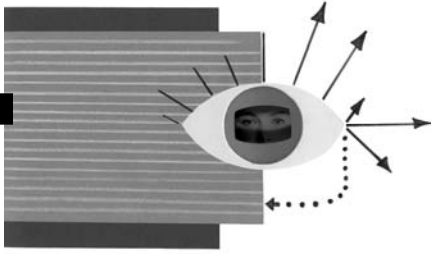# Ethnographic Research on Supplemental Experiences

Report Prepared for:
Crysta Metcalf
Anthropologist & Distinguished Member
of the Technical Staff
Applied Research and Technology Center
Motorola

Design Anthropology Class, University of
North Texas, Fall 2008
Professor Christina Wasson

Students: Adam Brummett,
Amanda Comeau-Sheren, Scotti Fort,
Erica Gilbert, Diana Harrelson Martin,
Allie Hill, Bill Johnson, Emily Lake,
Sarah Ledbetter, Lauri Lillie, Sara Lipsey,
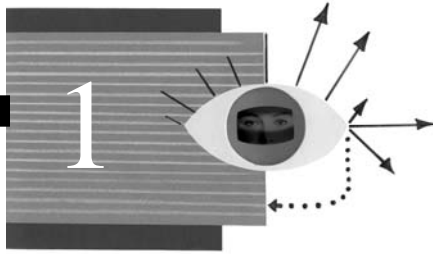Brianne Moore, Jordan Summer

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1. The Project

By Christina Wasson

"Researchers will investigate how and why people become engaged in such supplemental experiences, and will provide reasons for engagement and disengagement that can be used in the design of second screen experiences."

OVERVIEW

This project was conducted for Motorola's Applied Research and Technology Center by a class in design anthropology at the University of North Texas. Our client was Crysta Metcalf, Anthropologist and Distinguished Member of the Technical Staff. We have greatly enjoyed working with Crysta; she has all of the ideal qualities of a client and collaborator. She showed amazing dedication by participating in most of our class meetings via phone, and gave us a great deal of valuable feedback.

The goal of our research was to investigate how people use technologically-mediated "supplemental experiences" to enhance their main activities in settings such as sports events, restaurants, shopping venues, and museums. Such supplemental experiences could range from a trivia game at a restaurant, to an audio guide at a museum. They were mediated by a cell phone or other mobile device. The main activities being enhanced were social in nature, and located in venues with considerable numbers of people. They included socializing, eating, and playing sports. They were *not* technologically mediated.

The research design developed for this project by Crysta Metcalf, in collaboration with myself, articulated our goals in the following way:

"This project is designed to elicit preliminary information about the circumstances and conditions under which people simultaneously attend to both

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non-technologically mediated experiences and supplemental technologically mediated experiences in public settings. Researchers will investigate how and why people become engaged in such supplemental experiences, and will provide reasons for engagement and disengagement that can be used in the design of second screen experiences. This research is being conducted in order to provide input for current TuVista product development as well as longer-term application and prototype development. Because much of the future work in Transforming Television Experiences and Next Generation Video may take advantage of second and third screens, it is important to conduct exploratory research in this space.

Most of the literature in this area is based on research of large public displays and technology mediated museum interactions. While this literature provides interesting background for the current work, and contains some insight into processes of engagement, most of the work that has been reported on is specific to particular technologies (especially concept tests of prototypes in the field) or is specific to particular places (museums or work places). It is believed that incorporating different types of technologies and different types of settings into a single study will provide results that can be generalized more broadly across platforms and spaces."

We understand that Motorola is primarily focused on designing supplemental experiences for the home context. In the "Design Ideas" section that is included at the end of each chapter, our recommendations focus on applications that would be suitable for home use.

In each of the chapters that follow, we have sought to include three elements:
- Broadly applicable patterns, based on generalizations across all six venues;
- Microlevel analysis of particular behaviors; and
- The design implications that follow from each chapter's research findings.

The results of our project were presented to Motorola in two forms: through this written report, and through a verbal presentation.

THE RESEARCH PROCESS
We investigated supplemental experiences at six venues using anthropological methods. At each venue, we conducted three hours of observation, and then interviewed two of the people whom we had observed (with a few small variations, explained below).

Data Collection
The observation process at each venue was designed to be unobtrusive. Following an observation protocol, researchers sought to visually identify people who were engaging in technologically-mediated supplemental experiences, and then track their behaviors over time. They examined these people's engagement with the supplemental experience, their shifts back and forth between the supplemental

experience and the main activity, their interactions with other people, and the role of the environment. When appropriate, researchers also engaged in short, informal conversations with people at the event. Researchers documented their observations with detailed fieldnotes, and also took photos of the venue.

Secondly, researchers conducted in-context interviews with people whose behaviors they had previously observed. These interviews were based on a semi-structured interview protocol. The goal was to understand the interviewees' purposes and motivations for engaging in the supplemental activity, their expectations, and their prior experience with such activities. The interviews were about half an hour in length. They were audio or video recorded, and whenever possible we also took photos of the interviewees engaging with the relevant devices. At most venues, we interviewed two people. There were two exceptions. At Top Golf, we interviewed four people. At the football game, all of the people who were approached for an interview refused. Therefore, we recruited two other UNT students who were regular attendees at sports events for our interviews.

Data Analysis
The student researchers placed all fieldnotes, photos, audio recordings and video clips on a website designed for this class. This made field data available to the whole group for comparison and analysis purposes.

Much of the analysis was conducted during class time, by all students working together as a group, with Christina as guide and facilitator. The students presented findings from their research over the course of six weeks. Each student group verbally described their fieldwork experience, and illustrated key moments and insights with photos and video clips. Other students asked questions and discussed the fieldwork.

During this process, Christina as facilitator noted emergent insights and patterns in a Word document that was visible to the whole class via an LCD projector. Initially, the Word document functioned somewhat like a more sophisticated and deep version of a flipchart. As the Word document became longer, students started to group the ideas and patterns by having Christina cut and paste bits of text. This process was somewhat similar to creating an affinity diagram, moving to an increasingly sophisticated and abstracted level of analysis. The analysis followed the classic ethnographic trajectory of identifying first *instances*, then *patterns*, and subsequently *models*. The patterns and models were used to identify design implications and illustrative design ideas.

Toward the end of the semester, students developed a list of topics that should be included in the final report. Then they each chose a topic to write about. These topics became chapters, or parts of chapters, in the final report. Each chapter included both research findings and design implications. In preparing their chapters, students reviewed all fieldnotes for pertinent material.

OVERVIEW OF VENUES

We conducted fieldwork at the following six venues:

- **Top Golf**, a technologically enhanced driving range
- **First Saturday**, an electronics flea market
- **Sixth Floor Museum**, a museum about Kennedy and his assassination where admission includes an audio guide
- **University of North Texas Football Game**, where people engage in supplemental activities on their mobile phones
- **Buffalo Wild Wings**, a grill and restaurant that offers trivia games
- **Idle Rich Pub**, an upscale restaurant and bar where people work on cell phones and laptops

The Appendix at the end of the report provides more detail about the venues and the interviewees.

The chart below summarizes the main activities and supplemental experiences found at each venue.

Summary of Venues, Main Activities, and Supplemental Experiences

Venues	Top Golf	1st Saturday	6 Fl Mus	UNT Footbll	B W W	I R P
Main Activities	Golf practice or sociality	Buying electronics	Touring the museum exhibit (which is a social activity)	Being engaged with the game or sociality	Sociality or eating/ drinking or playing games or watching sports on TV	Eating/ drinking or sociality
Supplemen. Experiences	Using electronic resource to learn about golfing performance	Researching prices and characteristics of possible purchases; sharing experience with external audience	Listening to audio guide	Sharing game with someone not present to bring them into it (via calls) or disengagement	Playing games or watching sports	Getting work done or sharing pictures/ videos

As you can see from the summary chart, visitors to a given venue engaged in a variety of different activities. For some, the main motivation to visit might simply be the opportunity to socialize with friends or family, while for others, the driver might be their desire to engage in a specific main activity or supplemental experience offered by a venue, for instance golfing at Top Golf or playing a trivia game at Buffalo Wild Wings.

We found that each venue had a set of "regulars" whose visits had a ritual character. These people were devoted to the activities offered by the venue. They frequently engaged in those activities, and had consequently developed an expert status. However, novices were attracted to these venues as well.

The tremendous heterogeneity across the venues presented challenges for us in developing generalizations. However, we believe that, by the same token, our findings are more robust and more widely applicable than they would have been had we narrowed our research to a more homogeneous set of venues.
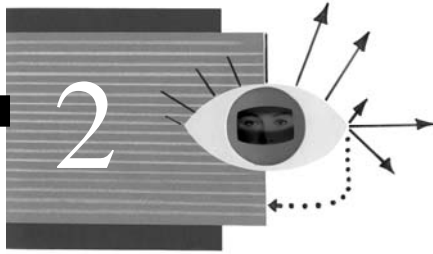
A NOTE ON TERMINOLOGY
In this report, we use a number of different terms to describe supplemental experiences. They include:
- Supplemental experience
- Supplemental activity
- Secondary activity
- Second screen activity

These terms are used interchangeably.

2. Shifting Back and Forth Between a Main Activity and a Supplemental Experience

By **Amanda Comeau-Sheren and Sara Lipsey**

> *"For many people in our research, the motivation to visit one of the fieldsite venues was closely tied to the supplemental experience it offered."*

In this chapter, we explore the fundamental patterns of how the people in our fieldwork moved back and forth between their *main activity* and the *supplemental experience* that they engaged in via a "second screen." We were struck by the fluidity with which people shifted back and forth between activities. Although the table in Chapter 1 provides a summary of the main activities and supplemental experiences offered by each venue, it presents a static view, and in this sense it is somewhat misleading. For instance, we found that people often shifted their attention across more than two activities. Also, different members of a group might have varying definitions of what the main activity was; for instance, some might go to Top Golf for the golfing, while others might come along for the sociality. Furthermore, a group's understanding of the main activity could vary over time, for instance first socializing, then eating, and then playing golf.

We should also note that the term "supplemental experience" is *our* term, not the *users'* term. From their point of view, when they are engaging in a supplemental experience, it may feel like the "main" thing they are doing. Most likely, in fact, they are not consciously aware of shifts in their activities.

In our analysis of the field data, we discovered that the relationship between the main activity and the supplemental experience could take two fundamentally different forms:
- In many cases, people used the supplemental experience to *enhance* the main activity;
- In other cases, people used the supplemental experience to *disengage from* the main activity

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Chapter 3 addresses the former use, while Chapter 4 describes the latter use. These chapters explore motivations for using each type of supplemental experience, and identify triggers for attention shifts between the main activity and the supplemental experience.

In this chapter, we look at two other aspects of the relationship between the main activity and the supplemental experience. In particular, we describe
- Users' motivations for engaging in supplemental experiences
- Natural points of transition between activities

USERS' MOTIVATIONS FOR ENGAGING IN SUPPLEMENTAL EXPERIENCES

For many people in our research, the motivation to visit one of the fieldsite venues was closely tied to the supplemental experience it offered. The motivations of such people fell into three categories.

1. **Venue's supplemental experience as the decision driver**. Some people went to a venue specifically because it offered a particular supplemental experience. In this case, their wish to engage in the technologically mediated activity was the primary reason for going. Examples were trivia game buffs who went to Buffalo Wild Wings specifically to play particular games, or golfers who went to Top Golf because they wanted to track their shots electronically. For these people, the supplemental activity enhanced the main activity to the point where it became a central focus of their experience.

2. **Venue's main activity as the decision driver; supplemental experience inextricably embedded in main activity**. Some people went to a venue because of the main activity. They probably did not think much about the secondary activity in making their decision to go. However, the supplemental experience constituted such a fundamental aspect of the primary activity that they would never have considered going to this venue without engaging in the secondary activity. Examples are visitors to the Sixth Floor Museum, where the audio guide is generally considered an essential part of the tour, and shoppers at First Saturday who could not imagine making purchases without conducting pricing research via their smartphones during the shopping process.

3. **Combining social fun and solitary work**. Some people went to venues because they offered a dual experience: the main activity of sociality, and a secondary activity of getting work done. We found such people at both Idle Rich Pub and Buffalo Wild Wings. They are described in more detail in Chapters 4 and 7. In these cases, the secondary activity involved disengagement from the main activity and a shift toward isolation. While the venues were designed to facilitate such dual behavior, they did not provide the experience. Users brought their own mobile devices for the secondary activities to the venue, and designed these activities themselves.

For other people in our research, their decision to go to a venue was not really related to its offering a supplemental experience, although they ended up engaging in this secondary activity once they got there. The more emergent motivations of these people to engage in supplemental activities fell into two categories:

1. **Supplemental experience as a backup**. Once they arrived at a venue, some people became bored with the main activity. They turned to the supplemental experience as a way to entertain themselves. This represented a disengagement from the main activity. We saw this especially in sports games when someone's team was losing. Chapter 4 addresses this pattern in more detail.

2. **Sharing the main activity with distant friends**. Some people enhanced their enjoyment of a main activity by calling or texting friends or family who were not co-present. This allowed the distant others to share their experience. For instance, one of the interviewees at First Saturday relayed his impressions of the venue to friends who were considering a visit to First Saturday in the future. Another man whom we interviewed about sports events told us that he would call family members during a game to keep them posted about scores. While using a cell phone to talk to or text friends is not a very distinctive type of supplemental experience, we include it for the sake of thoroughness, and because the urge to share a main activity with distant others has potential design implications for Motorola.

NATURAL POINTS OF TRANSITION BETWEEN ACTIVITIES
A common trigger for users to shift between the main activity and the supplemental experience is what we are terming "natural points of transition." These are changes in the social or environmental context that cause participants' attention to shift from one activity to another.   Participants may shift from the main activity to the supplemental experience, or vice versa. Or they may shift into or out of a third activity. Finally, they may be prompted to shift from one phase in an activity to the next phase. When participants are shifting between a main activity and a supplemental experience, the supplemental experience can either be an enhancement of the main activity, or a way to disengage from the main activity.

The natural points of transition that we observed include:
- Introduction of wait staff
- Introduction of an acquaintance
- Introduction of food or beverages
- Lull in conversation
- Start of a conversation
- Personal needs
- Family needs
- Moving from one merchant table to another at First Saturday
- Moving between exhibit panels in a museum gallery
- Commercial break or a pause in main entertainment

- Breaks between songs being played in a bar or restaurant

Transitions into the activity of eating constituted a particularly marked shift in our data. Usually eating became the main activity when food was delivered in venues that offered this service. Furthermore, while people were eating, the supplemental activity more or less ceased. For instance, at the Idle Rich Pub, when wait staff arrived with food, attention shifted from mobile devices and other activities to the food that the waitress was delivering.

> *"Food is delivered. Table gets quiet, [a social activity of drawing on] coasters and phones are forgotten".*

This distraction from the supplemental experience did not seem to upset the observed individuals. Their quietness reflected their satisfaction with the transition; the individuals were happy to disengage from the supplemental experience and engage with the main activity of eating.

At Top Golf, the arrival of food could also shift people from playing golf, to taking a break to eat.

> *"We played the game for approximately half an hour before stopping and eating our food that had arrived while one of us was in mid-swing".*

Similarly, at Buffalo Wild Wings, we observed people using the commercial breaks during game play as a time to leave the supplemental experience of the game – as well as the main activity of dinner. In our interviews, one individual stated that he liked these pauses:

> *"Dave: I like the breaks*
> *Bill: you like the breaks?*
> *Dave: I don't really watch the commercials personally, but it's nice when you're sitting there playing and all of a sudden you're like, wow I've gotta go to the bathroom and off you go."*

This transition gave Dave time to regroup and take care of personal needs. The commercial breaks therefore acted as a trigger for a third type of activity beyond both the main and supplemental activities, namely a bathroom break.

Other types of transitions like lulls in a conversation serve as an invitation to engage with a supplemental device. Both Peppermint Patty and Sunday Surfer mention in their interviews that they turn to a supplemental activity when there is a lull in the conversation.

> *"When there are lulls in conversation or she is not interested in what is going on she uses her phone because she has to be engaged in something or else she*

gets completely bored. The TV was showing college volleyball and that wasn't interesting. When she wasn't eating then she would pick up her phone".

"Socialization is more important to her. If there is a lull in the conversation or things are slow, then she'll do research".

At the Sixth Floor Museum, the natural points of transition involved moving from exhibit panel to exhibit panel across the gallery space. These shifts did not create a need to disengage from the supplemental device that enhanced the museum experience, namely the audio guide. In fact, one interviewee stated that the audio guide helped her with these transitions; had she not had the audio guide she might find herself lost and not knowing which panel to view next.

"Moving through the gallery was not a problem for Helen; she thought the audio guide did a good job at providing instruction of where to go next".

Natural points of transition are difficult to analyze because they are different for people at different venues. In any case, natural points of transition offer individuals the ability to shift from one experience to another. The points of transition are not frowned upon; in fact, in the above-mentioned cases the transitions were welcomed and enjoyed.

DESIGN IDEAS
Each of our findings has implications for the design of supplemental experiences that can take place in the home.

- Ensure that applications can accommodate the complexity and fluidity of how people naturally move back and forth between multiple activities; for instance, the applications should be flexible in terms of timelines and numbers of participants

- Design devices/applications that allow users to either *engage with* or *withdraw from* a main activity, so that their needs will be met whichever direction they want to go in
    - Design a dual-purpose application for sports events
    - When users want to engage more deeply with the game (for instance when their team is winning), provide in-depth information, instant replays, and so forth
    - When users want a distraction from the game (for instance when their team is losing), provide alternate forms of entertainment
    - Design similar dual-purpose applications for other kinds of main activities

- Design supplemental experiences that could be positioned as the reason why people would visit your home, for instance "we're having a party where you can play our new trivia game," or "why don't you come over to practice your golfing by using our new ball tracking device?"

- Design supplemental experiences that are inextricably embedded in a main activity, to the point where people could not imagine doing one without the other.

- Design devices/applications that would support the wish to combine social fun with solitary work. Design ideas are discussed in more detail in Chapter 7.

- Design supplemental experiences that would entertain people when they are bored with the main activity. Design ideas are discussed in more detail in Chapter 4.

- Design supplemental experiences that include the possibility of virtually connecting to friends and family who are not physically co-present.

