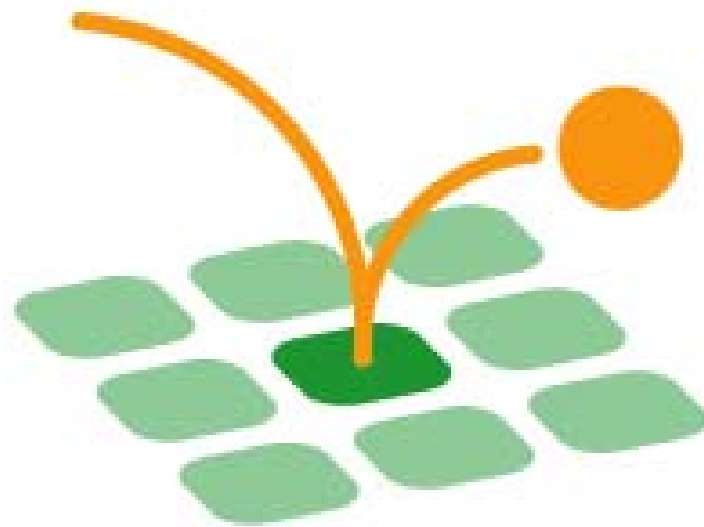# Making Mobile Experiences Meaningful

A Report for Microsoft
December 15, 2004

ANTH 4610/5610 Design Anthropology, University of North Texas
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1. The Project by Christina Wasson

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The Project

In order to think predictively about design opportunities for mobile devices over the next 3-5 years, Microsoft wishes to broaden their understanding of the ways in which people are transforming their overall mobile experiences by making them more personally meaningful. In the United States, preferences for personalization are currently exhibited most strongly among young adults and teenage populations. This indicates that as the population ages, and our technological capabilities continue to evolve towards delivering ever smarter applications, market demands for more sophisticated forms of personalization will increase.

The University of North Texas class "ANTH 4610/5610 Design Anthropology" partnered with Microsoft in fall 2004 to explore some of these dynamics among young adults, providing an opportunity for Microsoft to delve into an area and segment that was important to them, but that they were unable to research themselves at the time given more pressing short-term and medium-term priorities. The class was taught by Christina Wasson. The project partners at Microsoft were Donna K. Flynn, Design Anthropologist in the Mobile and Embedded Devices Research Group, and Arnie Lund, Director of User Experience, in the Mobile Platforms Division.

During the fall 2004 semester, members of the Design Anthropology class conducted ethnographic research on how 18-24 year olds use and understand their mobile devices. The primary objective of the research was to think holistically and predictively about design opportunities for mobile devices around personalization and related areas.

Findings were presented to Microsoft in two forms: through this report, and through a verbal presentation.

Personalization

We found that personalization goes far beyond simple device features, such as ringtones. The more interesting and important personalizations have to do with users' *practices* involving their mobile devices. The opportunities for Microsoft are around how the devices can support such personalization practices.

In general terms, our subjects are engaged in:

■ Constructing their identities
■ Forms of self-expression
■ Developing a social circle that reflects and extends their unique yet shared identity

These concerns are acted out in the behaviors we observed and modeled, such as the ways that 18-24 year olds construct and share their life narratives, or the importance music holds for them. Because issues of personalization pervade most of our findings, we do not have a separate chapter on that topic. Instead, it is addressed repeatedly in chapters 5-9.

The Research

The class had 10 students, working in 5 pairs. They conducted two kinds of research. First of all, they did guerilla fieldwork at the following universities:

- Southern Methodist University (SMU)
- Texas Christian University (TCU)
- Texas Woman's University (TWU)
- University of North Texas (UNT)
- University of Texas at Arlington (UTA)

The purpose of examining five different universities was to expand the diversity of our subjects. The campuses are spread out across the Dallas/Fort Worth metroplex, as can be seen in the map below.
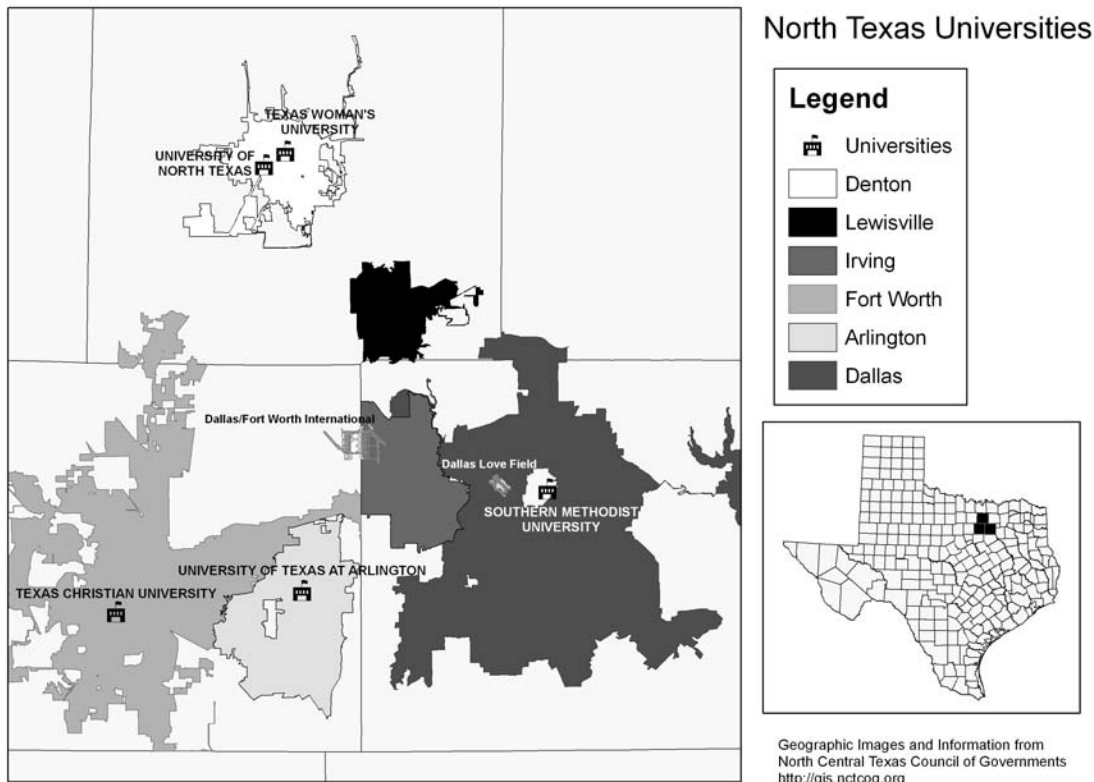
Furthermore, the universities tend to have rather different student populations. SMU and TCU are private universities, whereas the others are public.

