerpts below illustrate, many of these were not included in the examples provided in the instrument, suggesting that respondents correctly inferred the parameters of the larger concept rather than merely searching their memories for instances of the specific examples we provided. A last piece of support for the approach is the fact that the diverse experiences reported fell into logical and consistent patterns (see below), rather than being random and unrelated.

3.2. Contexts of presence experiences

The second research question asked about the contexts (media technologies, environments and social conditions) of the reported memorable presence experiences.

The survey asked respondents to report the setting(s) in which the experience occurred, whom they were with, and which technology(ies) they were using. Respondents reported experiencing telepresence while alone and when in the company of others in more than a dozen different settings. They reported experiencing telepresence while using more than 20 different technologies, ranging from such simple media as books and newspapers to advanced media such as Telepresence conferencing systems and flight simulators.

The majority of the 274 respondents who reported on a telepresence experience indicated that it occurred at home (65.7%, n = 180); the movie theater was the second most reported setting (12%, n = 33), followed by the workplace (9.5%, n = 26). Individuals also reported experiencing telepresence in the following settings: car (1.5%, n = 4), telepresence room (1.5%), school (1.1%, n = 3), simulator (1.1%), outdoors (1.1%), train (.4%, n = 1), store (.4%), theme park (.4%), and an Internet café

(.4%). Lastly, 4.4 percent (n = 12) of respondents reported experiencing television in multiple settings.

The majority of these respondents (56.9%, n = 156) reported being alone during the experience, while 17.5 percent (n = 48) reported being with 1 other individual. Approximately 13 percent of individuals (n = 35) reported experiencing telepresence while in a group of people that included strangers, while approximately 11 percent (n = 31) reported being in a group composed of only family and/or friends.

Television was the most reported presence-evoking technology (19.7%, n = 54), followed by movies (13.9%, n = 38), video chat (10.9%, n = 30), computers (9.5%, n = 26), and books (9.1%, n = 25). Approximately 5 percent of respondents (n = N) reported using the following four categories of technologies: phones (n = 14), Internet (n = 14), videogames (n = 13), and multiple technologies (n = 13); 3.3 percent (n = 9) reported that they experienced telepresence while using Telepresence technologies, and 2.6 percent (n = 7) reported using technologies that were categorized as "Other." Less than 2 percent of respondents ($n \leq 5$) reported experiencing telepresence while using newspapers, radio, email, cars, FaceTime, videoconferencing, virtual reality, virtual worlds, social media, and flight simulators.

In short, the reported presence experiences most often occurred at home or at a movie theater, alone or with one other person, while using a wide variety of technologies.

3.3. Presence dimensions

The third research question concerned which dimensions of presence would be prominent in the descriptions of memorable presence experiences.

As noted above, presence scholars have identified many distinct but related types or dimensions of presence, in most cases based on theory driven, closed-ended rather than data driven, open-ended techniques. Many of the dimensions in the literature were captured within respondents' descriptions of their individual presence experiences. From feeling as though they had been physically transported to mediated environments to being fully immersed in the virtual worlds to identifying and developing relationships with characters in the media environments and even responding to technologies as though these entities were human beings, the qualitative descriptions captured the complexity and variety in these mediated experiences. Many of the dimensions represented correspond to those in Lombard and Ditton's (1997) review and the Temple Presence Inventory.

In the sections below, the respondents' own words are used to demonstrate the prominent dimensions within the self-reported presence experiences.

3.3.1. Spatial presence – transportation. Respondents often described how during their presence experiences they felt as though they had been transported into the mediated world:

> *I recently read a book on the Donner party and felt completely transported into their experience.*
>
> *The film Thelma and Louise was one where I felt like a third person in the thunderbird, traveling with them through the canyonlands.*
>
> *It was as if I fully entered the world of the computer game.*

In other instances, participants reported feeling as though the mediated actors were transported into the real (i.e., non-mediated) world:

> *I know the people guiding the exercise are on television, yet even though they [say] the same thing every time, it still feels like they're in the room, talking, and sharing the work out experience.*
>
> *Often when I am skyping my best friend (who lives in another city) it feels as though she is sitting right next to me rather than hundreds of kilometres away.*

3.3.2. Engagement. While the spatial dimension of experiencing presence was a common theme that emerged in the analysis, the related dimension of engagement or psychological immersion in the mediated environment was a conceptual thread perhaps even more prominent in the survey responses:

> *I was completely immersed in the situation, as though I was there. After the experience the thoughts about it still lingered in my mind.*
>
> *Sat down to watch weekly favorite television show . . . Felt completely immersed in the story line, started rooting for or against characters and their decisions, trying to solve their problems during the commercial breaks with the other person in the room, "shushing" the other person as soon as the show resumed after commercial break.*
>
> *For the mmorpg [multi-massive online role-playing game] situation, i am usually so involved in the tasks and the interactions with others, so engaged, that it becomes quite personal - a personal experience you have to go through.*

3.3.3. Social presence-Actor within medium (para-social interaction). Another common theme that characterized the reported presence experiences was the feeling of forming an intimate and interactive relationship with the characters in the mediated environments. These experiences were defined by a deep emotional bonding with a major character. These mediated relationships were often described as being so intense that participants literally feel the range of emotions, however turbulent, of the virtual actors:

> *I was watching an episode of Dr. Who and I found myself yelling at the characters because it was such a dramatic and dangerous situation! It's like I was trying to warn them so they weren't hurt. I felt pretty silly afterwards since I know they are not real/can't hear me!*

> *As I listened to the on-air conversation, I felt like I was part of the conversation, and started adding my own thoughts, even though I knew the people on the radio could not hear me. At times, I did think it weird, and was thankful that I was alone and people could not hear me, in essence, talking to myself, but I generally felt that it was part of the experience of the program.*

> *I was reading a graphic novel whose images were in black and white. In the story, the hero treated the heroine really badly, but she loved him anyway and was going to marry him. I was really upset, and felt strongly that she was too good for him. I was speaking aloud to the book, and to the heroine.*

3.3.4. Social and perceptual realism. One element of the media environments emphasized in many of the participants' reported presence experiences was how realistic these virtual worlds seemed. The following descriptions exemplify how the element of realism heightens the experience of presence:

> *I was with students and a United airlines flight instructor inside a flight simulator. This experience was amazingly realistic, and it is designed to be so . . . It has a screen upon which images of real airports and simulated skies are projected. The images are designed to be realistic.*

> *Passing through the gates to go into Hogwarts [amusement park] felt exciting and Realistic … I've never been on a theme park ride (and I've been to many parks) where I felt near total immersion in the experience. I felt like I was flying with Harry and Ron. I felt the heat from the dragon's fire and the venom from the acramantula and the cold from the dementors. It was all there - and I believed it.*

> *I was playing "Dragon Nest SEA" on my laptop. It was a 3D online multi player game. The great graphics made me feel like im a part of the game. The visual stimulation was very real and made me feel like i'm inside the virtual world.*

> *I completely felt that i was a part of the world and the characters and settings were all real and places I have been.*

3.3.5. Medium as social actor. While the dimensions of presence identified above were most prominent in participants' descriptions of their presence experiences, another dimension found in the responses is was what has been labeled "medium as social actor." More specifically, the following descriptions exemplify presence experiences that can be categorized within the conceptual presence dimension of medium as social actor presence:

> *The laptop was hanging and I really felt like it was throwing a tantrum on me. Very anxious, promised to give it chocolates and treat it better if it processed the work as it should.*

> *I've been very interested in car[s] since I was young. And I do love driving. I tend to treat my car as a friend more than just a tool to get around. I get around to learning and feeling quirks of the car.*

> *I was talking to an animated avatar at a business website, and the avatar's responses to my typed inquiries were a close enough match to make me feel that I was engaged in a human interaction with a non-human entity.*

3.3.6. Inverse presence. A few respondents reported examples of inverse presence (Timmins & Lombard, 2005), in which some aspect of non-mediated experience is mistakenly perceived as being generated by technology:

> *I was watching a presentation on a technical topic and took a break to check my email on my Iphone. When I returned my attention to the presentation, the powerpoint slide on the projector was difficult to read because the font was too small. I instinctively raised my right hand and tried to "zoom" in on the screen (spreading my thumby and index finger out, as one would do on an Iphone). After trying a couple of times with no results, I realized what I was doing and started to laugh at myself.*

[T]he story I had been reading about seemed more real to me than my own reality.

3.4. Other characteristics of presence experiences

The final research question asked what other features of the context, nature and causes and consequences of presence experiences would emerge in descriptions of memorable presence experiences and several interesting patterns were noted:

3.4.1. Intensity of presence experiences. One feature that stood out in many of the descriptions was the intensity of the presence experiences. In some cases the intensity was emotional:

I became so involved in the characters and action of the novel that I felt as though I was a part of it - a character died and I felt "real" grief and had to stop reading to get tissues as I could no longer see through the tears

I was playing a military first-person shooter game in HD with surround sound and really felt like I was in combat! I felt the tension and suspense that real soldiers must feel. And when there were explosions and gunfire, I really feared for my life! It was a life and death situation, only in my mind, through media.