- In the age of TiVo, Motorola should consider appropriate places for ads during natural breaks and pauses in main or secondary cell phone activity. It was surprising that Dave liked the ads on the TV screens at Buffalo Wild Wings (he probably just liked the pauses) and additional study should be done to understand this phenomenon and resulting opportunity. An ad blocker application could be a perceived product benefit.

- Blocked ads could be replaced with home videos or screen stills of family photos, family crest, or party theme/team logos.

- Include a way to put supplemental experiences on "hold," for instance when food is served or for bathroom breaks.

- The supplementary experience could sense a lull in the conversation and turn on at that moment, inviting people to engage with it.
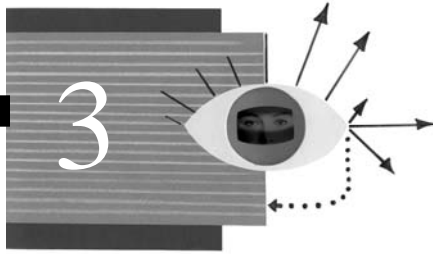
3. Using Supplemental Experiences to Extend the Main Activity

By Emily Lake, Sarah Ledbetter, and Adam Brummett

> *"…these supplemental experiences involve the accessing, sharing, and deployment of information that is associated with personal meanings or emotions"*

The focus of this chapter is to understand why people choose to engage in a supplemental experience that extends the main activity, and how they move between the supplemental experience and the main activity. The overarching theme of our findings is that these supplemental experiences involve the accessing, sharing, and deployment of *information* that is associated with personal meanings or *emotions*. We identified four common patterns, each of which is described below. The chapter concludes with implications for designing new technology.

ACCESSING, SHARING, AND DEPLOYING INFORMATION
We found examples of supplemental experiences that extended main activities in all venues, although they were more common in some than in others. The unifying factor across all supplemental experiences was that they related to information. Information was either accessed, shared, or deployed in strategic ways, in ways that extended the main activity.

Furthermore, all of the successful supplemental experiences (and/or the main activities with which they were associated) had significant emotional content for participants, in some cases invoking intense passions. So the information was not a dry, neutral kind of content, but rather something that people connected with in a highly personal way. Not surprisingly, we found that in most of our observations, people who participated in a supplemental activity stayed longer at their venue than those who did not.

We found that the supplemental experiences that extended main activities fell into four categories:

- Sharing images to extend socializing
- Accessing or deploying information in a competition
- Engaging in a supplemental experience provided by the venue to extend socializing
- Accessing information to extend a learning/entertainment activity

In the following sections, we describe each of these categories, explore users' motivations to engage in the experiences, and identify triggers that encourage users to shift between the main activity and the supplemental experience.

SHARING IMAGES TO EXTEND SOCIALIZING

One kind of information that people shared was pictures or videos that they could show others on their cell phone or laptop. This activity extended socializing at restaurants and bars, as well as other venues. People were typically motivated to share their pictures by the desire to share memories of an earlier experience that held emotional importance for them. We also observed people sharing YouTube videos. This behavior seemed to be motivated by a desire to entertain friends; the videos were likely to provoke some form of emotional reaction, whether laughter, surprise, or outrage.

For instance, Peppermint Patty, sitting with a group of friends at the Idle Rich Pub, used her cell phone to share pictures. Our fieldnotes reveal observations that help illustrate her activities:

> *"She was brought back into the conversation when she heard about the event that happened that weekend and then shows the pictures from her phone and passes it around the table."*

Although her cell phone had been a source of disengagement from the main activity for Peppermint Patty earlier, after being brought back into the conversation, she used her cellular device to share with the group of friends the pictures she had taken of them the night before. This ability to connect with the rest of the group was particularly important for Peppermint Patty because unfortunately, she did not feel as though she could participate in many of the conversations because she was a dancer, and the others were all graphic and interior designers.

Peppermint Patty's group also provided an example of sharing videos. At different points in the conversation, her friends would look up YouTube videos of bands being discussed, and would pass their phones around to share the additional information. Here the key is, both Peppermint Patty as well as different individuals in the group used their cell phones to share additional information to extend the conversation they were already having. It allowed all to extend the regular conversation into something more by sharing visual images from their phones.

Also at the Idle Rich Pub, Sunday Surfer showed the waitress, with whom she was on a first name basis due to her frequent attendance, her laptop screen by turning it around and setting it on the bar. She was showing the waitress pictures of her recent vacation. Sunday Surfer used her laptop as a means of extending her socializing with the staff. Not only could she talk to the staff about her family or dogs, she could also then put a face with a name by showing the staff members pictures of those she was discussing. It allowed her to get to a closer personal level with the staff members.

At the First Saturday electronics flea market, Fashion Design Major's main motive of attending the event was to video record it for his friend who was interested in possibly selling equipment in the future at First Saturday. His explanation of the situation was,

> *"Last week we were talking about our friend Josh who is from Houston and he wanted to, ah he has a lighting business we were talking about First Saturday....and he is thinking about coming down here and like if he could or not...cause he wants to check it out before he like brought his equipment because he has a lot of things in storage and he could just sell it."*

Therefore, Fashion Design Major thought instead of having his friend from Houston drive up just to check it out, he would videotape the venue to give his friend a better idea about what First Saturday is all about. This extended his experience because he got to experience First Saturday with a group of friends as well as help a friend out by videotaping the venue.

Fashion Design Major also extended the main activity by taking a picture of the interviewer's bag with his cell phone. He planned to write a blog about it on the website failblog.org. The bag said the word "pink" in the color green, which he considered a funny example of a "color failure."

In our interview with the sports enthusiast Caesar, he gave an example of a time when he had the opportunity to meet Terrell Owens, a Dallas Cowboy football star. His brother who worked at Grapevine Mills Mall called and informed him that Terrell Owens was going to be at a book signing for his children's book. Caesar anxiously waited in line for over an hour and a half and got to meet and take a picture of Terrell Owens. In our interview, Caesar explained his story and pulled up the picture which he took over two years ago on his cell phone. There is no telling how many people he proudly showed his picture and shared his experience with as a supplement to the main activities of socializing or attending sports events.

Triggers
The people with whom the individual wants to socialize, whether wait staff or friends, trigger the individual to share pictures or videos, because it presents an opportunity for the individual to communicate opinions or feelings on something s/he feel strongly about. For Peppermint Patty, the key surrounding people are the

group that includes her boyfriend and his friends. As for Sunday Surfer, the main people of interest were the wait staff. For Fashion Design Major and Caesar, it was a conglomerate of the general public. These different groups of people trigger the individual to extend the main experience by sharing pre-existing, visually captured images.

Peppermint Patty is a prime example of this. For her, the trigger came when she heard a comment from one of the group members about what had happened last night. Knowing this would be an opportunity to contribute to what was being said, she disengaged from her studies to pull up photos stored on her cell phone. Then she shared those photos. Once the conversation was over, she went back to her cell phone and continued to look up what she would need to do for the upcoming school week. The key with Peppermint Patty was when she felt out of place or as if she was just sitting there listening to a conversation that she couldn't contribute to, she would then disengage from the main activity; however, wanting to have input, when she felt she had something to contribute, she immediately re-engaged in the conversation.

For Sunday Surfer, she wanted to be at the Idle Rich Pub because it allowed her to be productive and socially engage in a relaxing atmosphere. For her, the majority of her triggers were between the wait staff and her laptop. She wanted to get stuff done, but her top priority was to socialize; therefore, she would be working on her laptop until a wait staff was free to talk. Seeing how the wait staff has many responsibilities, this came at sporadic times during her visit. Sunday Surfer would us her laptop to extend the main activity of socializing when a wait staff came around. As mentioned before, she wanted the wait staff to see what she was talking about and would then show her laptop screen during this conversation process. When the waitress/waiter walked off, Sunday Surfer would continue with her laptop activities.

Noticing a "color failure" is what triggered Fashion Design Major to extend his experience. He noticed among the general public at First Saturday an image that would be considered a "color failure". When he saw the interviewer's bag, he immediately asked if he could take a picture to post on the website failblog.org. Once the picture was saved on his phone, he then went back to the main activity.

ACCESSING OR DEPLOYING INFORMATION IN A COMPETITION
In three out of the six venues, we observed that people were motivated to engage in the supplemental experience by their competitiveness. Either the secondary activities or the main activities they extended were structured as win-lose scenarios that allowed some participants to experience the excitement and satisfaction of winning. Accessing or deploying information was the tool that allowed people to compete successfully. Interestingly, this pattern showed up most strongly at the two venues that provided shared devices for the supplemental activity, namely Buffalo Wild Wings and Top Golf.

Some of the people we interviewed at these venues displayed considerable intensity and passion toward the competitive activity. This was a kind of selfish passion, in the sense that they were seeking to extend their own symbolic capital or status. Such people tended to be regulars at the venues in question.

The trivia game at Buffalo Wild Wings illustrates all of these themes. It was exciting because it was structured as a race; participants won points for being first to answer a question. This time pressure created emotional intensity. Participants deployed the information already stored in their memory to answer questions correctly. When they did not know the answer, they enjoyed learning something new. Dave, an expert player, was motivated because he liked to exercise his mind.

"I love the game. I love anything that challenges my mind, so I love it."

Among the various games offered by the venue, Dave commented that he liked the trivia questions best due to their informational aspect:

"I prefer the trivia questions, yes, it's a lot about knowledge."

Jill, Dave's daughter, also enjoyed the informational aspect of the trivia game:

"Since I graduated high school I try not to think about things unless I have to, yeah it definitely makes me remember what I do remember and what I don't remember and what I need to remember again."

She went on to explain that the trivia, especially that which was focused on history, reminded her of the things she should know. Her boyfriend also gave her a hard time, teasing her about those questions she "should know."

Furthermore, Dave was highly passionate about trivia games. Dave had been going to Buffalo Wild Wings once a week for the past 15 years to play. Dave was so enthusiastic that he even knew the origin of the trivia game and was proud to say,

"I have been to the original restaurant in Canton, Ohio. So that's where I originally started playing this was in the original restaurant."

To elaborate his passion he said,

"I love the game" and *"I would have played no matter who I came with, even if I'd come by myself I would have played."*

Both Dave and Jill also displayed a great deal of competitiveness. Jill she discussed how she enjoyed the competition with her father saying,

"I mainly like it because certain categories I knew I could out smart my dad. That's really hard for me. My dad's extremely smart."

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Dave showed his competitiveness when he said,

> *"She'll [his wife] just blurt it out if she knows it [the answer] right away. I try to tell her not to do it too loud in case there's other people playing around us, I don't want them to know."*

With both of these quotes, Jill and Dave revealed the competitiveness which was brought out through the trivia game.

We saw similar patterns of competitiveness at Top Golf. Golf is, of course, a competitive game with winners and losers. All four golfers whom we interviewed enjoyed the game of golf; however, only one of them believed that the supplemental experience made a significant difference in their practice sessions at Top Golf. The others regarded the detailed information about their shots provided by the technological devices as occasionally useful, but not of central importance. So for this venue, we consistently observed passion for the main activity, but only sometimes for the supplemental experience.

In terms of motivation, Charlie was a regular at Top Golf specifically because he believed that the technology helped him improve his game.

> *"Well most of the driving ranges that are actually closer to my house are just traditional driving ranges...but it just not the same. You're just out there hitting balls and can't really tell how far they are going."*

For Charlie, the accuracy of the information gained through the technology made it worthwhile driving the extra distance to Top Golf. He explained the advantages of the targets saying,

> *"Every one of them has got different yardage associated with it and ah of course in your bag your clubs go different distances... and it kind of over time it kind of gets you to get zoned in when your actually playing on the golf course and these are kind of the same size of the greens so your actually hitting the size of target when you go out to the golf course."*

Donald was also a regular, but he visited Top Golf because it was closest to his house. He had already been a regular before the technological enhancements, and simply continued the habit.

Finally, Sam and Eric did not visit Top Golf regularly; they had come on a whim that morning. They regarded the technology at Top Golf as a form of entertainment for less expert players, and saw Top Golf as more of a social venue than a serious golf facility. So their main motivation to visit was to enjoy a social, casual morning while also engaging in their hobby. However, Eric did nonetheless say that he thought Top Golf had an advantage over driving ranges without the technology:

"We come out here cause you can get ah little bit better experience with competition level and we can tell if were at least get a little bit of a measure of how were doing."

The electronics flea market First Saturday also featured competitive behavior in the "game" of negotiations between vendors and buyers. Buyers extended their negotiating ability by conducting on-the-spot research about pricing and technical information on their mobile phones. Many buyers were passionately knowledgeable about technology, and became intensely engaged in their research/shopping activities. Their motivation to visit First Saturday was generally to find good deals on technology products, but their motivation to conduct on-the-spot research had an undertone of competition with the vendors; they did not want to be taken advantage of, and most likely felt pride when they negotiated a good deal.

For instance, Quake Guy explained that he was using his device to diagnose problems, estimate prices, and leverage buying power.

"I knew that I was going to need to obtain additional pieces of information and have to use whatever I could in order to A work the price down, and B ascertain exactly what was wrong so I knew what I was purchasing. So to make me a more informed customer as well as an engineer I decided I was going to look up the specifications as well as the serial number of that laptop via Apple.com."

"It is absolutely imperative to be informed in a situation such as this. Information gained from a third party source like the Internet, or for instance live document management, from which I get documents from home which are pertinent to what I'm doing here—if I didn't have it, I could be easily slighted in a sale."

Quake Guy was extremely passionate about electronics, so much so that it consumed his hobbies and his career. His enthusiasm allowed him to thoroughly enjoy the shopping experience as well as gain personal satisfaction using his mobile device to research information. An example of his general passion about technology could be seen when he was asked what his expectations were for his mobile device.

"My mobile device needs to be both robust, it needs to have longevity, and it needs to have capability. I need to be able to cross the mediums and not just be locked into a given type of data transmission service such as 3G or Edge, I want to have the option to use 3G, Edge, EVDO, you name it, I need to be able to use any one of those. I need battery longevity because for extend periods of time I am no where near a place where I can charge the device, and furthermore I need something that is robust; something with applications that permit me to get the job done quickly and effectively without having to tinker with the device ahead of time."

Triggers
Competition initiated a lot of triggers for all of the listed examples above. For many, the competitive advantage gained by extending the main experience was the sole reason behind the triggers, especially for Dave and Jill. However, this was not limited to those types of triggers associated with accessing or deploying info in a competition.

For Jill, competition was a strong trigger for her to engage with the trivia game. Her main goal was to make sure she read the question before her dad did, to ensure the best possible chance of victory over her dad. The only problem was that sometimes her crying baby took her attention away from the supplemental activity, because she needed to assist the child, instead of focusing on the questions showing up on the screen. Similarly, Dave, Jill's father, was triggered to engage with the game because he too wanted the best possible score, but rather than just competing with his family, Dave competed with the all participants in the entire restaurant. The triggers back to the main event for him as well as his daughter were the commercial breaks, which they both tried to use efficiently, and when the waitress visited their table. For them, food was not as much as a distraction as one would think, because both did not stop to eat, they continued to play once the food had arrived.

At Top Golf, the information on the supplemental device was shown after an individual hit a ball into a target; therefore for Charlie, Eric and Sam, the main trigger came after they hit a shot into a designated target. After reading the information provided on the shared screen, they then went back to the main activity to hit another shot. This continued back and forth. For Eric and Same more than for Charlie, the waitress would also take them away for the supplemental activity.

For Quake Guy, the initial trigger came when he spotted laptop that he might want to buy. He instantly began the research process once he knew the electronic equipment would be a possible candidate for meeting his exact needs. However, a trigger away from the supplemental activity would be when he needed to unscrew an area on the back of the laptop in order to find the serial number pertaining to that exact electronic equipment. After obtaining the serial number he then re-engaged with the supplemental device in order to look up information with the gained serial number. After finding the needed information, he then disengaged from the use of his cell phone, the supplemental activity because he was not longer interested in buying the laptop.

ENGAGING IN A SUPPLEMENTAL EXPERIENCE PROVIDED BY THE VENUE TO EXTEND SOCIALIZING
We observed that within groups who went to the kinds of venues described in the previous section, some members of the group might be motivated to visit the venue because they wished to have access to those supplemental experiences, while other members of the group might participate more because they valued the opportunity to socialize. Both motivations could also exist simultaneously. For those who

primarily valued the sociality, the supplemental experience heightened the fun and excitement of the time spent together.

For instance, at Buffalo Wild Wings, Jill not only enjoyed the dining occasion to visit with her parents who were rarely in town, but she used the trivia game to socially interact with her father. There was an underlying feeling that Jill and Dave, her father, used the trivia game as a means to bond with one another. Her father first introduced Jill to the game, and it is something they continued to engage in on a regular basis. Jill commented during her interview that last year when her parents came to visit, they came to Buffalo Wild Wings to have dinner, as well as this visit. Jill showed signs of enthusiasm about this decision by saying,

> *"As soon as my dad told me we were coming here to eat dinner I was like, Oh Yay."*

Also, the trivia game provided the possibility for Jill to not only engage on a higher level with her father, but also a chance to extended the socialization opportunity between her mother and boyfriend who were chiming in and teasing her about questions she probably should have known. Without the trivia game, the level of communication would have been changed because the game invited many conversations that would not have occurred otherwise.

We also observed indications of this pattern at Top Golf, and probably at other venues as well. It was sometimes hard to be certain about the motivations of people we observed without interviewing.

Triggers
See the previous section for a description of triggers in these venues.

ACCESSING INFORMATION TO EXTEND A LEARNING/ ENTERTAINMENT FOCUSED ACTIVITY
In this section, we describe the situation at the Sixth Floor Museum, which depicts Kennedy's assassination and the issues surrounding it. The museum offers a mix of education and entertainment as did some other venues, but they key to this venue is yes, the supplemental experience unquestionably extended the main activity by providing additional information, but for this particular venue, the visitors' experience was neither social nor competitive, it was solely about the educational extension.

The supplemental activity at the Sixth Floor Museum was provided by an audio guide with headphones that provided information to visitors as they walked through the exhibit. Our interviewees believed that the audio guide significantly extended their experience of the exhibit. For instance, when Ricky was asked if he would go through the exhibit without using the device he answered,

"Definitely not because ah a lot of information um from this recording and the lesson um helping me to understand all the things around me um pictures and videos…"

As one can see, without the device, Ricky would not have liked the exhibit nearly as much, nor would he have been nearly as informed about the museum. Helen, our other interviewee, made similar comments; she liked the fact that the audio guide gave her more information about the exhibit. She felt pleased that the device was available in Spanish so her mother could have the opportunity to hear the additional information as well.