During their guerilla fieldwork, class members focused on observing uses of mobile devices, interesting personalizations, and the overall computing terrain on campus and in surrounding neighborhoods. They also conducted intercept interviews with students concerning these issues.

In addition, class members shadowed ten subjects. Each subject was shadowed at least twice, for at least 1 ½ hours, often longer. The shadowing allowed us to collect in-depth information about how particular individuals used their mobile devices, especially around issues of personalization.

THE TECHNOLOGY TERRAIN OF 18-24 YEAR OLDS

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2. A Map of the Computing Terrain Inhabited by Students by Mel. White and Rochelle Sykes

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In this chapter, we depict the technology resources offered by the environments that 18-24 year olds typically navigate through as they go about their daily activities. These resources shape the ways that our subjects choose to use, or not use, their mobile devices. First we map out the entire terrain as a whole; then we look inside their homes; and finally we focus on how they move content between devices.

Outside the Home

We explored the computing terrains of five universities and their surrounding neighborhoods:

■ Southern Methodist University
■ Texas Christian University
■ Texas Woman's University
■ University of North Texas
■ University of Texas at Arlington

The environments offered rich opportunities for computing, both in terms of the computers themselves on campus, and internet access on and off campus. The availability of computers on campus reduces the need for many students to carry around their own computers.

College Computing Facilities

For the commuter, whose home base is away from the university, college campuses offer a variety of options. Ease of access is important to students, and many universities offer public kiosks with a small group of Internet connected terminals for the use of students on campus. These are often located in the student union buildings and near places where students might eat or take breaks, such as the sub-basement at Texas Women's University or the combination cafeteria-lounge area in the business building at Texas Christian University. The TCU campus also has an Internet café in the campus commons.

Libraries are usually in the forefront of services for students, and the university libraries are no exception. All of the campuses have kiosks and Internet terminals available. TCU's library is one of a number in the nation with special loan programs that allow students to check out wifi-enabled laptops while they are there in the library building.

Computer labs are no longer housed only in the computer science building. These facilities are dotted all around the campus and are "owned" by different colleges and

departments within the university.   But in spite of the wealth of computing facilities on campuses, support for laptops can have surprising limitations. TCU's Information Technology building, oddly enough, was the only non-wired building on campus.

Students' use of computers during class lectures is relatively uncommon. A few students bring laptops to take notes during class, but this is relatively rare. Most students write their notes by hand. Furthermore, at the universities we observed, professors are not commonly using technology in an interactive way during lectures, for instance asking students to vote on issues electronically. There may be some classes, in business schools for example, where this happens, but we did not observe it or hear about it during fieldwork.

Coffeeshops

Coffeeshops are popular places for students to bring their laptops and study, especially when they offer internet access. The four coffeeshops in the vicinity of UNT all have free wifi access. We observed both Hemmingway and Milton working at the Brickhaus café. The social atmosphere is very attractive to the people in our target age group. As Milton explained, one reason why he prefers doing his schoolwork at the coffee shop is because the social atmosphere encourages him to take a break from studies occasionally. But these areas are not a perfect "away from home" environment for the user. Although you can move to any location in the area, not all of these areas have equal access to electricity. During the shadowing session, Hemmingway changes locations from a table that she preferred to a table close to a power outlet so she can recharge her laptop. Other venues, such as restaurants, bars, and laundromats, are starting to offer wifi or broadband access as well.

Inside the Home

Desktop versus Laptop

In our search for subjects with laptops and cell phones, we ran into many students who have cell phones, and yet, they only have desktop computers that they use at home. The possible reasons for this trend are numerous, but include peoples' fear of having a laptop stolen or broken. One of the intercept interview subjects, Red, from the University of Texas at Arlington told us that she would not get a laptop because she was afraid that her roommate would steal it. Another reason that people may choose to keep desktops over laptops is that they have no perceived need to switch. The desktop may be a system that they have had for some time and is still operational. Although they may think of laptops as convenient, they feel they do not need to spend the money for one at the moment. One reason that is probably most prevalent among this age group is lack of money, and so they are not able to switch to a laptop, even though the prices of such machines are decreasing.