I was watching a HK drama series and I felt so connected to the lead character that I worried for her when she was going to get harmed. It felt as though as I was the one who was experiencing all the things she was experiencing . . . Afterwards, I constantly reminded myself to not get so involved or agitated because they are all acting.

In other cases respondents described intense physical responses during presence experiences:

I was watching the movie "Despicable Me" with my family. In one scene, the characters get on a roller coaster. The film technique and the size of the projection made me feel like I was tipping off the coaster--my stomach dropped and I tensed up!

I was with students and a United airlines flight instructor inside a flight simulator. ... I felt airsick during the simulation, and one student got pretty nauseous.

It was the key mission to unlock four start level missions in Monster Hunter ... My heart was beating crazily as if I was fresh from the fight. Till today, I still remembered how that moment of thrill and victory felt like.

When the TV host was tasting food, I could almost feel the taste as he described it.

In a few cases the intensity of the experience led to behavior:

I was in my teens and watching a movie in the dark alone at home and became very caught up in the movie. During a frightening scene I started screaming aloud without even realizing it

Not knowing what happened next through me for such a loop I literally tried to pick up my phone and call the maing character, Jenna, to see what what she was going to do.

When I use video chat I feel as though I am in the company of the other person. While I recognize that we live in different states, we forget sometimes that we're not in the same room. My friend went to the kitchen and asked me if I wanted anything almost as though I was actually there.

3.4.2. Awareness of mediation. In several cases the respondent descriptions touched on the delicate balance of awareness and lack of awareness of the role of technology in these experiences and their aftermath. Some comments focus on the awareness during the experience.

At one point [reading a graphic novel], when I even told myself that none of those characters were real people, I remember thinking, "Really?" even though I already knew that.

I was in the movie theater with my four cousins and we went to see Harry Potter 7 Part 2 in 3D. I really felt as if I was right there within the film. The high-definition film technology allowed me to see every fine detail and it really felt like I was there. I just remember thinking to myself, "OH MY GOD! Wow.... this is so incredible. This feels so real to me."

I weave in and out of such experiences. Oftentimes, I would feel really absorbed into the film, and then I would get distracted by something at the corner of my eye, maybe a fly, or the letter tray beside my laptop, I would then come out of the telepresence moment, and be reminded that it is all fake and it is just a film. So the moments I really experience telepresence is usually short and scattered throughout the duration of the media experience.

Other comments concern the adjustment that follows a 'break in presence' (Slater, 2003), back from presence to normal experience:

> *This happens a lot; I am reading and I actually LOSE the physical world around me completely, where I don't hear people talking to each other OR directly to me, where I don't see other things (i.e., a moving TV or computer screen doesn't even register), and where COMING BACK actually feels like a process that takes a few seconds, when I slowly start to re-experience what's around me physically instead of what's going on in the book.*

> *A stunning break in presence at Beijing, when late in the 2-hr period [in a flight simulator] I looked back along the wing to keep from colliding while taxiing. Instead of seeing the other plane, I saw just a gray screen. The emotional jolt of the break was almost physical in its intensity.*

> *I kind of felt like a fish out of water after the movie, sort of disoriented. And I was extremely disappointed to be back in the normal world again, without the wonders of the other universe. And I just kept repeating the scenes in my head over and over again, trying to memorise it, and hold on to as much of it as I can.*

Related to these descriptions of intermittent awareness of the mediation are comments about losing track of time:

> *Getting lost in a story, losing track of time, looking outside and realizing it's gotten dark out, haven't eaten in hours. Suddenly realize the time and how hungry I am.*

> *... hours can go by without my realizing that people or things are going on around me. This happens only with novels. I cannot recall this occurring with film or television.*

> *I was playing the Sims and got lost in the game, wasn't able to keep track of the time and lost track of time of day as well. Was only concentrating on the game.*

> *just like a real plane - totally exhilarating - some mild motion effects before I could stand up and leave simulator (wanted to stay and play all day, hour seemed like few minutes).*

And in some cases respondents mentioned effects that lasted longer:

> *After I am finished watching a film or a program that has had a strong impact on me, for some time I keep being immersed in it. I keep thinking about it for a while and that influences the way I perceive everything around me. It is a very strange feeling, it is hard to explain... It can last several hours.*

> *I ended up thinking about the movie [Avatar in 3D] for long afterward, mostly because of how engaged I was, not because the story was particularly compelling.*

> *I live out the game in my imagination even after my computer / game console is off.*