The museum experience tended to be emotionally engaging for visitors, since it was about the assassination of President John F. Kennedy, a great tragedy for our nation. The audio guide extended visitors' immersion in the exhibit by surrounding them aurally and separating them from verbal communication with their friends and family.

In terms of visitors' motivations to see the exhibit, they presumably wanted to learn more about Kennedy's assassination. More specifically, Helen had visited the Sixth Floor Museum four months previously. She had enjoyed her visit so much that she wanted to bring her mother to the exhibit. Ricky had never been to the museum, but another member of his group knew it and encouraged them to come; they were entertaining an out-of-town visitor.

The barriers to socializing – i.e. the headphones – made this venue distinct from all others in our fieldwork. We saw this lack of sociality as potentially a missing piece for visitor experience. After all, most visitors arrived in groups; they talked to each other before and after they used the audio guide. The content of the exhibit made it likely to spark conversation. Furthermore, we observed people touching each other on the arm or shoulder as they walked through, apparently to engage in at least nonverbal communication. The problem that single-user audio guides isolate museum visitors is known, and a number of researchers are working on devices that could be shared. On the other hand, one could also argue that the sense of isolation and even disorientation induced by the headphones is particularly appropriate for an exhibit about Kennedy's assassination, since it may help recreate the way many people felt that day.

Triggers
A wish for additional education was what first triggered these individuals to use the audio guide provided by the museum. For some, when traveling through the museum, the videos displaying additional information would trigger individuals to disengage from the supplemental activity because they wanted to hear what information the video was providing. After listening to the video, they would then return to using the supplemental device. For others, they were submerged in the supplemental activity from the time they initially put the headphones on until the point where the exhibit had ended and they then took off the headphones in order to

return them to the museum. Also, in some rare cases where individuals had a hard time figuring out the device and how it worked, it would not only trigger them to disengage from the supplemental activity, it would also disengage those who were in attendance with them and who tried to help them with the device.

DESIGN IDEAS
In developing our recommendations for a device that might be used in the home to create supplemental experiences that would extend main activities, we decided to conduct a thought experiment: what if all of our design ideas could be situated on a single mobile device? This would respond to common complaints about the proliferation of small devices in the home, such as remotes, cell phones, and landline phones. We have termed this device the "Truly Universal Remote." It would include sophisticated technologies and applications exceeding the capabilities of current smartphones, and would go far beyond today's "universal remotes."

Ultimately, our vision is for this device to be integrated into every mechanical object located in the home, utilizing the home computer as the central nervous system. It will also be compatible with devices in the vast surrounding community that is Earth, in an effort to attach the home and the functions within it to everything outside. The Truly Universal Remote should be limitless in its ability to gather and send information. It should open up new spheres in which the user is able to socialize, and also able to compete against other users within that realm. The device should spark the user's passion to utilize technologies that increase enjoyment of life.

In this section, however, we focus more narrowly on how the proposed device would create supplemental experiences that extend main activities in the home.

Sharing Images to Extend Socializing
The device could be linked to large screens in the home, such as TVs, to show pictures and videos saved by family members. This feature could be used to enhance socializing by adding a visual component on the fly to story-telling activities, when family members are talking about their experiences to visitors, or to each other.

Accessing or Deploying Information in a Competition
The Truly Universal Remote would include gaming software that allows a single game to be played by multiple users simultaneously. In conjunction with the TV, users could challenge each other in trivia games based on the current programming. Furthermore, this function would allow users to play along with their favorite game shows, and invite friends to join. An information gathering function should also be accessible during game-play (especially for trivia scenarios). A function should be available to send challenges, at any time, to friends for competitive games. Team games should be available to challenge neighboring or relative families. Voter-based programming such as American Idol could allow users to cast their vote live.

- Challenge other users to compete in games.
- Play along with game shows. Then compare your achievements with other users.

Engaging in a Supplemental Experience Provided by the Venue to Extend Socializing

For people who engage in activities like trivia games primarily to socialize, rather than to compete, the Truly Universal Remote could also offer less competitively oriented games and supplemental activities.

- Access information on actors and actresses, directors, producers or composers during movies. Of course this can already be done on the Internet through websites like IMDB.com, but imagine pulling that information right onto the screen!
- Extend your experience and become a participant in the audience during live programming.
  - On the game show Who Wants to be a Millionaire, competitors often choose to poll the audience for assistance with a problem question. This device would allow users to become part of that audience.

Accessing Information to Extend a Learning/Entertainment Focused Activity

The Truly Universal Remote could extend learning or entertainment focused activities by extending the learning community from the home into other homes.

- Connect to a friend's stereo to share playlists with friends around the globe.
- Music from your home stereo could be sent to others.
- TV programs and movies to be shared among friends in different locations.

It could also enable users to access background information about music, films, or other sources of entertainment, similarly to the Shazam application for the iPhone, which identifies a song when the iPhone is pointed at the source of the music. However, the device we environ could provide a lot more information about a wider variety of media than what Shazam is able to. It would be closer to the audio guide at a museum.

Other Features

Although our recommendations in this chapter are focused on features that create supplemental experiences, we did allow ourselves to brainstorm additional features for the Truly Universal Remote, in line with our vision of its universal functionality. Such additional features might include the ability to:

- Gain remote access to home devices, for instance access the home TV while at work, access kitchen appliances while grocery shopping, turn home lights or sprinklers on or off
- Connect with your virtual community by conference calls or chat rooms
- Connect with your neighbors to warn of danger or request assistance

In terms of technical specifications, we recommend:

- A full set of keys which are well placed and comfortable to use.

- A touch screen to enable a simulated physical manipulation of objects on screen.
- Compact size that is comfortably stowed in easily accessible places.
- Large screen should be easily read, back-lit and non-reflective.
- Make use of wireless, hands-free headset.
- The shell should be virtually indestructible. This is of significant importance, as the user will desirably carry the device into all scenarios and environments.
- The device should come as a blank slate, allowing the user to choose only the specific functions desired.
  - Programs and software could be made available for download via the Internet, or even other users' devices.
    - The web site could also make recommendations to the user based on user's downloads.
    - Users who have determined a particular like/dislike for software could suggest it to friends.
- Maintenance should be made available via the Internet.

This device will not act as the primary Internet source, but interact with the already existing primary device, the PC. Information could be gathered and delivered from each device to the other. Links could then also be made to other devices in the home, such as: TV, TiVo, DVD, stereo, monitoring devices, alarms, alarm clock, kitchen devices, AC, lighting, sprinklers, pet accessories, check inventory on items in the house (track usage, and automatically restock when necessary), etc.

The device should open up new opportunities for gathering and sending information. It should allow the user to choose sources and have a filtering option. This is significant as the user could choose only the sources he/she has deemed reliable. In the instance the user has determined a particular source to be consistently unreliable, the filter would permit the user to ignore the unwanted sources. Also primary sources could be chosen and listed in a hierarchy of the user's preference. Furthermore, users could create archives of sources and group them according to subject. Therefore, if the user desires to research recipes, as did Sunday Surfer, a particular archive could be chosen to search through specific sources to find the best information while ignoring the rest.

In conclusion, we see a future where social networking and competition among friends will become never-ending. The newly developed technologies will skyrocket the user's passion, as even the mundane activities of day-to-day life become engaging activities. Most significantly, gathering and sending information will no longer be limited to files and documents. The device will allow the user to command other devices to take specific action and perform more tasks more efficiently. The device's mobility will allow the user to not only achieve goals from home, but from anywhere on the planet, all the while tracking his/her progress. This progress could then later be compared to other users, establishing new forms of competition, to see who got more done during the day.

4
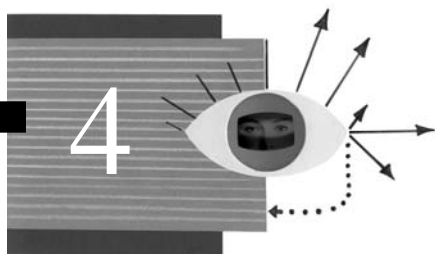
4.   Using Supplemental Experiences to Disengage from the Main Activity

By Lauri Lillie, Sara Lipsey, and Bill Johnson

"Boredom was especially common at sports events when the participants' team was losing."

This chapter examines the ways in which people turn to supplemental experiences when they wish to disengage from the main activity. We define disengagement as observable actions that signify an obvious change in interest, or withdrawal, by actors from the main activity the individual originally intended to enjoy and experience. As a result of this change in interest and attention, individuals are prompted to engage in new, and perhaps more interesting, fun or constructive, activities through their mobile devices.

We found two main reasons for disengagement: 1) boredom and 2) a wish to get work done by multitasking. Boredom was especially common at sports events when the participants' team was losing. Multitasking was especially common in restaurant/bar environments.

This topic was examined from a microlevel perspective in order to discover the specific things, actions, or moments that trigger an individual's shift from the major event to their mobile device as well as attention shifts back to the main activity. As such, precise details are offered in the form of observations from the research team and verbatim expressions from research participants.

BOREDOM
We define boredom as a general feeling of displeasure or discontentment. As such, boredom was discovered as an impetus for disengagement at several of the venues where fieldwork was conducted for this project: the University of North Texas football game and statements made by respondents who attended sporting events as well as patrons of the Idle Rich Pub.

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Boredom at Sports Events: When Your Team is Losing
Analysis of the data using repetition as a methodological tool shows that boredom can be quite pervasive among individuals who attend sporting events, and the frequency of observed events at the University of North Texas (UNT) football game as well as statements made by game attendees supports this claim. It is important to note that boredom is highly conditional and is typically induced by the lackluster performance of the sporting team that individuals are rooting for at the time. Furthermore, based on interviews with respondents who attended baseball and hockey games and observation at the University of North Texas football game, it seems as though boredom, and the ensuing *disengagement* from the sporting event to *engagement* with mobile devices, is not restricted to one sport; it is, however, directly related to attendees' perceptions about how well the main event is satisfying their entertainment needs.

Observation of UNT Football Game
It is easy to appreciate boredom as incentive to seek out a new experience if we follow the progression of events at the University of North Texas football game. Notably, occurrences of the use of mobile devices at the beginning of the game was relatively sporadic; the game had just begun and observed use of cell phones showed that game attendees only briefly accessed their devices to take pictures of action on the field or their group of friends, speak on them quite briefly or text for a short amount of time. At this point, the energy, excitement and anticipation of what the next three hours would bring was quite high in the stadium and UNT students displayed behavior that supported the idea that they were engaged in the events around them, and the game, which implies a complete absence of boredom.

> *"Twenty minutes into the game, it was obvious there were little to no extended experiences taking place in the immediate area where we were sitting so we moved to another location in the stands. The students seemed to be very involved in the football game and were not using their mobile devices in a consistent or lengthy manner."*

As the game progressed, it became rather clear that UNT was facing an unequal opponent on the field and it was not long before the score reflected great disparity in the talents between the two teams; by halftime, UNT was already behind by 21 points and enthusiasm about the game was waning. The bleachers slowly began to empty as attendees began to concede defeat and, interestingly, this was when observation showed that the regularity of mobile device use increased as discontent and boredom with on-the-field action became prevalent among game watchers.

> *"As the game went on, and closer to the end of the second quarter/half time, we saw more involved uses of cell phones, as well as a decline in the involvement of cheering from the crowd."*

Kelcie, a young female who attended the game with her boyfriend, was observed using a mobile device consistently for seven minutes straight with very little attention being given to the game. When she was approached and asked to explain what she was doing on her cell phone, Kelcie stated,

"…that they were bored, so she was looking up movie information so they could leave the football game"

Here, Kelcie and her boyfriend engaged with her mobile device as a means to solve the problem of "boredom", and their dissatisfaction with the environment was felt on such an intense level they were prompted to completely remove themselves from the main activity.

Similarly, a Caucasian male in his early 20's was observed for ten minutes displaying behavior that exhibited withdrawal and indifference with the main activity which prompted him to shift his attention to his mobile device to provide a distraction, or new experience, for him to replace the dissatisfying experience of the game. This gentleman was sitting with a small group of four people and the researchers noted that he accessed his mobile device for the duration of the observation. The screen of his phone showed that he was browsing through Facebook, an online social networking site, and throughout the ten minutes he only directed his attention to the football game two times for a total of 35 seconds. As noted earlier, multitasking with one's mobile device is sometimes a result of boredom, and this actor's behavior exhibits and provides evidence of this point. While scrolling through Facebook, he interacted with the group by chatting periodically, shared information with a female by presenting information on his screen to her at which point she then proceeded to engage with her mobile device for a few moments. Boredom with the game produced a very intriguing dynamic between the group as the main actor managed to successfully create for himself a supplemental experience that was so satisfying it was worthy of sharing with others.

As the seconds ticked on the game clock, events on the field became even grimmer as UNT had not yet scored, the other team was ahead by over 30 points, proving it seemingly impossible for UNT to gain any momentum and close the gap in score, much less win the game. Boredom was setting in among the majority of attendees. In the third quarter, a Hispanic male in his early 20's was spotted and timed using his mobile device continuously for nearly 40 minutes. Overall, this actor displayed great apathy about the football game and his general surroundings and was very engaged in the experience he had created for himself through his cell phone. He scrolled through various web pages with little attention given to what was taking place on the field. Again, even though he was disinterested in the main event he

originally came to experience, he managed to effectively multi-task and productively engage with his phone and his environment. He occasionally shared information displayed on the screen of his device with a young female and male who were sitting next to him on the bleachers. He looked up from the screen of his iPhone infrequently, and when he did, his eyes were drawn to activities other than the field; he was caught checking out females, watching the band play, dancing in his seat and looking around the bleachers at other game attendees. His indifference toward the game was so strong that he eventually asked his gal friend for her digital camera and fussed, played and occupied himself with finding the perfect camera angle to take pictures for approximately 20 minutes. Oddly, it appeared he only took a handful of pictures in this 20 minutes period. When this gentleman was asked to explain what exactly he was doing on his mobile device, he said "that he had been texting and messing around on the internet". Anthropological data collection methods proved beneficial, for when the researcher inquired if this individual would be interested in participating in an interview, he respectfully declined, stating that he was at the game to watch football and did not want to be taken away from the experience. Comparing reported and observed behavior here was interesting and insightful, because his response proved rather ironic as it was blatantly obvious that he chose to disengage from the experience for a lengthy amount of time because he was not at all excited or interested in the football game.

A young male college student, his girlfriend and a female companion's actions were also examined during the third quarter of the UNT football game. Fifteen minutes of observation showed that the group was relatively engaged in one of their mobile devices, and microlevel analysis of attention shifts revealed that the male only directed his attention toward the field when there was a whistle on the field. This detail is noteworthy because in the context of a sporting event, the sound of a whistle holds great meaning; it can be representative of either a positive or negative happening or incident in a game and usually signifies a brief stoppage in the game and should immediately prompt awareness from individuals in attendance. For example, a whistle may indicate a stop in play resulting from a penalty or illegal move by a player or it can correspond with a very positive moment in football, a touchdown by a team. Regardless of the specifics surrounding the whistle, there are cultural expectations and meanings that accompany its blare which elicit curiosity and stimulate an attention shift away from the mobile device, or engagement again with the main event, because now, the activity is producing some level of appeal as they are challenged to discover why the whistle blew. As such, attendees are drawn back into the main activity because it is again fulfilling their expectations or creating interest, however briefly and at least to some degree.

After satisfying their curiosity by assessing exactly what happened on the field, the group focused again on the screen of the mobile device. Moments later, they were observed still engaging in the virtual experience they had created together as they were huddled around the phone, looking at information displayed on the screen. Just then, UNT scored a touchdown, their first of the game. Immediately, the cell phone was abandoned, there was complete disinterest about whatever they were

focused on through their device and all three of them directed their attention to the game, stood on their feet and cheered for the team. A few minutes after the thrill of the touchdown diminished, the group retreated to their cell phone for another three minutes. The examination and detailed breakdown of these events and instance offers intriguing information about exactly why individuals seek out another experience because of boredom and how they are summoned back into the primary experience when it becomes exciting and provided for their specific needs as dictated by cultural expectations and their personal reasons for originally choosing to attend the game.

Other Sports Examples from Interviews
This discussion now moves from the football venue to other instances and expressions by research participants that provide additional data about this concept of boredom as a motivational factor for individuals to engage in a second screen, or supplemental activity. Corresponding with the data mentioned above is a statement made by Caesar, a male in his late 20's, who is a huge fan of the Texas Rangers baseball team. Caesar shared vignettes that illustrated his experiences when he attended Ranger games and he spoke frankly about reasons why he would choose to use his mobile device during his experience. Caesar stated,

> *"If they had a really good team I'd be more interested in actually watching the game, than, than maybe getting on the phone and trying to talk to somebody or something like that, ya know. They're always losing, or most the time they're losing, if they're winning, I'm going to be paying attention to the game and cheering and screaming and carrying on...."*

Caesar's explanation of his cell phone use habit at a sporting event further advances the argument that displeasure and dissatisfaction with the entertainment value provided by the main event, here a baseball game, establishes a real need for individuals to seek out an alternative experience, which is accomplished by turning to a mobile device.

Substantiating this finding is a statement shared by Ruby, a young, female college student who enjoys attending hockey games, specifically the Dallas Stars, with her boyfriend. Ruby utilizes her cell phone to fend off boredom, specifically during intermission. Intermission is definitely considered a pause in the main entertainment, which is discussed in detail later in this chapter, but here, boredom is an effect of the interruption in the main activity which managed to consistently hold her attention. Ruby stated that she used her cell phone in between periods because the entertainment on the ice during intermission is "stupid" and she is not at all interested in watching what is going on the ice. She also said,

> *"...my boyfriend will get up to use the bathroom so I end up just sitting there by myself, um, so I'll get on it and either text people or get on the internet and look up like CNN.com or stuff like that to keep me entertained."*

Other comments by Ruby are useful when challenged with grasping the unique circumstances that leave game attendees searching for other, more gratifying and pleasing experiences. When asked to explain how she felt when she used her mobile device at the game, Ruby explained,

> *"Um, I guess I was bored so I was just trying to entertain myself. Um, sometimes, I mean, it could get a little aggravating because it would take a while to load up pages, so it wasn't as, as great as it could be I guess, but it still was something that kept me entertained, so I guess I was content."*

For Ruby, accessing her mobile device is an automatic and spontaneous decision for her because she is bored. Interestingly, she stated that she uses her cell phone less when her boyfriend is with her because he entertains her, whereas if he was not there, she would be bored and then would search for something to distract her or hold her interest.