Other trends among our subjects are the use of both desktops and laptops. Milton, an intercept interviewee, and Jester, one of the shadowing subjects, both have a desktop and a laptop. Milton has very specialized uses for what each of his machines do. Milton used to use his desktop as a storage space for group film projects. Now he is using it to play games and share files because he has had problems with viruses and spy-ware, and he wants to keep his laptop "clean." Jester on the other hand does most of his work on his desktop because his laptop is several years old, and is not very powerful. He uses his laptop mainly to work on his novel outside of his house.

Stationary Laptops

Many of the students that we encountered in our research who did have laptops often used these machines in a way similar to desktops. Meaning that they were, for the most part, stationary since many of our subjects tend to use their laptops in one general area of their house. For example, among our shadowing subjects, Wonder Woman uses a spot on her kitchen counter as her workspace. Since she works for Mary Kay, a lot of her work can be done online. Ray has a "cave" set up that he uses as his workspace. He states that he takes his laptop out of his dorm only one time out of ten because he has a PDA that does most of the functions of his computer. Cindy keeps her laptop on her bedroom floor. And Hemmingway keeps her laptop on her coffee table in her living room because she does not have a television, and the laptop served as her only form of entertainment.

Although these subjects tend to keep their laptops in one area, mobility within the house or dorm of the subject is often valued as well, especially when they have wireless internet and can spread their internet access across such a wide area as a home. Ray likes to take his laptop out of his cave every once in a while and do work on his bunk bed in his dorm room. Jester likes to take his laptop into the living room so that he can watch television and still talk with his friends online. These examples show that people are still valuing the mobility of their device, and are not keeping their laptops in a completely confined manner, even though the majority of their laptop use tends to remain in one specific area.

Keeping laptops in specific areas can also be applied to examples where the subjects take their laptops outside of the home. Most of the interviewed subjects have certain places that they take their laptops to. For example, when Hemmingway takes her laptop out, she tends to go to coffee shops like Uncommon Grounds. Ray takes his laptop to his dorms' lobby, and Jester takes his to IHOP. And Blondie, an intercept interview subject from Texas Christian University says that she does not take her laptop out of her dorm very often. Each of these subjects indicates that they rarely take their laptops beyond these zones. These examples add a new dimension to the way we can view what stationary means. Even when people move their laptops from the laptops' designated "work space," they still only take it so far as certain specified places, giving these places the quality of being extensions on their original work space. This type of behavior could indicate that people are using their laptops in a more stationary manner because of convention. Having a computer that is stationary is something that these people may be used to, and comfortable with. Although they enjoy having a mobile computer, and state that they

bought the machine for that purpose, they are still limiting the areas that they take their laptops to, and thus limiting its mobility.

Another reason, besides comfort zone, that people are limiting their laptops' mobility is that they are afraid of damaging or losing it. Bringing up the example of Red once again along with the statement from Hemmingway that she does not take her laptop out of her apartment very often because of this reason, shows that people may value the laptop more than the mobility that it provides. Thus, people may not want to take their laptop out in order to protect their interest in it.

Cell Phones

Within the home, cell phones are being used more and more as a persons' primary phone line. Many of the subjects that we interviewed, like Hemmingway, indicated having no home phone at all, while other subjects had home phones that they used for local calls only. Phil for example has a landline that he only uses to call his school friends since he only has to dial in four numbers due to the telephone network for dorms. He does not use the landline for long distance calls however because the dorm phones do not have long distance plans. In order for him to make long distance calls, he would have to buy a phone card. This type of behavior is quite common among college students. This trend is probably happening because cell phone plans are becoming cheaper, and have a lot of minutes that can be used. There is also the fact that many college students go to a college that is several hours away from their home, and so, in order to talk with family and old friends, who often go to another school, they need long distance calling capabilities that are easy to come by. They are also probably still on their parents phone plan, and so they do not have to pay for this bill. Whereas, if they were to have a landline, especially for those students who live in an apartment, they would have to pay extra money each month to keep it.

Suggestions

One reason that could explain why people do not carry their laptops around with them more frequently is that the laptops are bulky and heavy, as well as the previously mentioned fact that people are afraid of damaging their laptop. I believe that as laptops become less expensive, more people might become less fearful of losing or dropping their laptop. Another possibility is that laptops could marketed as being durable, therefore people will once again start to lose the fear of dropping their machine.

Movement of Content

Moving Content

Movement of content consists of subjects transferring files from one source, such as the Internet, another person's files, or some device, to another device that they or another person owns. Two levels exist within the movement of content: the single user level and

the multiple user level. Although the world of mobile devices provides people with the ability to connect many systems, many people do not move content beyond the most basic levels of downloading materials, such as ringtones for phones, and music from the Internet. Thus, it is necessary to address why people do, or do not move content between their devices. Another important area that falls under this category is the conversion of content.