3.4.3. Role of personal relevance. In a few descriptions, the respondent's particular situation obviously is a primary determinant of presence:

> *I recently moved to a new state, a state where I knew no one. I started streaming Grey's Anatomy for free through my Netlix account . . . I watched so many episodes daily, because I didn't know anyone in the community -- I wanted some type of "interaction." My family joked that the cast of Grey's were my "family." I had a "telepresence" experience because I was lonely, and the characters filled a void.*

> *Watching a horror movie late at night in my college apartment. It was raining and my (rather dumpy) apartment had a leak, it was dripping in the wall. I turned the lights off. The dark and the dripping made for an environment in which becoming more involved with the film than I normally would came easily. I remember feeling quite unnerved by the film.*

> *I have seen the episode [of Criminal Minds] repeatedly, yet every time I find myself sobbing as she is killed and, as a mother, I feel as if I myself have somehow succumbed to the trick [played on the fictional mother] and have thus abandoned my son. Perhaps it's because I'm a single mother (for 20+ years) and the episode plays on my fears of something happening to me that results in my abandoning my son.*

3.4.4. Value for personal relationships. While researchers, and certainly marketers, have focused on the enjoyable nature of many presence experiences, a final set of description excerpts points out a deeper benefit for personal relationships:

> *I am in graduate school far away from home and get pretty homesick. I skype home with my family almost*

every day, and we use video skype so I can see them and my home. Since I can see a setting that I lived in for many years, it feels almost as though I am there talking with my mom and sitting in my living room.

When we Skype with our older grandson, who is 2, he understands we are not there and yet we are not like the TV. He can do things like singing and running around, and he gets a reaction from us. We are like interactive TV. What the experience does for us is difficult to describe in words. It warms our heart to know that our four grandchildren, none of whom lives closer to us than 850 miles away, will not forget who we are simply because we cannot visit them frequently. The technology facilitates a familial tie that we could not maintain without it.

I was Skyping with my boyfriend who lives about two hours away. We had a mediated sexual exchange and then chatted via Skype for awhile afterwards. I remember we were both sitting very close to our webcams, so it felt very intimate. After we ended the Skype session, I felt like it was strange to go to sleep alone.

4. Conclusions

The survey results reported here suggest that in addition to sets of standardized, indirectly worded, closed-ended questionnaire items used in experimental settings, we can learn much about individuals' everyday experiences of presence by providing them with a short introduction to the concept and asking them directly to describe their presence experiences.

The vast majority (83%) of respondents reported having such experiences and their descriptions indicated they understood the concept. The reported experiences involved the use of over 20 different technologies (with television, movies and video chat prominent among the list), occurred most often at home (though over a dozen settings were identified), and usually took place when the person was alone or with one other person.

The described experiences corresponded with many but by no means all of the more deductively theorized dimensions in the presence literature, particularly Lombard and Ditton's (1997) review and the Temple Presence Inventory. The dimensions that emerged in the rich descriptions involved spatial presence characterized by the idea of transportation; psychological engagement; a form of social presence in which media users felt they were interacting with actors and characters within a medium (para-social interaction); social and perceptual realism; a form of social presence in which the medium itself was perceived as a social actor; and inverse presence, in which non-mediated experience was perceived as mediated experience.

The intensity of the presence experiences, in terms of emotions, physiological changes and even unexpected and illogical behaviors, was noteworthy – these experiences were often extremely vivid and impactful. Many respondents described a delicate and intermittent awareness of the true role of technology in their experiences and often required time to adjust to non-mediated reality following 'breaks in presence.' It was clear that presence experienced can be more intense when the media presentation is particularly relevant to some aspect of the person's background. And the respondents described very positive impacts of presence experiences on their personal relationships.

The results here are clearly limited in part by the non-representative sampling procedure. While quite diverse in terms of gender, age and geography, more than half of the respondents reported having a graduate degree. Though these were not telepresence experts, the self-reported levels of knowledge of media production and telepresence are likely higher than for the general population. It remains for future research to address the utility of this approach to studying presence with study participants who better represent media consumers on these attributes.

Despite the limitations, we're encouraged by the diversity and richness of the responses obtained in this study and hope that researchers continue to refine this method and try other new ones that will enable us to achieve our ultimate goal: to gain a comprehensive understanding of how people experience presence, both in the lab and in their everyday lives.

Acknowledgements

Special thanks to Joanna Farley, Wenqing Li, Stephanie Palmieri, Ingi Helgason and the students of Psychological Processing of Media (BTMM 4446) at Temple University in Spring 2010 for their very valuable assistance with this project.

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