A definitive lack of boredom, and thus satisfaction with the main activity, also provides valuable information about the reasons why and when game attendees access their mobile devices. To explain this point further, Ruby considers herself a moderate fan of the Stars and her favorite players are the "fighters". When asked if she had ever used her cell phone to take photos of her favorite players fighting at a game, Ruby replied, "Um, not really, cuz usually I'm up cheering, I'm not thinking about my phone or pictures." Here we see that total engagement in the main activity, or the complete opposite of boredom, creates a satisfying experience for event participants where they need not rely on mobile devices to provide them with a distraction, or supplemental experience, because the primary event is fulfilling their expectations. Finally, another statement by Ruby presents evidence to support this argument. She said that using a mobile device at a hockey game

> *"… makes it a little bit more bearable, I guess, because there it's all hockey, all the time, and so it's like it brings stuff that I'm interested into it, and so like I don't have to like think about the hockey game or whatever and I can just look up stuff I'm interested in. Uh, I guess it just, I don't know if it makes it any better, it would probably be more boring if I didn't have it to look at, but it's not such a necessity where if I didn't have it I would be like out of my mind, um, it helps but it's not like, I'm not dependent on it."*

With that said, it may seem obvious to state that attending a sports game and then spending the majority of the time playing on one's cell phone is perhaps acceptable in this day and age, however in the culture of a sporting event, it would be considered slightly deviant behavior. Periodic uses of a cell phone may be considered appropriate; extended use over two or three minutes may be viewed as somewhat rude. There are social norms that exist at sporting events and inherent in one's choice to attend a social sphere of a sporting event is the personal and financial investment that accompanies the decision to attend a game. So, it is imperative to create a shared understanding of why an individual initially decides to

go to a football, hockey, basketball or baseball game which typically involves motivations to socialize with friends, enjoy the upbeat atmosphere that a sporting event affords, show support and cheer for a favorite team or satisfy some other goal that he has created for himself. Data reveals that when this personally constructed expectation is not met, which is typically the result of poor performance by the team they came to cheer, then there is a problem they are forced to negotiate. This problem is boredom, and attendees solve this challenge by turning to their mobile devices to fulfill the needs not provided by the main activity.

Boredom at Brunch
Data gathered at another venue for this study is useful to present when considering the sub-theme of disengagement, boredom. A research participant named Peppermint Patty, a regular patron of the Idle Rich Pub, also exhibited behavior consistent with the idea that boredom prompts engagement with a mobile device. Every Sunday, Peppermint Patty, her boyfriend and a group of artists go to Idle Rich Pub in Dallas for brunch and to socialize as a group every Sunday. The artists enjoy their time together and flaunt their artistic talents by doodling on coasters with markers, a ritual they participate in on a weekly basis. Patty, a 24 year old, white female college student, is not artistic and explained that she uses her mobile device to entertain herself and as a distraction because she has no interest in participating in the main activity, which, among this group, is drawing on coasters.

> *"Um, well, I'm on my phone all the time, all the time. And we come here every Sunday for brunch, so. Um, ya know, they all like to draw on little coasters and stuff and I'm not an artist, so while they do that I just entertain myself...I'm a dance major, so I don't do the whole drawing, so while they do that I'll look up stuff."*

Time and again, data show that individuals who use their mobile devices to disengage from the main experience are attempting to relieve themselves from the non-desirable feeling of boredom and discontent they are experiencing.

MULTITASKING
Multitasking is the performance by an individual who appears to handle more than one task at the same time. Multitasking was discovered as a force for disengagement at several of the venues where fieldwork was conducted for this project.

Multitasking seemed to be something that individuals did in order to "catch up" or get more done. People interviewed about multitasking mentioned that lack of time was the reason for their actions. The world seems to be getting faster paced and individuals try to juggle more tasks in less amount of time, thus creating the need to engage in multiple activities at the same time, even if this multiple engagement is not always considered culturally acceptable. For example, some might find it rude to disengage from the social experience of eating a meal with friends in order to look up information on a cell phone for an extended period of time. Observation at

several of the venues offered evidence that it is acceptable to spend time at a restaurant with friends or family while also engaging in other solitary activities.

Multitasking During Brunch: Idle Rich Pub
At the Idle Rich Pub, interviewee Peppermint Patty was initially observed engaging socially with a group of people at her table while simultaneously interacting with her mobile device and then turning back to the group.

> *"Peppermint Patty used her phone continually throughout the observation period. She was constantly engaged with her phone while also being semi-engaged in the social experience".*

Neither the group nor Peppermint Patty appeared to be uncomfortable with her multitasking, and resulting lack of complete engagement in group activities, in this instance. When asked about her cell phone use, Patty replied,

> *"…that her group is very comfortable with each other and with almost disengaging when they come together for lunch. She has only known the group for 5-6 months and they have all known each other longer. This Sunday routine has been in place 'forever' so she has been coming here for the entire time she has known them."*

Peppermint Patty shared that her reasons for her multitasking at Idle Rich Pub are numerous. One reason is she that gets bored with the activities offered by the social experience. As noted earlier in this paper, unlike the others in her group, Peppermint Patty is not an artist, so when the group comes together to show off their artistic abilities she must turn to other sources of entertainment. Another motive for Patty to engage with her phone while simultaneously engaging socially with her friends is that she is the only one still in school, so she used the time to look up and check on school work, tasks she did not make time to do during the week.

> *"Using her phone is not really fun or boring, but productive. She says that she mainly does it for school purposes and for her education in general. Used an example of her choreography class and what she was looking up today so that she could understand better before her upcoming class. Sunday is her homework day. She lives in Denton and is in Dallas on the weekends so she tries to get as much done as she can before going back home".*

Peppermint Patty was not the only individual at Idle Rich Pub observed multitasking. Sunday Surfer was also observed engaging with multiple experiences. Sunday Surfer not only had her cellular phone at the restaurant, but also brought along her laptop and a periodical. She was observed reading, using her cell phone, and working with her laptop, all while engaging socially with the pub staff and eating and drinking. What is interesting about this respondent is when

asked about her multiple engagements she stated, and truly believed, she was not engaging in more than one experience at time.

> *"I actually, I mean...single focus so if I was talking to Tiffany I really wasn't paying attention to what I was doing. I just stopped doing what I was doing at the time so I could talk to Tiffany or Abbey...I multitask so much at work that I'm not going to do that when I'm out".*

Although Sunday Surfer does not think she is multitasking, microlevel examination of her attention shifts show that she is indeed negotiating, and moving between, multiple experiences at the same time. Her shifts are so minute, and brief, that multitasking is the only way to describe her focus and movements.

> *"1:51 attention is diverted and she asks the waitress next to her ... a question about non-food .... She engages the waitress with her laptop...*
> *1:52 Problem solved. She engages back with the laptop and the waitress leaves. 30 seconds. She takes a drink. She shows the waitress (same as before, but who is now tending bar...) her laptop by turning it around on the bar. After 10 seconds, she turns laptop back around and is engaging with the wait staff and another person at the bar. She orders another drink.*
>
> *1:55 She turns laptop back around and shows it to the waitress again. Describing things on the laptop. Turns it around. 20 seconds. She is still engaged with the waitstaff ...*
> *1:56 She has out her cell phone. She has two cell phones. Or a cell phone and a blackberry or iPod. She got a call and is on the phone. She looks around the bar and describes everyone to the person on the phone. She is looking at her laptop while she is on the phone, but just moves her mouse around. She takes a drink, but is totally engaged in the telephone conversation. She picks up a newspaper, glances at it, but is still talking.*
> *2:00 off cell phone, and is engaging with the waitstaff again. ...*
> *2:01 is working with cords to her device.*
> *15 seconds. Picks her iPod up. Looks like she's checking a text...*
> *Turns her phone off.*
> *2:02 engages with the waitstaff again...*
> *2:03 has 5-10 second shifts from the waitstaff to her laptop to her drink.*
> *2:05 attention focused on the laptop. Looks like she's settling in to her own experience. Cannot tell what she's working on. Seems more focused and less distracted by the waitstaff".*

Sunday Surfer's personal lack of awareness of her multitasking suggests that indeed the engagement in multiple experiences is automatic and intrinsic for her.

Multitasking During Dinner: Buffalo Wild Wings
This habitual concept of multitasking as a means for disengagement from the main activity was also seen at the Buffalo Wild Wings venue. A young, professionally

dressed man was observed using multiple technology devices included a laptop, calculator and cellular phone, all while in the setting of a family-oriented, upbeat restaurant. When asked about his experience, he mentioned his motive for multiple engagements was to get work done, so it seems that although this respondent is aware of his ability to handle more than one task at a time, does so because it is second nature to him.

> *"Young professional black man with laptop is leaving. He has been at this wing joint for almost 4 hours! He tells us he was in the area for work and wanted to stop somewhere where there was some activity and excitement to do his work. He claims he can tune out specific noises and is energized by the buzz of the environment. He was inputting sales data because he manages sales reps for a copier company".*

The very fact that individuals multitask is rather revealing about their intentions and motivations about how they will act in their surroundings. Ultimately, inherent in multitasking is the idea that the individual is simultaneously engaging with the main activity, disengaging by using a mobile device and engaging again with the event. The fact that multitasking within this data was done instinctually supports the idea that the ability to multitask is very important to individuals and their experiences. This subtheme has much to offer the overall understanding of the use of mobile devices in this study.

DESIGN IDEAS
For this section, some anecdotal information is necessary to understand the context of American culture amidst uncertain financial times. Consumers, taking a beating from the worst financial crisis in seven decades, are cutting back sharply on their spending, pushing retail sales down by a record amount. As our economy continues to disintegrate, users may be forced to curtail going out to movies, restaurants, nightclubs and bars due to the expense. People may still go out but on a more limited basis. American-style consumerism is changing. For Americans lucky enough to still have their homes, entertaining in the home will most likely be on a major upswing. During this turbulent era users will require many tools for multitasking, tools for escapism, communication and relieving stress and having fun.

Since it has been determined that insights from this research project will be employed in development of applications and devices to be used in the home, particular attention will be given to ideas that would enable a user to enjoy an experience similar to that realized if one were to attend an entertainment venue. As discussed in class, the line between the family room (or entertainment room) and an entertainment venue is blurring. As our client Crysta Metcalf says, "People have election parties… have people over for the game." Homes are also equipped with large-scale, high definition sound and visuals with incredible graphics to display games and information that are on a par with those found at high-end entertainment spots. Consumers will still be able to escape the drudgery of their workday lives,

but instead of going to the game, they may go watch the game in the stadium seats at the Jones' house instead of Jones' stadium.

Design is often approached from a user-centered, research based perspective. Ethnographic and usability studies within the home will need to be reviewed or undertaken to measure their unique shifts of interest and transitions. As with professional venues, devices can be brought into or supplied by the home.

With this in mind, imagine a "wing-ding" party where buffalo wings are being served, there is loud music, the game (or several games) are projected on large screens in the main room with the volume off. Golfers are playing Wii Golf in the backyard, there is an interactive art display in the gallery/entry of the home. This is all possible and triggers will be there to inspire even more supplemental activities. Design ideas could include, but are not limited to, the following:

- **Sports** - Design an activity that an individual could enjoy with a mobile device when the game is getting boring. Think about the dot races at the Ranger games: the people who work at the Rangers games hand out little tickets with a colored dot on them. Basically, it is a coupon (this year it was for a free bottle of Ozarka water). If your colored dot wins the race, you get a free bottle of water at your local convenience store. The colored dots then race on the computer simulated diamondvision (large video screen) at the game. Basically, everyone wins because the dot coupons are the same all season. In other words, the convenience store owner does not know if the dot race coupon was for yesterday or today. It is a way of providing entertainment during the innings, and to get the fans to cheer (after all, it is the Rangers!). While this example is specific to baseball, similar ideas could be implemented for other sports.

- **Sports** - Extending the experience not only for the game, but for the lulls in the game as well. Viewing replays or isolated camera angles exclusively for users of specific service providers. Checking scores of other games, checking standings of fantasy league players, checking official attendance and traffic conditions could be available when an individual is ready to escape the main experience.

- **Green concerns** - Checking a venue or residence for energy footprint can be an interesting pastime during breaks, pauses and bouts with boredom. Is the device constructed of recycled materials? This is an important issue as old cell phones pile up at landfills across the land.

- **Giving the people what they want** - Egalitarian democratic voting processes like that of American Idol could be applied in the home entertainment environment. Guests could vote on the MVP of the game, select the genre of the background music, adjust the thermostat, even change the channel when the game is a boring blowout.

- **Trivia games** – These could adjust for more difficult or easier questions, based on abilities of players, so as not to lose players to boredom or a sense of inadequacy. Categories could be triggered by the flow of conversation or a date in history. In order to maximize engagement, the participant who correctly answers the most questions (gets the highest score) could win a party favor or door prize.

- **Museums/educational entertainment** – In order to further engage participants, enable additional research or provide deep content around an artist or period in history.
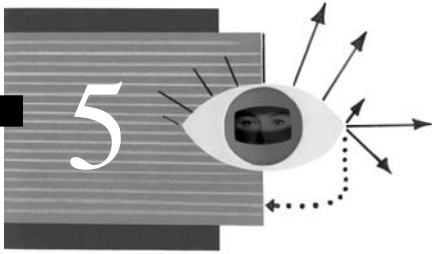
5. Complex Multiple Engagements

By Diana Harrelson Martin

> *"In this chapter, we expand our focus to consider a broader range of activities that people engage in simultaneously or in quick succession."*

Multitasking has become seemingly second nature for many of us, so much so in fact that few of us actually realize that is what we are doing when we are doing it. Multitaskers take it for granted that technology allows us to be engaged in several activities at the same time. However, just because a participant is multitasking does not mean their engagement in all of these activities is a successful one. The ability to multitask successfully depends greatly on the participant's success at navigating through these complex multiple engagements.

For example, in attempting to write this chapter I am sitting here in front of my computer listening to music online through Pandora, chatting to people at work through Skype and Yahoo! in an attempt to address bug fixes, while at the same time chatting to friends on Gchat also writing papers, and talking to my sister on my iPhone as I keep tabs on my email for work, school and personal use through Firefox. I am only acknowledging this here as it is the very thing I am writing about. In order to accomplish what I need to do I need to navigate through all of these activities successfully. To that end, I have finished my phone conversation, turned off my instant messenger application, and completed my bug-tracking task. My engagement, though still complex, is a little less so and I am able to participate in these remaining tasks more successfully.

In Chapter 4, we considered multitasking specifically in terms of how people at venues such as bars and restaurants may split their time between the main activities of eating and socializing, and the supplemental activity of getting work done using a laptop or smartphone.

In this chapter, we expand our focus to consider a broader range of activities that people engage in simultaneously or in quick succession. Though technology has been touted as making our lives easier, we have observed throughout our research that it has also made our lives more complicated. We found that participants are no longer satisfied with going to a museum just to see the artifacts, to dinner just to eat, to the bar just to drink, or shopping just to buy a product.

We observed instead that participants go to the museum to see, watch, read, listen, and socialize. They go to dinner to eat, but also to socialize, watch TV, and play games. They go to the bar to eat, drink, socialize, and prepare themselves for the week ahead. They go shopping to purchase products and socialize, but also to get a great deal by being an informed shopper through researching prices, specifications, and possible issues with products as they happen upon them.

In all of these cases we found that participants were looking to get something *more* out of their experience than what simply experiencing the main activity could offer. The supplemental activities may be either enhancing the main activity, or allowing users to disengage from the main activity. In either situation, it takes special skills to navigate these simultaneous or quick successions of activities successfully and it is the success of this navigation that makes a difference as to whether or not participants feel these complex multiple engagements are worthwhile. This brings us to an interesting question. If people are already navigating these complex multiple engagements, what can be done to make this navigation as successful as possible?

To help answer this question, I will analyze specific examples of complex multiple engagements that surfaced in our research. I will focus on what motivates people to engage in situations of complexity, how people navigate through these engagements both technologically and socially, and what their barriers in navigation are. I will then finish this chapter by providing a list of design implications and considerations based on this analysis.

EXAMPLE ONE: THE SIXTH FLOOR MUSEUM
The Sixth Floor Museum is a tribute to President John F. Kennedy and the events surrounding his assassination that took place in Dallas Texas on November 22, 1963. Once known as the Texas School Book Depository, the location now houses an exhibit that retells the events leading up to and after that fateful Texas afternoon.

The self-guided exhibit offers an optional audio guide that leads visitors throughout the memorabilia, textual descriptions, and movies on display. Most visitors, who come in groups of two to three or more, opt for the audio device as it is included as part of the entrance fee. The audio guide comes with a device to navigate through the narration that hangs on a lanyard around the neck and a pair of over the head earphones that fully cover both ears. If visitors are listening to the narration loudly enough with the headphones covering both ears, they have difficulty hearing anything else going on around them.

The observations at the museum revealed that visitors engage in several interactions at once including the following:

- Listening to the audio guided tour that provides an explanation of the exhibit and guides the user through it
- Looking at visual artifacts from the time-period and concerning the events leading up to and the assassination itself
- Reading textual presentations that explain the visual artifacts
- Watching movies which include news clips and home videos
- Communicating with others in their group
- Using mobile phones to text or talk with others

Part of the motivation behind engaging in all of these activities at the same time has to do with the museum's design in how it incorporates audio and visual interaction on multiple levels that it expects visitors to successfully navigate on their own. As a result, several navigation issues were noted during this observation.