Single User

For users moving content across different devices that they owned, the process was often a three-way interaction involving the internet, their cellphone, and their computer. The first way that the subjects we interviewed moved content was through downloading personalization features from the internet onto their computer, and then onto their cellphones, or downloading them directly from the Internet onto their phones. The main difference seems to lay in the fact that they feel more comfortable with surfing the web on their laptops, since many of the things they were downloading were from specific sites, such as the Nokia or Cingular website. Cindy for example, downloads ringers and wallpapers from the Internet on her phone a lot. She subscribes to a website where she paid once for unlimited downloads of ringtones, she then picks what she likes while on her laptop and searching through the site, sends it to a "locker" they provide her, and then downloads it to her phone from the locker.

The second main way that these subjects move content is through their pictures. Many of the subjects have digital cameras and/or camera phones. Generally the subjects use the camera phone for spontaneous activities, whereas they use their digital camera for planned occasions. Tilton has a picture website where he takes pictures with his phone, and they are automatically published to his site. He also has a digital camera that he downloads pictures from, one example he gave of using it was when he went to lake with girlfriend. On their way home he plugged his camera into his laptop; he then later made a CD with the pictures on it and printed them off at Wal-Mart. Phil also interfaces his camera's memory card directly with his laptop. The flow of pictures is quite common from digital camera to laptop. Psychatog uses an online program, Shutterfly, to store his pictures because they have not limited the number he can put on there.

Music is another popular type of content that people move among their devices. iPods are quite popular in this group, as well as the downloading of music from the Internet. There are two examples of minidisk players: Chill uses his quite often, whereas Phil finds the disks too costly to use much. Several people also import their music onto their laptop from their CD collection like Phil, Hemmingway, and an intercept interviewee "Old School." This method is preferred to simply carrying around their CDs because it is easier for them since they would have to carry extra stuff with them if they did not. This allows them easy access to their music collection.

There are several instances where the subjects use iPods to carry their music with them when they do not want to carry their entire laptop or CD collection. Tilton uses the Internet on his phone to sync his Yahoo calendar to his phone for reminders. He also uses

a system address book to sync his info between electronic contacts, like pictures, demographic information, and numbers. Ray syncs his laptop to his PDA for his contacts, and uses his PDA as a calendar, and will put music on it if he is too lazy to take his iPod. One interesting form of device linkage was a docking station that Psychatog has for his laptop where he can plug other devices into so that he does not have to plug them into his laptop. He has an external hard drive, a monitor, mouse, stereo system, and a printer that he connects to it.

Other ways those people transfer files and move content consists of Tilton using his phone to post on his blog online. Ray puts Java programs on his cellphone. Thumb drives were not very common among our subjects, however, one intercept interviewee, Lanka from Texas Woman's University, used one to save files on so she could print them out later. And one of the more popular ways that people are transferring text files is by emailing themselves a text file, and later printing that file off in a computer lab at school. Others like Jester do their writing on their laptop, save the writing to a disk, and then prints it off on their PC.

Multiple Users

People seem to enjoy sharing things with their friends. Pictures seem to be a very popular type of content that people share with each other electronically. Many of the subjects interviewed send pictures to their friends through email, or directly link their computers with their friends, such as Hemmingway who has a lot of pictures on her laptop, but no digital camera. She has her friends send her pictures via email, IM, or she directly hooks her computer into theirs. Many people like Cindy and her friends send pictures over their camera phones to each other to say: "hey, this is what I'm doing right now."

Music is another form of content that people frequently share with each other. The subjects in our study shared music by "borrowing" music from each other like Hemmingway who connects her iPod to her friends' computers and later moves content from the iPod to her laptop at home. Other ways that they borrow music is by plugging a portable hard drive into their friends' computers and taking what they want from their friend's collection like Psychatog.

To Move or Not to Move

Almost all mobile device users take part in some sort of basic content moving. Most cell phone users download ringtones and wallpapers, while most laptop users download music from the Internet, pictures from their camera, or transfer files to their email account, whether for their own use, or in a group setting. Most people probably share photos and music with each other to build community. However, most people do not seem to do much beyond basic forms of moving content.

One reason that people do not use their devices in connection with other devices they own, such as integrating cell phones to their laptops, is that people do not seem to know how to do such things with them beyond the basics of using them as devices within

themselves. One subject, Chill, has a video camera with digital capabilities. However, he does not use it in this way because he can not figure out how to connect the camera to his laptop through his firewire, and Hemmingway does not know how to plug her stereo speakers into her laptop to pump music through it. Most of the people that participated made mention that they are not very tech savvy, so the possibility of connecting devices may be a little intimidating to individuals such as these.

Another reason that people do not sync their mobile devices together is that they do not have the desire to do so. Hemmingway says that she does not want to sync them together because all she wants to use her phone for is talking. In an interview with a young man from Southern Methodist University, Minister, he says that he has a cord to connect his cell and laptop, but prefers not to. And Ray considers it pointless to link them together, although he may find it useless because he has numerous other devices that he can use.

A person may also turn away from using certain devices due to their view of the product being shaped by their own or another's bad experience. Hemmingway for example does not like thumb drives because she purchased one, and it broke ten days after. Chill uses a minidisk player over MP3 players because he heard that MP3 players have poor quality of recording. And since he is a music major and sends his recordings to other people, this is an important issue for him.