- The audio guide had a slight learning curve, though it was easy to use once taught.
- If a member of a group had a malfunctioning audio guide, it affected everyone in the group as they stopped to try to fix it or ask for help to get it fixed.
- It was hard to carry on a conversation with your other group members if they were engaged with the audio guide.
  - People did not notice they were being talked to
  - Those that did finally notice at first tried to talk over the devices, which not only frustrated them but also disturbed other museum visitors. This eventually led to the devices being paused in order to carry on the conversation.
- Though the audio did guide the user through the exhibit, it did not sync up with the textual information or movies also presented.
  This caused three issues:
  - Even though the audio guide was provided in different languages the text throughout the exhibit was only in English which created a disconnect.
  - The audio guide did not reiterate the textual presentations, which caused people to have to pause the guide if they wanted to read it.
  - The audio guide did not sync with the video. This led some users to believe that the movies did not come with audio because they could not hear it over the narration the guide due to the fact the headphones covered the ear entirely. Those who did notice were forced to pause their audio guide in order to engage with the video and then unpause it in order to continue.
- Mobile phones that were not silenced before entering the exhibit went unanswered by their owners even as they rang loudly due to the fact their owners were fully engaged in the audio guides and either could not hear them or did not think them loud enough to bother anyone else.
  - This disturbed other museum visitors

- Though the audio guides gave users a sense of isolation, they were not alone and this became evident as many seemed disturbed by others entering their personal space.
- Some visitors seemed to pay attention to the audio guide to the detriment of their attention to the physical exhibit.
- Some visitors could not successfully follow the guide and ended up not using it as a result.
- Visitors who brought babies were unable to fully engage with the guide.

Most of these issues seem to occur because visitors ended up in these complex multiple engagements by circumstance and not necessarily by choice. Many did not seem prepared to navigate it unless they had been there before. Any transitions between these engagements had to be created by the visitor, as there did not seem to be any naturally occurring ones. Those who were successful at navigating the technical, visual, textual, and social aspects of the exhibit said the audio guides did add to their experience. Those who were not successful felt the guides did not add anything at all.

Additionally those who used the audio guide tended to stay at the museum longer as the guide took an hour and a half to complete, versus those who browsed through the museum without the guide in about half an hour.

EXAMPLE TWO: BUFFALO WILD WINGS – TRIVIA GAME
Buffalo Wild Wings is a grill and bar (as opposed to a bar and grill) that offers finger food, multiple TVs tuned to sports games, as well as the option to participate in electronic poker and trivia games. The environment is one of food, fun, and socializing where many couples and young families come to enjoy themselves.

The complex multiple engagements at Buffalo Wild Wings were observed as follows:
- Eating – many people came to enjoy the food
- Socializing – most people visiting the establishment came in groups of two or more
- Watching sports – several TVs were tuned to sports games both college and professional
- Playing trivia – families and couples played the game, which utilized TVs and personal game devices required to answer the questions.
- Taking care of young children – many families brought their children with them.

The motivation behind engaging in these activities at the same time was primarily due to their entertainment value and the social factor in that that several people could enjoy them together. The few that did not seem to engage in two or more of these activities at the same time were otherwise engaged in their own activities. These instances included a salesman who was engaged in his laptop and a child engaged in its personal mobile video game device.

This observation paid specific attention to those whose complex situation specifically involved eating, socializing and playing the trivia game, though at least one was engaged in TV watching as well.

When participants play the trivia game, they are identified by their names or the pseudonyms they enter upon receiving the device. Each time they answer a question, their name is displayed next to the answer they chose. Two screens, one that belongs to the TV where the questions are asked and the other to the device used to answer the questions, extend this experience.

Few navigation issues were noted during this observation:
- Those who were there socializing with families, eating, and playing the game divided there time between the three activities based on the pauses afforded to them by the game.
    - Any natural breaks that occurred were utilized to eat, drink, socialize and in some cases look after children.
- The establishment serves mainly finger foods, which makes it hard to navigate the devices used to answer the questions.
    - People were witnessed using dirty fingers to answer the device, or hand singled one finger out to answer the device and therefore did not use it to eat with as well.
- New games required a round or two to get beyond the learning curve even for people who were familiar with the gaming system.
- Those who engage in three or more of these activities find that on occasion they will answer a question late or not at all because other things kept their attention diverted. Activities mentioned include:
    - Eating
    - Ordering
    - Drinking
    - Having to go to the bathroom (though they try to save this for the breaks)

Those who participated in the trivia game and participated in interviews afterwards believed that the game added to their experience. Even if the people they came with did not get devices of their own, they would interject with answers, thus making the activity a social one as well. Though one of those interviewed said he would participate in the activity whether he was there with others or not, it did make a difference to him whether or not others were playing the game in the establishment. The element of competition seems to make it that much more engaging.

As with the museum, those who participated in complex multiple engagements stayed longer than those who did not. Additionally, those who participated in these engagements did so voluntarily and thus seemed to navigate them more easily and enjoy them more.

EXAMPLE THREE: IDLE RICH PUB

Idle Rich Pub is an Irish bar and restaurant in uptown, an upscale area of Dallas. While the pub does provide TVs tuned to games, there is no volume and thus they are there as an ancillary experience rather than a main one. The observations at this venue took place during Sunday brunch and focused on people who entered into complex multiple engagements through devices they brought with them such as a smart-phone and a laptop computer.

The people at the pub engaged themselves in the following activities:
- Eating / drinking
- Socializing
- Communicating via mobile devices
- Productively using mobile devices and sharing them with others

The users were motivated to use their devices here because they are comfortable at this venue and feel they can be productive while also being socially engaged. The Blackberry user's motivations included the need to be engaged in *something* as the social situation was not as engaging for her as it was for others in her group. The laptop user usually attended Sunday brunch with her husband who was not there that day due to the fact he had to work. She seemed to replace his social interaction through interactions with the waitstaff and at times being totally engaged in her laptop. For her too, it seemed she had to be engaged in *something*.

Navigation issues that occurred here:
- Social navigation
  - Being able to judge when it was most appropriate to use their device and when they should or felt they needed to engage with the people around them.
  - Engaging in a social coaster drawing activity as expected by peers
    - The group that was observed meets at this pub for Sunday brunch every week. When they come, they bring pens and pencils they use to draw and write on the restaurant's coasters with. It is a weekly social activity of the group and one in which everyone in attendance is expected to participate.
- Eating
  - When food came out devices were put away
    - This was not the case with drinks
- The limitations of the device they were trying to use
  - Blackberry user complained webpages loaded slowly so she talks while it's loading
  - Blackberry user complained it doesn't load full webpages which means she cannot get as much done as she could if she were in front of a computer
  - Laptop user decided to use her phone over her laptop for an alert due to the fact the phone would be easier to access while making dinner later

One of the interesting things that occurred here versus the other venues is the sharing of devices. In both cases, these two participants were observed sharing information on their devices with other people by directing their friends to their device screens. It is important to point out that in this venue, as opposed to the other two, the devices were personal ones they intentionally brought to use while there.

Additionally, these devices were used most of the time to remove them from the social situation rather than to further in engage them. The only times these devices seemed to be used to engage with those around them is when they were being shared. Otherwise, these devices were used to complete tasks unique to the users and completely isolated the users. It is important to note that this isolation is different from the museum. While the audio devices were somewhat isolating, several people participated in using the audio devices at the same time. In other words, while the experience was their own, they were not alone in the overall experience of using the device.

Rather than these being enjoyable experiences or not, they seemed to be more utilitarian or productive. All of the people observed using their devices did so to *do* something in particular rather than to enhance what they were already doing. If anything, the venue enhanced their activities, not the other way around.

As with the other two venues, those that participated in complex multiple engagements stayed at the venue longer than those who did not.

EXAMPLE FOUR: FIRST SATURDAY
First Saturday is an electronics trade show that occurs on the first Saturday of every month under a bridge in the West End part of downtown Dallas. This show began over 35 years ago as a ham radio exchange and has evolved over the years to include everything from electronics new and old to tools and kitsch items you would find at a typical flea market. One of the unique aspects of the show is that it begins at about 10pm the Friday before and goes over night and into Saturday. Most regular vendors line up at about 8 and 9 pm with large trucks, vans, or even sports cars laden down with goods to sell. Most regular buyers show up between 12 and 3 am to find the best deals.

Most people who attend make it an event and participate in groups of two to three or more and almost everyone in attendance has a mobile phone in hand. People use their phones for traditional means of contact through talking or texting while others use them to research products sold or even as a convenient flashlight to search through boxes in the dark of night.

The complex multiple engagements here include:
- Shopping through the available products that change on a near hourly basis as vendors continue to show and setup throughout the night
- Researching products for compatibility, technical specifications, and prices

- Troubleshooting products that are being offered 'as is' to see if a good deal can be made
- Socializing with people they came with, others they meet, and vendors
- Communicating with people through their mobile devices

The motivation behind engaging in these complex situations stems from both a social one and that of being an informed buyer. Very few people seemed to attend this show on their own. It was observed that most enjoyed sharing the shopping experience with their friends as they found unique and interesting things or just great deals on products they had come with the intent to purchase.

One man in particular was observed doing all of the following either simultaneously or in quick succession:
- Talking with the vendor
- Talking with his friend
- Using a Blackberry
- Passing another Blackberry back and forth with his friend
- Using an iPhone
- Looking at a laptop, both its physical characteristics as well as its operational ones
  - The laptop he was interested in had a screen issue, but he was still interested in purchasing it and set out to use all three of his mobile devices find out more information about the products worth as well as troubleshoot the issue.

When questioned, he revealed that he was trying to make a deal with the vendor on the laptop that he was troubleshooting, and looking up its specifications via his three mobile phones, while at the same time carrying on a private conversation via the Blackberry chat option with his friend so the vendor could not overhear. To break it down, he was shopping, talking, texting, and troubleshooting all at the same time and he used three devices to do it.

When asked why he required three devices, he explained that the two Blackberries were utilized not only for their chat feature, but also because they have a tactile response to the keys which makes typing faster (handy when having to enter information) and they have the ability to copy and paste which the iPhone lacks. The ability to quickly enter information was important for chatting and the ability to copy and paste was useful in inputting the computer's serial number in multiple searches to find specs and search for the best price. They looked up the retail price, used price, refurbished price, auction price, and broken price to make sure they were not 'ripped off' by the vendor. The iPhone was primarily used to view websites that provided trouble shooting information as it is easier to read on the iPhone screen not only because of the large screen size, but also because it renders real webpages versus the Blackberry text only versions.

This helped point out a few important navigation issues that he worked around by using multiple devices:

- Ability to enter text quickly - Blackberry
- Ability to have a private conversation even between people standing next to each other - Blackberry
- Ability to access information quickly - iPhone
- Ability to view information within its intended presentation - iPhone

While this case is similar to the last in that the user was productive due to his use of mobile devices, he also seemed to greatly enjoy using the devices, finding the experience of getting a good deal and being an educated buyer an engaging and exciting one. In that respect, the use of the devices definitely enhanced his shopping and social experience and actually allowed him to be more engaged in his main activity.

As with the previous three venues we found here that complex multiple engagements lead to the participant spending more time at the event than his observed counterparts who did not similarly engage.

DESIGN IDEAS
Each of the uses provided in the previous examples can be placed in two or more of the following categories:
- Education – either by providing additional information or by giving a user the ability to access information they need to educate themselves
- Entertainment – through the use of the device itself
- Productivity – allows the user to perform a necessary or needed task
- Sociality – ability to easily engage with others either through the device or by easily setting the device aside

The main impediments to using each of these devices were as follows:
- Learning curve – which can be attributed to the device itself or user's level of experience with the device or devices like it
- Isolation – either self or device imposed
- Slow response by device
- Navigation issues – either device or situational

Looking at these complex multiple engagements from a high level point of view and considering uses in the home, I believe the following design implications should be considered.

1. **Make It Easy to Use!**

   In order to be easy to use, a device should be given the following affordances:
   - Easy to carry around
     - All of the devices mentioned were mobile
     - The audio guides could be carried around hands free via a lanyard around the neck

- – Easy to use while doing something else
  - o People should be able to easily move back and forth between interacting solely with the device, interacting socially with others, and other engagements such as eating, working, caring for children or watching television just to name a few.
    - This was a big problem with the museum audio device, for those that could not easily navigate the experience it proved too isolating in that it either hindered sharing the experience with other people and or it hindered experience the full museum exhibit.
    - Those playing the trivia game tended to ignore the other interactions going on around them because the game was so demanding of their attention.
      - – The game makers seem to know this and thus have introduced shorter games as well as commercial breaks.
    - The First Saturday user did this but he had to do it by using three different devices to be successful.
  - o A pause feature – so it can be placed to the side for a moment then picked back up again when that moment passes
  - o The ability to use it without looking.
    - A way to identify inputs by touch.
      - – This would be especially useful for those playing the trivia game while reading the questions on the screen, socializing and eating at the same time.
      - – This would also be useful for people experiencing the museum exhibit. It should be easy to acknowledge where the pause button is by touch so you can pause the audio while looking at something else.

- – Easy to clean
  - o Many people will be engaged in other activities that may or may not require the use of their hands such as eating or looking after children.
  - o Water resistant

2. **Make It Easy to Interact With!**

   - – Making the learning curve as small as possible will allow for wider use.
     - o The audio devices at the museum were easy to use with minimal training.

   - – If it is to have a display, the screen should be large and should show content it its original context
     - o The iPhone view of a webpage versus the Blackberry one.

   - – If it is to have input controls, they should be easy to use, be tactile in response, and provide easy navigation through the device interface.

- It was mentioned that the Blackberry keyboard was easier to use than the iPhone one and it was particularly frustrating that the iPhone did not allow for a 'training' interface to customize its touch screen response
    - Devices like the Treo go through a phase in setup that trains the device to respond to the way the user uses it rather than forcing the user to use the device in a specific way to get a response. Incorporate expected user interactions
    - For instance, the lack of copy and paste is a big drawback for iPhone users who expect this type of interaction.
    - Audio playback devices should provide play, pause, stop, fast forward and rewind as these are expected user interactions. It should also be easy to tell it has these options.
        - It was mentioned people were not sure whether or not the museum audio guides could backtrack if someone missed something.
        Allow for extended use. Consider things like eye fatigue and battery consumption.
    - Users who engage in complex multiple engagements tend to stay engaged in these interactions longer than people who are engaged in just one engagement do.

3. Make It Versatile!

- This is especially important for a personal device. People are looking for a device that does multiple things, does them well, and even does them simultaneously.
    - iPhone capitalizes on this by offering the aps store. The phone then becomes more than just a phone. It becomes a multi featured mobile device can also accept phone calls.
    - The museum experience could have been made better had visitors had the option to, while at the museum, engage in an interactive site on the same device that provided the audio. This could help by providing a translation for the textual presentations in those cases where the visitor's native language is not English. It could also help in providing better direction through the museum, and marking spots where other interactions are available such as audio or video ones that may be missed if the user has the headset on.

4. Make It Quick!

- People hate to wait and will turn their attention elsewhere quickly if they are made to wait too long.

This last point really reiterates this entire chapter. Multitasking has become a way of life for many people and most feel lost or that they are wasting time when not constantly engaged in *something* and therefore they are quick to find ways to fill

any perceived pause in activity. The simple experience of the main activity is no longer enough to capture the total attention of these participants.

Anything that can extend this experience by allowing these participants to engage in what they want to engage in, when and how they want to engage in it, will bring added value to the experience as a whole. However, if you take away their choice to be engaged in multiple complex situations and instead create an environment where it feels forced upon them, as in the case of the museum, they are likely to become frustrated and or simply less engaged in the experience as a whole.

In conclusion, if people who are apt to be involved in these complex multiple engagements can do so by choice and in a way that seems fun, educational, productive and social then they will be satisfied with their level of engagement and will be prone to doing what they can to engage at that level again. A device that is easy to use, easy to interact with, has multiple uses and is quick to respond that can also fill all of these multitasker expectations has a better chance of being accepted than one that does not.
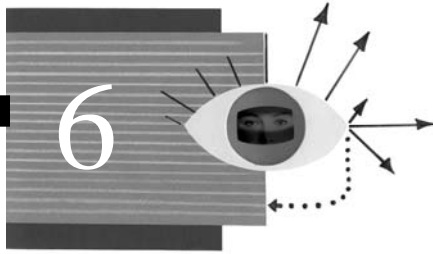
6. Sharing Devices and Experiences

By Allie Hill and Scotti Fort

"People could more easily communicate this information to others by directly showing it to them, rather than by describing it verbally… the device was a means to enhance the social connection"

The theme of sharing was ubiquitous throughout each fieldwork venue. The means of sharing and what was shared varied greatly at each venue—from the actual devices that enabled the supplemental activity, to the intangible idea of sharing experiences. In many cases, we observed a combination of the two means of sharing—sharing devices in order to share experiences.

SHARING DEVICES
We identified three kinds of devices that were shared in our fieldwork. Furthermore, we found that the devices were typically used to share information. We identified three kinds of information that users shared by utilizing these devices.

We should note that devices were shared for the purpose of *viewing* information rather than *entering* information. In other words, input tended to be done individually, while output was more amenable to shared use.

The devices that were shared included:
- A communal screen (Top Golf)
- A personal mobile device
  - A laptop (Idle Rich Pub)
  - A cell phone (First Saturday, Idle Rich Pub)
- Both a communal screen and (to a limited degree) a hand held device (Buffalo Wild Wings)

♦ The kinds of information that were shared included:
- Game data
  - Scores / statistics (Top Golf)
  - Questions / answers / scores (Buffalo Wild Wings)
- Personal projects (Idle Rich Pub)
  - Personal website
  - Vacation photo slide show
- Research (First Saturday)
  - Product serial number
  - Information obtained from the web about the product
    o Pricing
    o Troubleshooting information

The sharing of devices and information was interwoven in a variety of ways in particular situations. Below we present four examples that illustrate some of the forms that these sharing practices could take.

Example One – Top Golf
Top Golf, a rather technologically advanced driving range, allows the golfer to see precise statistics regarding their golfing, i.e. the distance the golf ball traveled and the area where their golf ball landed through a digital touch screen in each bay.

Top Golf was observed as promoting sociality, through
- The shared screen
- A social bar scene
- Multiple player golfing games.

Instances of Sharing the Device
Though the supplemental device at Top Golf was communal, in many cases it was only truly shared after an individual made a particularly successful shot. Generally, the interaction with the digital screen was more individual, since players would glance at the screen after hitting their ball to view their own score.

A family was observed sharing the device only if one out of the group hit a shot worth celebrating. The entire group in the bay would gather around the touch screen and talk amongst themselves about the shot—congratulating, conversing, etc.

Another instance of sharing the device was during the game, if the person swinging managed to hit the ball into one of the target holes, the entire group would look at the screen to see where it hit in the field and to see how many points the technology awarded the person.

In many cases, sharing the device consisted of participants
- Looking at the screen,
- Pointing at the screen with the end of their golf club, and
- Talking about the shot recorded on the screen.

Inconveniences

As for the inconveniences of the shared screen, Top Golfer Eric griped "*the location of [the digital screen] was horrible.*" Grievances regarding the location of the screen were

- There was a strong glare on the screen from the sun due to its location, and
- The screen was located directly behind him, forcing him to physically turn around and walk to the screen in order to view it.

Observers noted that no matter which direction participants faced in the bay, the screen was not visible to the golfer while they were on the green. Each time the player wanted to see the screen, they had to walk to the other end of the bay. Various interviewees stated that they would most likely interact with the screen more if it were better located for glancing purposes.

Example Two – Idle Rich Pub

The Idle Rich Pub is a large uptown Irish pub and restaurant with a strong regular clientele. It was observed on a Sunday, during which the pub adopts a brunch type atmosphere, and a large number of regulars come to the bar to have a drink, socialize, and get work done in a relaxed atmosphere.

Instances of Sharing the Device

Sunday Surfer, a middle-aged professional woman and regular Sunday bruncher at Idle Rich Pub, was observed sitting at the bar leisurely going back and forth between working on her laptop and socializing with the wait staff. During observation, Sunday Surfer repeatedly engaged in small talk with one of the waitresses; she has developed a relationship with the waitress because she is a regular customer.

Throughout the observation session, Sunday Surfer is interacting with the wait staff while working on her own personal business on her laptop, such as updating her personal website, all the while keeping the employees informed on what she is working on. In her behavior, there is a clear distinction between socializing and working, i.e. she takes a break from work to socialize and works when there is a lull in the conversation or when things are slow.

Between working on her laptop, checking her cell phone and sipping her cocktail, Sunday Surfer shared her device, a personal laptop, with the waitress behind the bar by physically turning the screen. During various parts in the observation, Sunday Surfer shows her laptop screen by turning it around on the bar towards the waitress opposite her, turning it back towards herself after a few seconds. She shares her laptop screen with the waitress a few times during observation, each time describing what is on the laptop screen. She shows the waitress her various personal projects she was completing during her Sunday brunch such as her updated personal website, and her vacation photos she was arranging into a slideshow.

Example Three – First Saturday
First Saturday is a somewhat underground electronics flea market that meets under an overpass in downtown Dallas once a month in the middle of the night. Due to the advanced technological nature of the crowd, several second screen instances were observed, primarily the use of one's mobile device in order to research potential purchases.

Instances of Sharing the Device
Two men were observed in front of a vendor's table simultaneously examining an Apple laptop, interacting with each other and the vendor, and using their cell phones somewhat recreationally. Making an extensive investigation of his potential purchase, Quake Guy shared his mobile device to extend his shopping experience through thorough research and to overcome the various shortcomings of each mobile device.

Quake Guy obtained additional information on the laptop and the perceived problem on the laptop (a broken screen) to work the price down. He also used his mobile device, an iPhone, to look up that laptop's serial number via apple.com while his colleague searched his phone, a Blackberry, for various prices on that laptop used, new, broken, and at an auction. During this complex research, the two were observed passing their Blackberries back and forth to each other, and showing each other their screens. They interacted with the vendor hardly at all.

Quake Guy used his personal iPhone
- To look up laptop serial number on apple.com,
- To look up troubleshooting information for the laptop, and
- To communicate with his colleague privately via instant messenger

Quake Guy's colleague used his personal Blackberry
- To have the laptop serial number available whenever the other needed it,
- To look up prices for laptops, new, used, broken, and at an auction,
- To check pricing for available equipment needed to fix the problem on the laptop, and
- To privately communicate with his colleague via instant messenger.

The two collaborated together and shared their personal devices in this manner in order to overcome the shortcomings of each mobile device. Quake Guy had many specific complaints about each of his personal mobile devices (an iPhone and two Blackberries), and had specific means to overcome these inconveniences. The Blackberry, a more business-oriented device, was favored for input data features and the copy and paste feature, and the iPhone was used for web browsing capabilities.

Example Four – Buffalo Wild Wings
Buffalo Wild Wings Grill and Bar features Buzztime trivia, an interactive trivia game in which the participant has a hand held device to answer various timed trivia questions that appear on several TV screens throughout the restaurant and bar area.

Shared Large Screen
Buzztime trivia flashes questions onto TVs located throughout the restaurant and bar areas. Everyone within the vicinity of the television shares the screen and relies on the screen for the questions.

Players had to keep their eyes glued to the communal screen in order to keep from missing the question, or losing points due to a belated answer. This, in turn, caused the players to become somewhat detached from socializing with the friends and family sitting at their table. Since the shared screen was located across the restaurant, and users had no control over the pacing of the game, players had to choose between focusing on the trivia game or on socializing at any given moment.

Even when a player tried to devote all of their attention to the trivia game, it was impossible to play the game without any interruptions, i.e. a waitress taking the table's order, people socializing around the player, food arriving, etc. This could result in frustration for the player and for those in the player's company.

Shared Gaming Device
In order to answer the trivia questions, a player must request a game console. It was observed that game consoles are hardly ever shared, although in many cases, tables would have one or two players with a couple of others simply looking on as the players participate in the trivia.

One table had two couples and a baby, with two people engaged in the trivia. Dave and Jill, a father and daughter engaged in a friendly trivia competition, paid explicit attention to the screen flashing questions with Dave's wife and Jill's boyfriend looking on and throwing answers at them. The two not participating would interject whenever, or just have another conversation throughout the course of the game.

There was minimal sharing of the gaming console since the trivia questions on the main screen are timed, and more points are deducted the longer it takes the participant to answer. This results in the player paying primary attention to the gaming console and to the TV screen, rather than to the company they are with, or their food.

COMMON THEMES IN SHARING DEVICES
Two themes were prevalent in all examples:
- It is easier to show than tell
- The wish to share experiences

First of all, the information that people shared in these examples took a visual form. People could more easily communicate this information to others by directly showing it to them, rather than by describing it verbally. Secondly, people consistently shared devices in order to, in some way, share their experiences with each other. In other words, the device was a means to enhance the social connection between participants.

At Top Golf, it was much more convenient for the players to call over their friends and show them their individual statistics and scores on a screen, rather than reading them aloud to those present. It more intimately and immediately involves the player's company with their individual golfing experience. It allows all present, including both those playing and those who are not, to share in a player's successes by seeing for themselves precisely how far the golf ball was hit, or where it landed.

At the Idle Rich, Sunday Surfer found it more convenient to visually show the waitress the various personal projects she was working on by turning the screen, rather than by explaining it. She was obviously very familiar with the waitress, being a Sunday brunch patron, and sought to share what she was doing in an open and honest manner. Sunday Surfer brought the waitress into her experience by sharing her device, allowing the waitress to personally see what she was doing on her laptop.

At First Saturday, it was much more convenient for Quake Guy to retrieve the laptop serial number from his colleague physically showing him, rather than having to turn the product back over and look for it once again. Physically showing his colleague the laptop's serial number guaranteed that clarity would not be lost in translation, as it could have been if the number was merely read aloud. It was also much more convenient to pass their mobile devices back and forth to share their newest findings for their product research. This allowed each person to view the information and interpret it themselves, rather than have someone else interpret it for them. Furthermore, they were sharing in the excitement of collaboratively conducting secret detective work right under the eyes of the vendor.

At Buffalo Wild Wings, the communal screen was more convenient and cost effective for the facility, and also contributed to an overall sense of competition and fellowship amongst players. The screen presented questions, answers, and scores to the entire group playing, which added to the fun of the game, and to the competitive nature of the game. It enhanced the competition factor almost too much, in that people who were just looking on, such as Dave's wife, would shout out answers, irritating those actually playing the trivia.

TWO FURTHER DIMENSIONS IN CREATING SHARED EXPERIENCES
We identified two other dimensions that contributed to people's ability to develop a sense of community and shared experience at our fieldwork venues. One was the physical environment of these venues, and the second was people's interactions with each other.

Physical Spaces Become Social Settings
The venues we observed in our fieldwork were settings that often invited people to engage in social activities. The space could be physically designed to encourage people to engage in behaviors that would result in sociality, or to arrange themselves in clusters. The space could also draw on American cultural understandings of expected behaviors in particular types of venues. Through users' responses to such messages, the physical spaces were transformed into social spaces.

Atmosphere is a large component when describing the physical space of the venues observed for this particular research. Even when a venue was not necessarily meant to be one of noise and loud conversation, it inevitably became a place to interact in groups. During their initial observation of The Sixth Floor Museum, our researchers began by describing the "feeling" of the atmosphere as "*very solemn and quiet.*" But as their fieldwork proceeded, their sense of the atmosphere began to change. People answered their cell phones, babies were crying, and occasionally people talked loudly throughout the museum exhibit.

It is important to note that all venue atmospheres were described as "casual." For instance, First Saturday was portrayed as an "*event that was very casual, as many vendors sold their products from the back of their van or truck, or from tables set up with cardboard boxes containing miscellaneous objects.*" Top Golf was sought out as a place of choice by Eric and Sam mainly for the reason that it was "casual" and promoted sociality.

Some examples follow.

Buffalo Wild Wings
This venue offers an electronic gaming system that includes a television screen that the entire venue can view, and individual handheld devices. By offering a screen that is visible to everyone, this venue is designed to actively draw in groups or individuals that will ultimately play in a social environment. Furthermore, the space is arranged into tables that encourage members of groups to sit in close proximity to each other, which facilitates their social interaction. American cultural expectations about behavior in casual restaurant settings also come into play.

University of North Texas Football Game
Our fieldnotes observed that "*the atmosphere was loud, there was music playing in the background and it was similar to a party. Those who entered the venue were in groups of two, three, four or even more.*" American college football games are understood to be highly social events. Caesar, one of the interviewees, said that the friends he went with to sporting events actually attended "*for the extracurricular activities,*" rather than for the sports per se.

Top Golf
Top Golf was observed over the course of two days, which allowed us to see how the venue changed from one social context to a different one. On Saturday night, the music was loud and promoted an atmosphere that catered to a crowd that was "out on the town." Patrons responded by treating the setting more as an entertainment venue than a driving range. Many appeared to visit for the food, drink and socializing, rather than the sports.

> *"A lot of the women who weren't playing the game were dressed in what we would classify as clothes meant for going out on a Saturday night versus clothes that you would traditionally see at a golf range. Meaning, we did not see anybody wearing golf shoes, instead we observed a lot of jewelry, fancy sandals and heels, dress blouses and nice jeans."*

But Sunday morning promoted a different atmosphere, and patrons responded by visiting the venue more to practice their shots than to party:

> *"We observed multiple bays that were occupied by individual players. This was very different from the crowd we observed on Saturday night, which was comprised of mostly groups. The volume of the music being pumped through the speakers was much lower than it had been on Saturday night as well. The facilities themselves appeared to be the exact same – there was nothing different about the set up from the night before."*

First Saturday
This venue fulfilled its mission of being a kind of electronics swap meet through its spatial arrangement of vendors and buyers. The vendors remained stationary, spread across the grounds, while the buyers circulated across the space, pausing momentarily to visit with vendors whose goods were of particular interest. It was like a kind of dance.

Idle Rich Pub
The overall feeling of the physical space was described as such: "*people seemed really at ease and comfortable in the atmosphere.*" Idle Rich Pub includes a patio seating area that contained a group of friends who were continuously conversing and playing games. There were many examples of people coming into and out of the group's social space, such as "randomly walking by friend" and "the waitress." Such movements show that the group is open to social interactions and fellowship.

Social Interactions
Although it may seem obvious, it is worth reiterating that people's social interactions with each other were a fundamental resource for developing a sense of community and shared experience. Below are some examples that bring out the importance of such social interactions.

Sixth Floor Museum
The museum potentially isolates the individual through the headphones of the audio guide. But nonetheless, the headphones did not keep people from interacting with one another. The experience was still shared through eye contact, body language, or moving through a space as a group. Some groups were witnessed with their earphones around their necks, which then allowed for verbal communication. For instance, visitors might congregate around the video panels (which did not coordinate with the audio guide), turn off the audio guide, and converse amongst themselves.

Top Golf
Even visitors who came alone tended to socialize with people in adjoining bays.

First Saturday
As noted in our fieldnotes, *"it is easy to see most people are a part of a larger group visiting the show and sharing the experience with each other, randomly exclaiming things like, 'Didja see this?" and "Look what I found!" People we observed were generally in groups of two or three."*

DESIGN IDEAS
Our research findings lead to clear implications for the design of shared devices. We will focus on the home context, since Motorola has indicated that this setting is of greatest interest to them.

Ease of Viewing Shared Screens
At both venues where people shared a common screen, placement of the screen was crucial to overall user experience. The location of the shared screen at both Top Golf and Buffalo Wild Wings affected how involved the players were with the screen itself and how social they were. For applications in the home, then, shared screens should come with careful instructions about their placement.

At Buffalo Wild Wings, players had to solely focus on the main screen in order to not miss any questions and keep up their score. This extreme focus hinders socialization, but at the same time proves absolutely futile as external distractions are unavoidable. A design recommendation would be to have an audio cue whenever the next question starts up, so that the player does not have to keep their eyes on the main screen the entire time. This would allow for more socializing. Also a pause feature could be considered so that interruptions do not disrupt the game.

At Top Golf, the technology enhanced the golfing experience, but the actual screen hinders players from fully enjoying the technology. It required the golfer to physically turn around and walk several feet in order to see information on the screen. Information was difficult to see due to a glare on the screen. In this setting, design recommendations would be the addition of another screen for the golfer to

glance at for their individual interests while on the green, along with the communal screen for sharing with everyone.

Characteristics of an Effective Shared Device

It is helpful to have participants share a device when they need to communicate visual information to each other that is easier to show than describe.

Shared devices are also effective when the goal is for people to engage in a collaborative activity.

Designing the Supplemental Experience in Relation to the Setting

Given our finding that the atmosphere of a setting is closely connected to the way people behave in that setting, Motorola should make sure to align the design of supplemental experiences with the home contexts in which those activities will most likely take place. Motorola could take advantage of existing research on the meanings and uses of different spaces in the American home.

Building on Social Interactions

Given the generally high levels of social interaction across all venues, we recommend that Motorola develop supplemental experiences that are highly interactive and contribute to a sense of community among participants.

User Response Keys on the Device

Overall, people seem to want to have a sense of control over the device. In several cases, such as at Top Golf and Buffalo Wild Wings, there were several buttons on the supplemental devices that went unused, and there was a limited number of buttons that the user did use. For instance, at Buffalo Wild Wings, the gaming console had a full keyboard that went nearly completely untouched. Only certain buttons generated a response. From our observation, users may be more responsive to a device that allows the user full control of the device. A more economic design would include only necessary buttons and keys that would be used throughout the gaming experience.

Quake Guy at First Saturday had strong opinions regarding user keys. He claimed that they must be tactile and have an audio response so that the user can operate the device single handedly and without having to look at the device. He found touch screens such as the one featured on the Apple iPhone inaccurate and more subject to typos due to their ambiguity. The idea of an tactile, audio response could apply to a supplemental gaming experience such as Buffalo Wild Wings in which the user does not have to necessarily remain focused on the gaming console to ensure the correct button was pushed, so that the gamer can engage in socializing while playing.
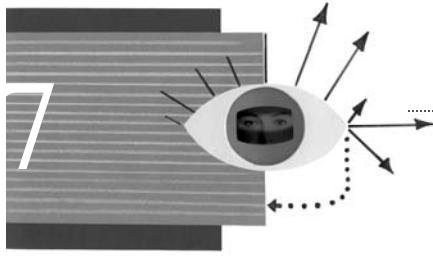
7. Shifting Back and Forth Between Sociality and Isolation

By Brianne Moore and Jordan Summer

> *"The movement between sociality and isolation is a dialogue between a person's choice and the circumstances that are thrust upon them"*

A clear theme that emerged from the data was the organic disposition of individuals to ebb and flow between patterns of sociality and isolation. While there were a variety of reasons why people would shift in one direction or another, every fieldsite offered instances of users moving back and forth between isolation and sociality. In this chapter, we present a framework for understanding this phenomenon; closely examine the patterns in each venue; and identify design implications.

We should note that beliefs and behaviors concerning sociality and isolation are always culturally shaped. Our findings are based on fieldwork in the Dallas/Fort Worth Metroplex. We are therefore, at most, describing mainstream American cultural patterns; the anthropological literature has shown that other cultures around the world have very different practices relating to sociality.

While the people in our observations spent the majority of their time being social, many also shift into isolation from time to time. The length of time and the reasons behind such shifts varied depending on the venue, the second screen devices, and other situational circumstances. In our analysis, it became clear that patterns of sociality could not be predicted in any deterministic manner; there were no perfect categories of how, when, where or why someone chose to isolate themselves. However, we were able to identify a number of overarching concepts and shared patterns that helped make sense of our observations.
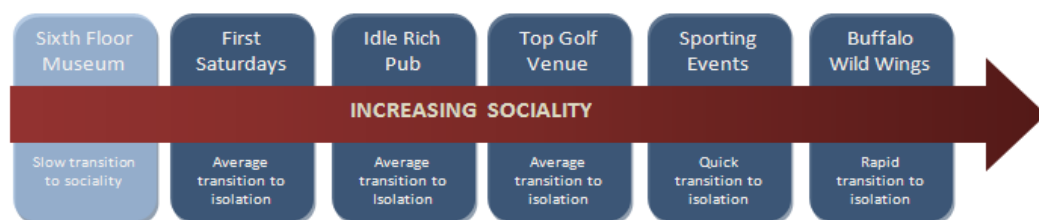
DEFINING SOCIALITY AND ISOLATION

- We understand sociality to refer to those periods of time when either verbal or nonverbal interaction occurs among individuals in the physical environment.

- Conversely, isolation is defined as periods of time when individuals are not engaged with other individuals in the physical environment.

- The movement between sociality and isolation is a dialogue between a person's choice and the circumstances that are thrust upon them, including factors such as the other individuals surrounding the user, and the environment.

- Devices can facilitate either isolation or sociality, depending on factors such as the main activity, whether the device is shared, purpose and utilization of device, and behavior of other people around the user.

THE CONTINUUM FROM ISOLATION TO SOCIALITY

By replacing a simple binary opposition between sociality and isolation with a continuum, new insights into design implications emerged (see diagram below). Our evidence showed that people in general are comfortable with moving back and forth between isolation and sociality. When taking this insight into the home setting, it is important to realize that some situations in the home will promote sociality, while other will promote solitary behavior. The activities that occur in most homes, such as cleaning, watching television, surfing the internet, cooking, homework, or taking care of animals, will motivate and allow for different possibilities of sociality and isolation. This will be discussed further in the final section of this chapter.