Converting Content

A few of our subjects also convert content from one form to another. Converting content can be considered a way of moving content, as the person is transferring the information from one form to another, and often uses the reformatted information in a new way. Phil for example uses Adobe Acrobat to convert WebCT (online course content) web pages into printable format by saving the page in HTML, then converting them to PDF. He also converts Microsoft Publisher files into PDF, because they store easier. In addition he converts his CDs to MP3s and discards the CDs in his room because they are no longer useful to him. Psychatog performs a similar activity. Since his CD player in his car has a decoder on it, he puts MP3 files onto a CDR and plays them in his car, allowing him many more songs per CD.

Suggestions

Because most people are not very technologically oriented and do not know how to use the many features of their devices, a plug and play feature is usually appreciated. A universal means of downloading and uploading information directly into a mobile device might also prove to be useful for these people. For people like Chill, a device that simplifies the audio input/output process while maintaining quality of sound while recording would probably be desired. The concept of an online "locker" is also quite interesting. If a person loses their phone, they likewise lose all of the numbers that their phone contained, along with any downloaded accessories like wallpapers and ringtones that they purchased. And so, with such a locker, a person could keep their contact numbers, as well as purchased or downloaded personalization, as a backup in case

something ever happens to their phone. Another possibility in this area is to have a cheap thumb drive of sorts for a phone to keep as backup at home in case something happens to their phone.

3. *Technology-Mediated Communication: Channels and Choices by Matthew Lamb*

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Imagine yourself at a fine dining establishment, awaiting a five-course meal. Laid before you is a myriad of utensils each with a specified purpose. To those educated in the ways of etiquette, the placement of the soupspoon, beverage spoon, salad fork, dinner fork, etc. are viewed as guides in the consumption of the meal. The world of the mobile 18 – 24 year old can be viewed much in the same light as fine dining, the various requirements of each day, such as school, work, and socialization making the courses of the meal, and mobile devices providing means by which each obligation can be fulfilled.

Channels

Through the research conducted this semester, four channels of communication have been cited as the primary means by which young people interact. These channels are cellular phone calling and text messaging, henceforth referred to as texting, as well email and instant messaging on computers. As we discovered, every channel possesses distinct purposes and advantages; each being used based on both situation and individual preference.

Cellular Phone Calling

The predominant form of communication in this demographic is verbal contact mediated through the usage of cellular phones. This trend can be viewed by simply walking through a college campus during passing periods. Outside an academic hall on the University of North Texas, this researcher counted 78 people using a cell phone in a five minute period, nearly half of all individuals observed during this timeframe. More relevant than an on the spot count is the data collected from shadowed subjects and guerilla intercepts.

All subjects in our study owned and used cellular phones in their everyday lives. The patterns of usage spanned a wide range of situations, with cell phones being utilized in the contexts of work, school, and socialization. The most distinct trend observed though, was the preference for cellular phones being used as the primary means of contact between students and their families. Students overcame the once costly geographic disparity that existed between their hometowns and new homes by utilizing a family share plan along with their parents in order to circumvent long distance calling charges. In addition, many subjects cited their parents technological inability as another motive for using the cell phone as the main source of contact.

In addition to family, phone calls served as a means for strengthening social networks that extended beyond the local area of the subjects domain. One subject missed a phone call from a longtime friend who he had lost contact with. Receiving a voice mail message and returning the call, the subject reestablished the relationship by attaining a new phone number for contact as well as the friend's plans for the future. The same subject also noted that he maintains older friendship with friends across the country by calling them once a week.

The mobile nature of the young person creates a necessity for time efficiency; many subjects cited the pervasive nature of the cellular phone as the primary means of communication stemmed from the amount of time it take to use other channels. In addition, within the subjects there also existed a minor trend of antidevelopment in cellular phones. The sentiment and desire for phones that perform simply a calling function was highlighted by various guerilla intercepts, in the words of one young man, "calls, just calls."

Email

The nature of email usage in this demographic takes on one of a business aspect. While all interactions over this medium are not related directly to "business" in the employment sense, the trends associated with usage in the non-work context mirror those which are directly associated with a job.

Since communication with parents is primarily achieved through voice calls on cell phones, secondary contact is established over this medium for purposes that cannot be fulfilled over the phone. One shadowed subject received e-ticket verification over email for a trip that his parents paid for; the same subject utilized email in sending progress of his musical studies to his parents. These were the only reasons the subject and his family ever utilized email in their interaction.

Similar to phone calls, email also serves as a means to manage social networks. Numerous subjects noted the use of email in contacting friends from previous stages of their lives, for instance high school and undergraduate friends in other states. This contact is neither daily nor routine, but is important to the friends as a means of staying connected, even if it is through a short email once a year.

With education no longer bound to the classroom, many students opt to take courses that are offered over the internet. Without face to face interaction, a student's only way of contacting a professor who directs the online course is through the transmitting of email. In addition, traditional classroom course syllabi all contain email contact information for the teacher, a method of communication that is more time convenient for both student and professor due to the limited scheduling of open office hours. Students also used email to transmit papers between computers when not equipped with a disk to save, or to turn in assignments when they missed a deadline. With an increase in online enrollment

and electronic contact, email is developing a reputation for being the preferred method of communication within the academic community.