Sociality Continuum

Sixth Floor Museum	First Saturdays	Idle Rich Pub	Top Golf Venue	Sporting Events	Buffalo Wild Wings
INCREASING SOCIALITY →					
Slow transition to sociality	Average transition to isolation	Average transition to Isolation	Average transition to isolation	Quick transition to isolation	Rapid transition to isolation

The above diagram maps each venue of our fieldwork in relation to the amount of sociality that it promotes, based on our observations and field interviews. The venues are significant because they determine the main activities that the environment offers to users. The precise positions of venues on the sociality continuum are constantly in flux. Users' experience of a venue is shaped not only by what the venue offers, but also by their needs and wishes, their relationships and interactions with other people at the venue, and additional circumstances.

We also offer the diagram as a useful image for conceptualizing the behavior of individuals as they move back and forth along a continuum from isolation to sociality.

Social Bubbles
In our fieldwork, we found a pattern of bounded sociality that we called "the bubble." The bubble acts as a protected space for either an individual or a group of individuals. It is socially quite difficult for people outside of the bubble to engage with people inside the bubble; pushing into the bubble wall feels quite awkward.

In the case of individual bubbles, these people are generally consumed with using a device to get work done. On the other hand, group bubbles are spaces limited to a pre-established group of friends or colleagues. While others are occasionally allowed to enter into the bubble or force their way in (e.g., wait staff, parents), the bubble is generally limited to individuals within a social circle. When multiple people are in a bubble together, they can either be collaborating on work or using a device to share an experience. In certain venues, many individuals stay inside a bubble together for long periods of time (i.e. Top Golf, sports events, Buffalo Wild Wings). The length of time that people are in a bubble alone versus with others in a group determines where they are located on the social continuum.

Isolation and "Getting Work Done"
While people in our fieldwork chose to isolate themselves for various reasons, one particular reason stood out as a strong pattern. This was the need to get work done. Chapter 4 discusses this pattern in more detail under the heading "Multitasking." The devices used were primarily laptops and smartphones.

This form of isolation was different than other forms because people were working on tasks that were strictly individual. Our research showed that an individual getting work done in a social environment was in an isolated bubble with a different type of awareness of the people around them. In some instances, the person was not attentive to the sociality of the environment, whereas in other situations they were more open to it. The length of time spent in the isolated space was generally longer compared to people who were not getting work done.

Shared versus Single-User Devices
Another overarching factor that shaped sociality was whether the device being used was shared or not. We found that a shared screen would generally help to facilitate sociality, but a device that was designed for an individual can facilitate both isolation and sociality. For instance, a user could employ a laptop to get work done, or to share pictures with friends. Shared devices and experiences are discussed in more detail in Chapter 6.

Multiple Socialities: Face-to-Face and Virtual
Finally, we need to keep in mind that sociality can take both face-to-face and virtual forms, often simultaneously. We observed many examples of virtual sociality, as

people connected with geographically remote friends and family via cell phones. A person who was seemingly alone might, in fact, be together with others virtually. Likewise, a person might shift between interacting with face-to-friends and calling up a virtual friend on their phone. Although it may appear to others in the face-to-face circle that the caller was moving away from them socially, in fact the caller was not moving into isolation, but rather a different form of sociality. Or the caller might be able to weave together the two forms of interaction by rapidly shifting back and forth between them.

A CLOSE EXAMINATION OF SOCIALITY AND ISOLATION BY VENUE

We now turn to a microlevel examination of these patterns of isolation and sociality. Our discussion is organized by venue, because each venue offered a particular constellation of main activities and supplemental experiences.

Buffalo Wild Wings

Buffalo Wild Wings provided the most instances of sociality among our fieldsites. The degree to which individuals were socializing with others varied, but it could be found within both the observation and interview fieldnotes. Most of the periods of isolation that occurred at Buffalo Wild Wings transpired while using second screen devices, which in this case were portable gaming gadgets and laptops. The length of time that users could be found slipping into periods of isolation varied depended on their choice of second screen devices. However, the majority of the data informed that Buffalo Wild Wings was the most social on the scale of sociality due to the periods of time in isolation being short and the transition into sociality being rapid. For instance, the data showed that most of the patron's at Buffalo Wild Wings were there as a part of a larger group and that within those groups playing the interactive games, they were very social. They tended to isolate themselves while they were focusing on their game play. These individuals portrayed very sharp boundaries when they were shifting in between sociality and isolation. Meaning that the length of the time it took to transition was very quick.

> *"Um, sometimes I get a little late on a question since I'm busy eating or watching them, I'm playing with my daughter, so we just keep carrying on normally, I just kinda keep peeking up (mimes looking up and then down quickly with his eyes) and oh, next question, don't, and I answer my question, and go on about eating, or eat between breaks..."*

The patrons seem to be very aware of the sharp boundaries regarding their periods of isolation. It is apparent that they never lose sight of their overall desire to be social with their group members. However, it could also be said that the second screen devices provided the opportunity to socialize with other people at the restaurant. So in this aspect the portable gaming devices were both agents of sociality

and of isolation.

While most of the patrons did experience quick shifting between socializing and isolation there were instances of more prolonged shifts in behavior. For instance, the researchers observed an individual who had come to Buffalo Wild Wings by himself with the intent of using his laptop to catch up on work. His laptop in this instance can be considered the second screen device. This individual commented that, "*he was in the area for work and wanted to stop somewhere where there was some activity and excitement to do his work.*" The researcher noted that this individual, "*can tune out specific noises and is energized by the buzz of the environment,*" and that, "*he was inputting sales data because he manages sales reps for a copier company.*" Therefore, he wanted to place himself a social setting but he had no intention of directly socializing with others. His sociality was far more covert than the individuals who came to Buffalo Wild Wings to play the games. Nevertheless, like those who were using the portable gaming devices, this individual also used his second screen (i.e., the laptop) to isolate himself from the main experience.

An interesting finding within this venue was that while Buffalo Wild Wings could be considered the most social location within the research, there was an overall element of isolation among the groups of individuals. Each table appeared to create a bubble around itself by not socializing with other tables. In the case of the interviewees, the family was there together and created a socialized experience around a family outing. The group did move in and out of isolation, but seemed to prioritize the family interaction above sociality with people outside of their table. Both the father and the daughter commented on the game and entire experience of eating at Buffalo Wild Wings as not being as enjoyable when they were not together. Also, while they were at the venue, some level of sociality was forced upon them by the waitress, the man selling the game to tables, as well as the other participants in the game. However, the research did not imply that this was a problem for any of the participants.

> "*Jill: yeah, because I don't have anyone to tease*
> *Amanda: what makes you play it whenever you're by yourself? Is it to have something to do…*
> *Jill: to have something to do, and basically to keep me distracted from realizing that I'm by myself, I don't like doing anything by myself.*"

Regardless of a group's decision to not interact with other groups, if they were playing the game they were inevitably connected through the roster of player names on the televisions. However, individuals had the option of listing a pseudonym if they did not want to list their real names. It would be interesting to conduct further research on this topic to find out how many of the game players used real names and whether or not their desire to be social had a part in their decision. The users interviewed commented very little about the screen with scores. One user only commented about how playing when others are not (implying that you can see other

scores) was not as fun as seen in the previous quote. This could lead to the assumption that the screen inadvertently ties the isolated users together into a shared, social experience. The virtual sociality of the shared screen tied users together in a way that changes the level of isolation involved in the experience. Jill, who does not like to be by herself, will still go to the venue to participate in the game because it keeps her distracted from the fact that she is alone, as she stated above. The virtual interaction compliments the face to face interaction that is part of the Buffalo Wild Wings experience.

Sporting Events
Sporting events also provide ideal settings for observing instances of sociality. During the observation of the University of North Texas football game, the researchers found that most people were in attendance with a group who were enjoying socializing with others and were not found to be isolating themselves. The same pattern was found in the interviews with both Ruby and Caesar. Like Buffalo Wild Wings, sporting events tend to produce instances of isolation in concurrence with the utilization of second screen devices and the levels of sociality vary. Meaning that instead of second screen devices acting as agents of sociality for individuals, they become instruments that allow the users to isolate themselves. We posit that this is because while the sporting event is happening (e.g., the puck is in play or the football is in motion) that the main experience is able to capture the individuals' attention. Isolation was observed during the lackluster periods of the game (e.g., intermission or during long periods without an increase in the score). It is at this time that individuals use their cell phones (i.e., their second screen devices) to isolate themselves from the main experience and their group. However, it was observed that individuals would quickly transition in and out of isolation when something of significance (e.g., a touchdown was scored) occurred on the field. It was for this reason that we placed sporting events high on the sociality scale and regarded them as events that produced quick transitions to isolation.

For instance, Ruby's overall experience was very social because she was engaging with the people she attended the game with as well as with the game itself. However, during breaks in the game play she chose to remove herself from the socializing aspect of the experience and go into isolation by looking up various websites.

> *"My boyfriend will get up to use the bathroom so I end up just sitting there by myself, um, so I'll get on it and either text people or get on the internet and look up like CNN.com or stuff like that to keep me entertained."*

However, once the game was back in motion, Ruby quickly transitioned out of isolation and refocused herself on the game and on socializing with her boyfriend. One caveat to that pattern was that if her boyfriend remained seated during the intermission, then she was more likely to not use her cell phone to isolate herself. Therefore, she is adapting to other people and places versus demanding or creating her own timeline for isolation.

The interview with Caesar also provided examples of sociality but in a different manner than with Ruby. While he did not seem to be concerned with verbal sociality at sporting events, he always goes to sporting events with others. At these events Caesar discussed using his cell phone, but for different reasons than Ruby. While Ruby engaged in solitary activities due to boredom during the intermissions, Caesar used his second screen device to virtually connect with family and friends who were not physically present. For example, he would use his cell phone to let somebody know the score of the game or to discuss plans after the game.

> *"He said that he thought it could help because his brother, who was at work, was calling him to see what the score was as did his mom who was at home and she is also a big Texas Rangers fan. It helped them more than it helped Caesar but without his cell phone he would not have been able to help them. He also said they requested the score and checked to see if he were having a good time."*

These examples could be viewed as periods of isolation from others who were physically present with him at the game. However, those periods of isolation were very short in length, and did not involve things such as random Internet searching or lengthy conversations through text messaging. This finding emphasized the need for a device or program that can help users, particularly those who are not socializing by choice, quickly transition in and out of conversations.

As with Buffalo Wild Wings, the researchers detected instances of isolation within groups of individuals. This continuation of the "bubble" trend was mostly evident while observing groups who were socializing with each other but isolating themselves from the experience through the use of their second screen device. As an example, the researchers observed three individuals who were socializing and taking photographs of each other, which ultimately resulted in isolation from the main event (i.e., the football game).

> *"The students seemed to be very involved in the football game and were not using their mobile devices in a consistent or lengthy manner. We moved to a higher seat in the bleachers, basically one level up from the student section. We saw a group of three men down below in the student section and one of the young men took a picture with his phone and showed it to two other young men who were in his group."*

Top Golf

As with sporting events and Buffalo Wild Wings, TopGolf is a venue that has been built to foster sociality. However, the researchers found that there were many instances of individuals utilizing the technology at TopGolf as well. There were two categories of users at this venue; groups and individuals. The researchers

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hypothesized that the individual users would utilize the second screen devices (i.e., the TopGolf touch screen monitors) more frequently than the groups. The idea was that individuals would have more time to focus on their individual golf results because they did not have others around them taking up their time by socializing. The data proved the exact opposite to be true, in that groups tended to use the second screen devices more frequently than the individual users. However, even when groups used the monitors, it was often only one person at a time that was actually viewing or using them. Therefore, the second screen devices acted as agents for both isolation and sociality at TopGolf and again, a scale of sociality was present. We rated this venue as having average transition speed in and out of isolation. Unlike Buffalo Wild Wings where a patron needed to quickly transition into isolation so as to not miss a trivia question, TopGolf was not a venue that placed short timelines on individuals. Instead, users could interact with the screen and ebb and flow into isolation more freely. On the other hand, there was a point when the touch screen monitor would "time-out" if not used for a period of about a half hour and because of that, we did not place TopGolf as low on the transition scale as other venues.

The majority of the people found at TopGolf on Saturday evening were in social groups. They were found to be occupying the same golf bay and playing the games as a group. The researchers noted that, "*most of the bays on Saturday night were filled with groups of two or more versus individuals.*" The environment itself was catering to groups who wanted to socialize versus individuals who maybe wanted to practice on their golf swing without distractions. This was evident through things such as the use of loud overhead speakers piping through modern music and the promotion of drink specials. The researchers stated that the, "*setting was very social - meaning there was a bar, the music in the background was set to a decibel level higher than allowed at other ranges, there were roaming waitresses and food and drinks available.*" Sam, one of the individuals interviewed at TopGolf, stated that, "*this seems like it's more of a social atmosphere and I think the screen interaction reflects that.*" By screen interaction, Sam was referring to the use of the TopGolf touch screen monitors. Groups were found to be more likely to use the screens than individual users. However, at any given time, individual users were more likely to interact and touch the actual screen than multiple individuals at one time. The only times the researchers found multiple people viewing or touching the screen at the same time, were in instances where commendable or unusual shots were made. In those cases multiple people would turn to view the screen or in some instances, actually walk closer to the screen to view where the golf ball landed.

Individual users on the other hand, did not engage with the TopGolf screen as frequently as the groups. The researchers found more individuals occupying golf bays on Sunday than they did on Saturday.

> "*We observed multiple bays that were occupied by individual players. This was very different from the crowd we observed on Saturday night, which was comprised of mostly groups. The volume of the music being pumped through*

the speakers was much lower than it had been on Saturday night as well. The facilities themselves appeared to be the exact same - there was nothing different about the set up from the night before."

"However, on Sunday, the venue was much quieter (there was still music playing but just not as loud), the atmosphere was more contained and the bays held mostly individuals versus groups."

Based on the observation, it would seem as though the actual environment had slightly altered itself from Saturday to Sunday (e.g., the music volume was lower). The researchers assumed that this environment would lead users to interact with the screen more frequently because they would be viewing their scores in the attempt to better their golf game. However, these individuals were found to not only be isolating themselves from the general population at TopGolf (meaning they were physically bound by their own golf bay), but they were also isolating themselves from the second screen. Donald, one of the individuals interviewed on Sunday, commented that he did not socialize with others at TopGolf. When asked why he responded, *"that being here is, like being on an airplane...you don't want to sit next to someone who asks you what you do for a living because they don't really care."* He also stated that he rarely engaged with the second screen device.

"Donald continued on to say that he thought the facility was great for the purpose it was built for - i.e., socializing for the most part. That the facility had been well designed; he said it was designed to get people to come out and spend money. He said that the technology was not enough of a reason for him to seek out this establishment and that in fact, if it was ten miles up the road he would still come to the old place (meaning, the non-technology golf range). Donald said that he was not here to play games...to drink beer, eat or socialize."

Donald's comments are interesting because it is almost as if he associates the actual touch screen monitor (i.e., the second screen device) with the concept of sociality. Whereas in fact, the screen itself can be used by individuals just as easily and effectively as it can be used by groups who want to play a game.

TopGolf proved to be another venue in our data where a distinct "bubble" atmosphere was present. The researchers themselves noted the very distinct presence of these bubbles when trying to obtain interviews.

"Saturday was very challenging as far as observation goes. As soon as we entered the facility I felt a bit awkward in that people really seemed to be there to get away from everything."

In this venue, the researchers found evidence of the bubble ambiance both with individual users, such as Donald who wanted to be sheltered from any person or the technology, and with groups. For instance, Eric spoke of the desire to reduce the amount of interruptions by the wait staff. He also stated that he did not like to be

bothered by the outside world and would not answer his cell phone while at TopGolf. This really emphasizes the idea of the bubble concept and the desire for face-to-face interaction. While people use this facility and the technology as a place to socialize, they have very limited geographical boundaries for their social groups.

Idle Rich Pub
The Idle Rich Pub is a venue that promotes sociality as well as accommodating isolation, although it would be considered a social environment. The transitions into isolation were slower than the other venues, as you can see on our continuum diagram, but they were still relatively quick due to a sociality being forced upon the users to a degree. Patrons utilize single-user mobile devices to move back and forth across the sociality continuum, and do so many times in a visit, according to the environment around them. Peppermint Patty and Sunday Surfer were both very aware of their social environment, even when absorbed in their device to get work done.

The venue was observed on a Sunday during the early afternoon, which is when most people would meet friends and family for brunch. This particular day of observation brought new scenarios to the collection of data. Sunday falls at the end of the week, or the beginning of the week, and is typically understood in American culture to be a casual, relaxing day. The venue being located in a hip neighborhood located just outside of downtown Dallas adds to the ambiance of it being a relaxing and fun place to hang out.

This fieldsite revealed a pattern of getting work done in an environment that also encourages socializing. Similarly to the man with the laptop at Buffalo Wild Wings, the energetic environment did not seem to deter people from bringing work along with them in order to prepare for the week ahead or simply finish outstanding work.

> *"...she can 'get stuff done' that she can't get done during the week while having a few cocktails."*

> *"...as she was sitting there she kept thinking about things that she had to do tomorrow etc. That gave her the ideas of what to look for, checking her grades etc."*

Each of the interviewees listed above went to the venue with intent to socialize and also allowed for the secondary option of getting stuff done by way of the second screen if the situation permitted. More and more we find that people are working longer hours while trying to balance their social life. The Sunday brunch situation is an example of this fact and demonstrates the comfort and ease that people have in ebbing and flowing between work and play spaces and between sociality and isolation.

The transition of going in and out of the spaces of isolation and sociality is of high interest here because people who are getting their own personal work done are particularly isolated during certain moments. The information they are dealing with may not be of interest to others around them, since it is work. In other words, they are not looking at the photographs from their personal vacations. One interviewee discussed and demonstrated many instances where she came out of isolation or went back into isolation due to the sociality surrounding her.