In addition to school related work, those who have access to computers at their places of employment use email as a primary channel for communication relating both to work and social purposes while on the job. One guerilla intercept noted receiving daily email from her now graduated friends who had "desk jobs." Another subject cited frequent correspondence through email with working friends that were "bored." Since computer access is readily available at most "desk jobs" and emailing within the infrastructure is a staple in office communication, it is understandable why one would choose this channel as a primary means for social contact when the appearance of working is necessary.

While email was not thought by most of the research subjects to be their main channel, it is worth noting that there exists a small portion of the subjects to whom emailing dominates their communication. These persons avidly subscribe to their accounts, and check their inboxes with a frequency bordering on addiction. One shadowed subject swore religiously by her Google mail account, or G-mail, because of the excessive amount of storage space it provided. As a result of this storage availability the subject, like others, saved most all emails received and even placed a sense of sentiment on them as if they took the form of a gift given by the sender.

Instant Messaging

With an initial surge of popularity at its introduction in the late 1990's, instant messaging has been waning in usage as a result of various circumstances. No subject in the research cited instant messaging as a primary channel by which they communicated. In fact, many subjects did not even use instant messages (IM) at all, however those who did utilize it did so with great frequency.

Of all the reasons subjects chose not to use IM, unavailability or lack of exposure could not be counted as a cause of this non-usage. Many computers now come factory equipped for instant messaging from various companies, but on multiple shadowings, subjects possessed an icon for America Online® instant messenger (AIM) directly on their desktop, but did not use it.

With a full plate of work and socializing, as already mentioned, time management is of the utmost importance in this age range. The main deterrent from using this channel lies in its time consuming nature. Various guerilla intercepts and shadowings yielded negative sentiments when questioned as to why they chose not to use IM, inefficiency in both time and emotional expression caused many to feel little need to expend additional effort to use this medium. While instant messaging services have developed "emoticons" to help clarify emotional expression, the general thought concerning these was that they failed to convey the true feelings of the sender. In addition to the channel's inefficiencies, there exist a conflict of choices between competing services. With AIM, ICQ, and Yahoo Messenger all vying for users, the likelihood that all members of a social

circle subscribe to the same service is very small. To solve this problem, a service called Trillian offers an ability to cross the service boundaries and connect via instant message to any of the aforementioned programs. While it provides a means to communicate with a larger network, Trillian, according to users, lacks the personalization features of other services.

While many subjects chose not to use instant messaging, those that did highlighted the advantages this channel provides. Most notably, personalization has become the cornerstone of IM. Users pick fonts, window skins, and personal icons, and away messages to digitally represent aspects of their personality. Where email fails in real time contact, IM allows users to interact continuously without interruption or time delay, for this reason, subjects noted a preference for IM when conversing with longtime friends who lived elsewhere.

The most important aspect of IM though is its ability to allow the user to multitask. Since the windows for IM programs only take up a portion of the screen, users can run these programs at the same time as others, such as surfing the Internet between messages. This ability makes IM a popular escape in the class and work setting. Another aspect of multitasking that is unique to IM is the ability to have various lines of communication running simultaneously.

Texting

A current television commercial for the T-Mobile Sidekick phone hints towards the rising popularity and future potential for text messaging. The commercial stars a cast of today's icons, such as Paris Hilton, Molly Shannon, and Wayne Newton all using the Sidekick in their interrelated social circle. The commercial ends with the ambassador of pop culture, Snoop Dog, blatantly stating, "Everybody needs a Sidekick." With promotion like this, it is little wonder why the data collected over the course of the research indicates not only a rise in popularity and usage, but also distinct characteristics that have developed as a result of texting.

The most dynamic channel of communication in our research is text messaging. The various aspects of its usage have developed norms and practices that are unique to its channel. The first noteworthy trend is that no subjects communicated with their parents suing this channel, with many citing their parent's lack of knowledge as to how to actually transmit and receive texts. In addition to a lack of usage outside this age range, most of those within the demographic that did not use texting were deterred due to the financial strain that they incur as a result of their per message usage fee versus the available unlimited monthly rate that others subscribed to.

The discrete nature of text messaging has made it a mainstay in the arsenal of the slacker and unmotivated. Numerous subjects said they texted during class time, and others said they received texts from friends at work. While none of the messages sent or received during these time periods hold any urgency or true importance, they continue to persist

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against the will of the instructor or the boss due to people's nature to know what is going on right now. Many subject said that the text they sent were not important, but were simply an easy way to check up with their social circle.

Within various organizations, group texting is used as a way to inform all members briefly as to the status of meetings or events. Two guerilla intercepts at the University of North Texas illuminated this trend, with a fraternity and sorority member both stating that texting was the main way they were contacted when the information concerned their organizations.

Beyond superficial conversations lies an intriguing phenomenon that has immerged from texting. To many, the years spent in college are focused less on academics and more on getting with a member of the opposite sex. Oddly, texting has begun to find it way into the mating ritual of the college student. Some subject said the lure of this channel in courtship comes from it ability to allow the user to thoughtfully script responses, while at the same time serving as a means to save face in the event of rejection. It is much easier to be turned down in a brief text than a long-winded phone conversation. When asked about this trend, one subject, who paid ten cents a message and therefore limited usage, said that he only used texting to talk to girls, stating:

"…man, I don't know what is up with girls, they love text messaging, I hate it. Why don't just call me, like, they have full conversations, text message, I think its pointless personally, but that the way girls are, they love to talk."

Survey

In response to this hypothesis that a difference in usage patterns exists between the sexes, a survey was taken on and around the campus of the University of North Texas. Half of the subjects were questioned late night at the library and the other half at a keg party. Each subject was asked to rank their usage of phone calls, texting, IM, and email according to the frequency at which they used each. Here are the results of the survey:

50 subjects
27 male
23 female

4 subjects did not use text messaging
4 subjects did not use instant messenger.
2 subjects did not own a phone.
1 subject did not use email

38 people said that phone calls were their primary means of communication.
5 said IM was their primary means of communication.
4 said email was their primary means of communication.
3 said text messages were their primary means of communication.

17 people said that texting was their secondary channel of communication.
11 said that instant messaging was their secondary channel.
11 people said that email were their secondary channel.
10 said that phone calls were their secondary channel.

20 people said email was their third channel of communication.
14 said texting was their third channel of communication
13 said instant messaging was their third channel of communication

17 people said that instant messaging was their final channel of communication
14 said that email was their final channel of communication
12 people said that texting was their final channel of communication.

In addition, they were asked if they perceived a difference in the usage of texting between the sexes:

39 said that females text messaged more.
6 said males text messaged more
3 viewed the usage as equal
2 had no opinion

Scenarios

In given situations people choose different channels to accommodate the circumstances. When a student is interested in speed of the conversation do to time restrictions, phone calling is the first and foremost option. In situations where a person must address a topic of "business" interest, such as school communications or slacking off at work, email is the primary channel by which they choose to communicate. Those young people who opt to use instant messenger did so in situations where they could multitask, such as at home doing homework on a text editing program or research on the Internet. Finally, texting was the primary channel in situations that required a discrete nature, such as bored in class or trying to save face with a new suitor. While there are other situations in which channels are chosen, these are the only ones that our research indicated stronger enough to report.

Opportunities

While the findings above show a distinct difference between genders in text messaging, it is too early in research to conclude a possible advantage of gearing marketing and development of texting towards young women. There is however a possibility those future generations of texting involving multimedia sources as personalization to capitalize on this difference and texting's prevalence in the "mating ritual."

The research conducted shows a falling trend in instant messaging in lieu of texting, but little loss in verbal contact over the phone as the primary channel. One could capitalize on the trend of texting's rise by augmenting the personalization feature to be comparable or better than that of the current instant message interfaces.

While there exists on the fringes of the research, trends of secondary forms of communication such as videoconferencing and camera phone photography used as a narration, little can be drawn as far as opportunities is concerned do to their menial usage in the demographic as a whole.

MODELS AND OPPORTUNITIES

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4. *Work versus Play by David Howard and Rebecca Erwin*

■ ■ ■

Overview

As a person undergoes the change from young adult to adult, certain aspects of their behavior must be made manifest in order for that process to adequately arm them for survival in a world outside of high school. College, at least in the United States, has typically been the proving ground in which individuals develop and test new prototypes of social and professional behavior. Eventually, through a process of trial and error intermixed with motivation and evolving maturity, a set of behaviors is established that will accompany them through the rest of their life.

When students cross the border of high school into college they do not leave all of their previous behaviors behind. Simply applying to a university does not bestow the discipline, focus and overall maturity that is required for a successful scholastic career. In fact, a large portion of the college experience is about developing these traits. Those who cannot mold their teenage behavior into the expected forms necessary for adulthood face the reality of a college experience that will fall short in equipping them with the tools necessary to be competitive and successful in the outside world.

For the most part, the battle for behavior takes place in the arena of self-discipline. Students must learn to prioritize their time, attention and financial resources. This requires decisions to be made that satisfy both the need to accomplish tasks as well as the need to build social relationships and have fun. We have identified this conflict as *Work vs. Play*, which, while by no means a new descriptive label for decision making, ideally suits the types of decisions that must be made by our subject group as they transition from being teenagers to adults.

Work for this age segment tends to be those tasks which are not initiated by the individual but instead come from an outside source such as an instructor, employer or even parent. These are the tasks that "must" be done rather than those which one would "choose" to do. Some examples of *Work* tasks identified by our subject group are homework assignments, academic papers, and group projects. These tasks, if not successfully completed, often have very real consequences in terms of academic or financial success, however, because of the conflict that our participants experience between this structured demand on their time and the freedom to socialize or entertain themselves, a degree of resentment becomes apparent in their attitudes towards *Work*.

Play, while enveloping those types of activities commonly associated with the word such as playing games, socializing with friends or listening to music and watching movies, is not constrained by them. Users in our study tended to identify *Play* behavior as those activities that originate from an internal desire or need as opposed to tasks placed on them by an outside entity such as an instructor, employer or parent. Some of these

activities suspiciously resemble *Work* type behavior. For example, a few of our subjects would use their laptops to work on novels or short stories that they were writing, not as a class project, but rather as something for, and originated within, themselves. Another individual in our study would take time out of his busy academic schedule to write, edit and produce low-budget horror films in conjunction with a group of friends. These types of high-energy *Play* activities can and do require the time and creative focus of their actors, and, as such have the potential to create disruption in a balance between work and play. Regardless of the intensity of the task, be it writing the next great American novel or "vegging out" in front of the television, *Play* activities must compete for the user's time and attention.