> *"She was brought back to what was going on at the table if she heard someone mention something that pertained to her or if someone asked her something then she would put the phone down and pay attention to the socialization of the group and engage with them."*

> *"When her friend showed up that she hasn't seen in 2-3 weeks she closed her laptop to engage in a conversation with him."*

On a scale of sociality, the Idle Rich Pub was dynamic and fluctuated regularly. People transitioned in and out of social spaces seamlessly according to the people around them. In contrast with the man at Buffalo Wild Wings, they were not there to become completely absorbed by their second screen devices; however, they still had the same intent of getting work done while being in a social and energetic environment. People did communicate virtually using telecommunication, but even this type of communication was kept to a minimum.

First Saturday
First Saturday is an event different from all of the others, in that the primary focus of patrons was vending and buying. This meant that the level of sociality was lower than at venues which patrons primarily visited for social purposes. We learned that people want to be very informed about their decisions when making a purchase. They not only want to research, but may want others involved in that research in order to affirm or reinforce information and decisions. This brings practices of sociality and isolation into a new realm. People are still moving back and forth along the continuum, but with a speed and focus that will not take away from making an educated decision. They are using second screens to help reach their decisions by gathering information and communicating with others.

> *"While holding phone in one hand, shuffled through a box with the other and talking to his friend."*

This man was doing multiple things at once, but all of them had to do with making an educated decision. He was able to balance the multiple tasks, since he knew that there was understanding from those around him. The vendor and his friend were all aware of what was going on, and what was expected or not expected socially. Once again we find that a given situation can define expectations concerning sociality and isolation.

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The second screen here became a crucial symbol for the time and manner in which the shopper socially moved away from and closer to the vendor. The act of setting the phone down on the table signaled to the vendor that the shopper was ready to engage socially. In this example, the buyer and his friend were in a bubble that often excluded the vendor. The vendor would be invited into the bubble at certain specific points during the shopping negotiation. The constant movement is a great example of the way people perpetually slide back and forth on the social continuum.

There was also the group of friends that came together on their way to Houston. A man was videotaping the experience for his friend so he could see what it was like

and decide if it was something he would want to go to. There was a much larger element of face-to-face sociality in this instance, although the man was also regularly engaged with his phone. The two men are featured in the picture to the left.   The man on the right is engaged in virtual sociality through his phone, but his friend is still in his physical social space. In this example, we see several related phenomena. First of all, we see two forms of sociality, face-to-face and virtual. Secondly, we see a kind of rapid multitasking between the two forms of sociality that is so quick and seamless that we can place this group on the social end of the continuum for face-to-face sociality.

The two groups observed at this venue were examples of the social dynamics that can exist within one venue. Each group used their second screen to bring others into their social environment on different levels. In the case of the two men who were using their second screens for research, the devices facilitated social separation from the vendor, whereas the other group of individuals used their devices to facilitate sociality. Therefore, the degree of sociality depends not only on the venue, but on the intent of the user as well.

Sixth Floor Museum
In the context of this chapter, the Sixth Floor Museum was an anomaly, in that it was the only venue that we placed very low on the social scale, meaning that it was not a venue that promoted sociality or where multiple instances of sociality were found. The museum was also interesting in that the second screen devices were used almost solely as agents of isolation (versus agents of sociality). The researchers observed that most people came to this venue with others, as a group. Yet, the nature of the venue did not foster verbal sociality among those groups while touring the museums. The reasoning for this was that the second screen devices required individuals to use full headsets, which restricted their ability to communicate verbally with anybody else. One researcher noted that, "*the audio device was like a selfish friend, [in that it] prevents conversations with others,*" and that it, "*keeps you from feeling totally isolated but still separates you from [the] rest*

of your social group." The researchers also noted that the devices and the museum were actually designed to promote isolation.

> *"I think an updated device would be nice at the museum although I do think the idea is to allow the visitors to be somewhat isolated, to maybe contemplate the event and self reflect."*

Since the museum data offered patterns of isolation in complete contrast to the other five venues, we highlighted it on our diagram of the sociality continuum. It also provided slow transitions in and out of sociality. This is because the museum itself fostered an environment of isolation and it was more appropriate to think about shifting *into sociality* than into isolation.

There was one example of two individuals communicating verbally with each other in the venue. However, this seemed to be an exception versus the norm and because of that we cannot conclude that this was a pattern of sociality at the Sixth Floor Museum.

There were instances where individuals were observed to be communicating nonverbally to one another, but even those instances seemed rare in comparison to the instances of complete isolation.

We hypothesize that the second screen devices may have prompted sociality after the experience was over. For instance, it is possible that once a group left the museum, the audio guide may have provoked them to discuss what they heard. This is an interesting idea because if true, then it means that individuals do not have to experience something at the same time for it to be an agent of sociality at later times.

DESIGN IDEAS

1. All For One or One For All!
Create devices that shift between a single user and multiple users. In order to promote sociality, but also satisfy the desire for periods of isolation, we recommend creating a device that while it can be used alone, can also been utilized by multiple individuals. By increasing the potential users of the device, its frequency of use will also increase.

For home use, design a device, such as a coffee table, that has the ability to switch between everyday purposes to a second screen device when the family wants to either collaborate on a project, play a game or share information. This could also be produced in the home by creating a central device that had individual pods for each family member to use. As an extension to this device, we suggest that it have speakerphone capabilities.

Supporting Evidence
- Observation of groups at TopGolf socializing but only viewing screen after a good shot led us to conclude that incorporating a second screen into the built-in tables at TopGolf would promote more sociality in connection to the second screen.
- The idea of individual units linked to a central device has already been established at Buffalo Wild Wings, where they have successfully integrated both individual game units and shared television monitors for game play, allowing all users to interact with one another seamlessly.
- The museum provoked the idea to create an audio device that could be used by multiple people because it projected sound to a larger group without the need for headphones.

2. Adapt To Us, Don't Make Us Adapt To You…

Create a device that accommodates quick shifting between programs designed for sociality and programs designed for individual use. We suggest developing software programs that can be accessed through pre-owned devices. Since there is no learning curve to overcome when using one's personal device, this would ensure that the users would be able to quickly transition between isolating activities and socializing activities.

In order to facilitate communication within the household, we recommend creating software programs that can be easily accessible via personal devices. These programs could relay multiple types of information, such as an entertaining podcast that dad wants to share with his son, a list of household chores that must be done during the week, an announcement to the whole family that grandma is coming to dinner or an educational program about the Bahamas, the next family vacation spot! These programs could be accessed via a number of methods, including downloading to a USB flash drive, uploading via infrared technology to a cell phone or accessing via a voicemail system from ones personal cell phone.

Supporting Evidence
- The Sixth Floor Museum provided information to their users via audio devices. The same concept is applied here by providing multiple avenues for family communication.
- At the Sixth Floor Museum, not only was there concern over using shared devices because of hygiene issues, there was also evidence that users, particularly non-English speaking users, had difficulty navigating unfamiliar technology. By utilizing pre-owned devices, users would not have to learn a new piece of technology in order to engage with the programs.

3. The Socialometer

Create a socialometer. This could simply be something on a device where one recognizes where they currently stand on the scale of sociality and communicate that status. If they are finishing last minute work and are in a time crunch, then that could be communicated. In other words, are others welcome in their bubble? If they are trying to find something to do with their time, then they could also communicate their particular mood, such as "relaxed" or "feeling VERY social," etc. Instant messaging tools, Facebook, MySpace, and similar programs all use a similar feature in order to share moods with people in a network.

This concept could be adapted to any program and device with internet connectivity. For example, the user set their online status to low on the socialometer which would be indicated by a bubble around their user name. In the home environment, we can see this feature being very useful for sibling communication as well as parent to child communication.

Supporting Evidence

- In the home, there can be many distractions; as one woman at the Idle Rich Pub said, "there are more distractions at home than there are in a bar on Sunday," and "she enjoys interacting."
- At the TopGolf venue there was a strong sense of the bubble concept surrounding both individual and group users. As an example, Eric commented that he would like to see service light bulbs (like on airplanes) added to the Top Golf monitors so that the wait staff would know when to approach them versus bothering or invading their bubble.
- At Buffalo Wild Wings, both individual patrons and groups of users seemed to seclude themselves during the observation. They remained in their own bubble.
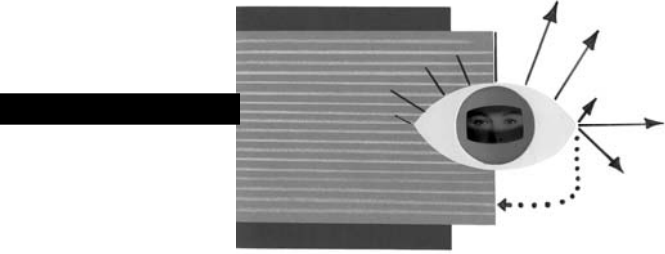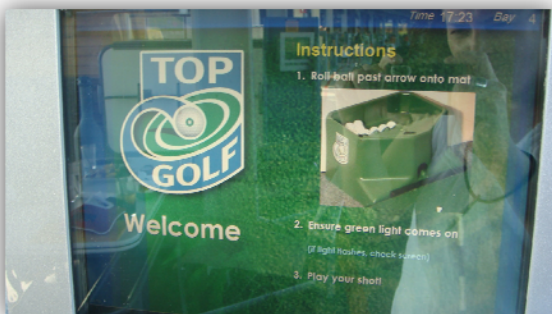
Appendix: Venues and Interviewees

All venues were located in the Dallas/Fort Worth Metroplex.
Fieldwork was conducted in October 2008.
Pseudonyms are used for all interviewees.

Top Golf – The Venue

Top Golf is a golf range facility that uses technology to track the precise location of balls. It is located in Dallas near an area that is populated in part by residential condos, and in part by commercial facilities such as Target, Tom Thumb (grocery chain) and Big Lots. The range is a bit different from regular golf ranges in that it is made up of golf holes that are divided into pie-shaped sections with a smaller, round section in the middle. There are approximately ten of these, located at various distances from the bays where users make their shots. All golfing takes place from the large cluster of bays. Each bay includes a green, a terminal that shows statistics for the shot, a machine that you have to roll your balls into in order for the technology to recognize who the ball belongs to, and a small table with two built-in metal chairs. The venue includes a restaurant and bar, and wait staff circulate to the bays as well.

Top Golf – Interviewees

Note: Charlie and Donald declined to be photographed.

Charlie
Age: 58
Self-described Ethnicity: Caucasian
Salary Bracket: 100,000-110,000
Occupation and Job Title: Direct of Costumer Service for First American Co.
Gender: Male
Education Level: Associates Degree

Donald
Age: 60
Ethnicity: Caucasian
Salary: Retired
Job: Retired
Gender: Male
Education: Master's degree

Sam and Eric

Sam
Age: 25
Ethnicity: Asian
Salary: $50,000
Job: Account Representative for T-Mobile
Gender: Male
Education: Bachelor's Degree

Eric
Age: 28
Ethnicity: Caucasian
Salary: $50,000
Job: Horse trainer
Gender: Male
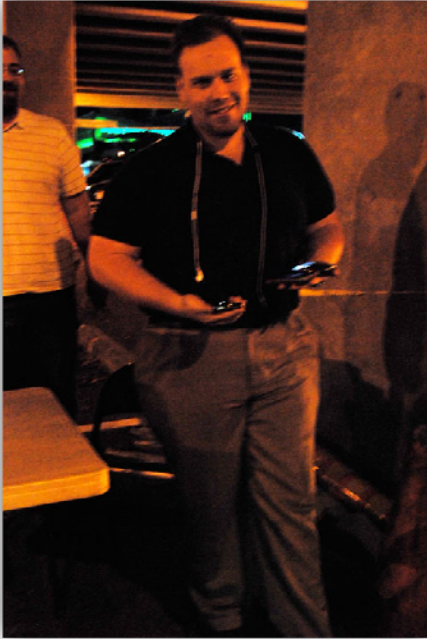Education: Some College

First Saturday – Venue

This is an electronics sidewalk sale/trade show/vendor swap/flea market. It is held on the first Saturday of every month, under a freeway overpass in downtown Dallas. It starts at about 10pm Friday night and continues until about 2pm Saturday afternoon. People generally visit in groups of two or three. The shopping event is very casual, as many vendors sell their products from the back of their van or truck, or from tables set up with cardboard boxes containing miscellaneous objects. Shoppers often use their cellphones to conduct research about pricing and technical specifications during their purchase negotiations.

While the demographic majority seemed to consist of mainly white men and between the ages of 18 and 45, there are also a few women as well as people of other ethnicities looking for a deal. The population was generally a smoking crowd. The vendors consisted of mostly white males aged 35-65.

The bottom picture shows Quake Guy (middle), with his friend (right), and the vendor (left).

First Saturday – Interviewees

Quake Guy
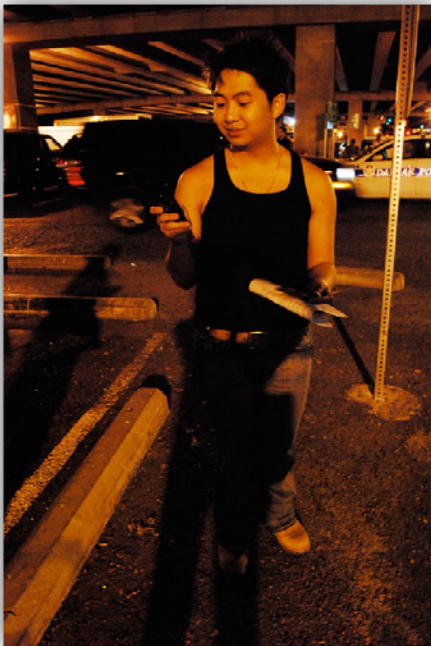Age: 31
Ethnicity: Caucasian
Salary Bracket: $75,000-$83,000
Job: Senior Network Manager
Gender: Male

Fashion Design Major
Age: 23
Ethnicity: Vietnamese
Gender: Male
Education: Student at Community College

Sixth Floor Museum – Venue

The Sixth Floor Museum chronicles the assassination and legacy of President John F. Kennedy. It is located in the building formerly known as the Texas School Book Depository, where investigators found empty shells and a rifle after the assassination. An audio guide is included with the admission fee and it constitutes an essential part of the museum experience.

The museum is a somewhat dark area divided by panels composed of pictures and text from the event surrounding the assassination of John F. Kennedy. There are a few benches by a wall of windows on the back wall of the gallery. These windows are the only source of natural light. There are also two movie theater style areas showing videos on the funeral services and news reports for JFK.

Sixth Floor Museum – Interviewees

Note: Although the researchers initially obtained permission from the museum to take pictures, when they arrived for their fieldwork they were told that the decision had been changed and no photography would be allowed.

Helen
Age: 28
Ethnicity: Columbian
Job: Student
Gender: Female
Education: Master's in Applied Linguistics

Ricky
Age: 39
Ethnicity: Columbian
Salary: $80,000-90,000
Job: Petroleum Engineer
Gender: Male
Education: Bachelor's Degree

University of North Texas Football Game – Venue

The game was played at Fouts Field on the University of North Texas campus. The student section was located at the 50 yard line, and filled with several hundred students. The game was free to students. The UNT color is green. Students could be observed using their phones to take pictures, contact each other, play games, and other activities discussed in the report.

University of North Texas Football Game – Interviewees

Note: All of the researchers' requests for interviews at the football game were turned down, mainly because people were becoming disengaged from the game as the UNT team was losing. Therefore two other UNT students who are sports enthusiasts were recruited for interviews.
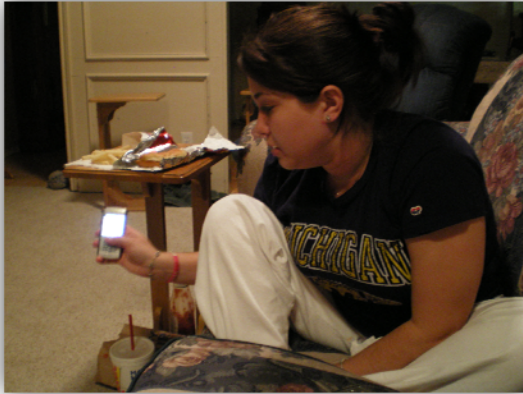
Ruby
Age: 21
Ethnicity: Caucasian
Salary: $10,000
Job: Part-time Dog Groomer at Petco
Gender: Female
Education: Fourth-year Undergraduate Student

Caesar
Age: 29
Ethnicity: Caucasian
Salary: $25,000-30,000
Job: Sales
Gender: Male
Education: High School Graduate

Buffalo Wild Wings – Venue

Buffalo Wild Wings is a grill and bar restaurant that offers trivia games. It has two main rooms divided by a middle aisle when you walk in. The area on the left has the bar and is the smoking section. The area on the right, or restaurant side, is non-smoking with a lot of round tables and some booths along the sidewall. The televisions are located up high so that everyone can see. There are 12 TVs in the main aisle located in groups of three, two on each side. There are 8 TV's in the non-smoking side, with one of them being a really big flat screen TV. Various round and rectangular tables occupy the restaurant space and several booths line the perimeter wall.

Buffalo Wild Wings – Interviewees

Dave
Age: 45
Ethnicity: Caucasian
Salary: $80,000-100,000
Job: Electronics Technician
Gender: Male
Education: High School Graduate

Jill
Age: 24
Ethnicity: German-Italian-Austrian-Scottish
Salary: $14,000
Job: State Inspector for Vehicles
Gender: Female
Education: High School Graduate

Idle Rich Pub – Venue

The Idle Rich Pub is a large (roughly 5000 sq. ft.) Irish bar and restaurant located in an upscale part of Dallas. The inside of the bar is dark wood with a bar that spans nearly the entire inside from wall to wall. The bar is filled with artifacts of beer from around the world (many posters and aluminum wall pictures that are considered vintage from around the world). The Sunday atmosphere is bar/brunch). The atmosphere caters to people who want to relax, maybe have a couple of beverages or not, and eat with friends and family on a Sunday afternoon. The venue prides itself on playing obscure music from mostly independent record labels. The venue itself has a strong regular clientele. Patrons use their cellphones and laptops for a variety of purposes, including sharing photos and YouTube videos, and getting work done.

Idle Rich Pub – Interviewees

Peppermint Patty
Age: 24
Ethnicity: Caucasian
Salary: under $25,000
Job: Student
Gender: Female
Education: Will receive Bachelor's
Degree at end of current school year

Sunday Surfer
Age: 49
Ethnicity: White
Salary: $60,000
Job: Project Coordinator, IT Function
within Facilities Management
Gender: Female
Education: Some College

Design Collaboration and Suggestion: Bill Johnson