As more time is devoted to required tasks (i.e. *Work*), the individual is more apt to engage in ways to divert their attention or avoid working on the task at hand. Likewise, if too much time and attention is diverted from completion of these tasks in favor of *Play* activities then the individual experiences guilt and stress as deadlines loom ever closer. The individual is tasked with allocating their time and attention in such a way as to achieve a balance between *Work* and *Play* so that both needs are adequately satisfied but not the sole focus of their lives.

Teeter-Totter of Priorities
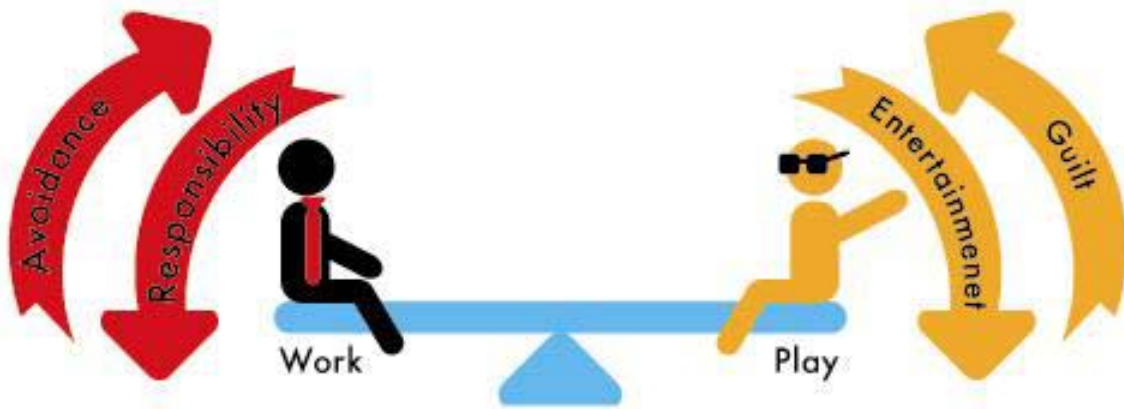
Work vs. Play Balance Model

As a result of this constant balancing act on the teeter-totter of *Work vs. Play*, our participants often find themselves in a state of inner conflict. At times, the inability to cope with the immediate necessity of performing *Work* tasks causes them to engage in avoidance activities. These avoidance acts take the form of such activities as SMS messaging while in class, playing games on both cell phones and computers, instant messaging or chatting rather than working on research papers and surfing the web as ways of avoiding *Work*.

Coupled with the need by some of our participants to be available for communication on an almost constant basis, these acts of avoidance can become very problematic, not just to the actor but also to the environment that they inhabit such as a classroom. Despite

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policies laid out by instructors and employers regarding the use of cell phones (including SMS messaging) during time designated as *Work*, several of our participants state that they engage in avoidance activities despite the distraction that their actions represent to both themselves and the other individuals that they inhabit the *Work* area with.

Classes may be disrupted by individuals who neglect to turn the audible ringers on their cell phones off, or, even if the device has been silenced, at times the distracting sounds of keypad manipulation can be heard in the classroom as students attempt to clandestinely use SMS messaging or play cell phone based games. Those classrooms which have computer terminals built into the room infrastructure are plagued by unintended use of the machines during class by students as they succumb to boredom and avoidance by browsing the web for the latest sports scores, check email or play computer based solitaire rather than devote their attention to the lecture taking place at the front of the classroom.

Even in those cases where a student brings a device with him to class, such as a laptop to take notes, the urge to avoid *Work* proves to be stronger than the necessity of staying fully focused on the task at hand. One of our subjects, Phil, reported that the benefit of taking his laptop with him to class had become nearly negated because he would succumb to the temptation to avoid *Work* (in this case taking notes about the lecture material) in favor of checking his email or surfing the net through the school's WiFi connection. His solution, rather than to be distracted by the device and have it hinder rather than help his studies, is to leave the laptop in his dorm room. However, even though he has physically removed himself from the source of his temptation, he continues to experience task avoidance issues with his cell phone and desktop machines in those classrooms which are equipped with terminals.

Typically, students who find it difficult to moderate the use of their devices are classified as being simply "undisciplined" in their study habits with their actions being dismissed as lacking in the maturity necessary to be productive college students. This explanation—while not entirely inaccurate—fails to consider the progressive nature of maturity. An individual does not simply wake up one day imbued with a full set of fully realized adult ambition and behavior, rather she undergoes a series of small transitions comprised of both success and failure that gradually encourage a greater focus on *Work* balanced, but not dominated by, *Play*.

Indeed, in this study, a pattern emerged in which those students—typically those in graduate programs—who classified themselves as being more focused on school than their cohorts reported that they had achieved harmony with their devices. In these cases, the device in question, usually a laptop, was classified by the respondent as being a productivity tool first, and a source of entertainment second. However, this is not to say that this group of users only tagged devices as being strictly *Work* designated, rather, as part of an effort to balance the *WvP* teeter-totter, they use their devices to take breaks from *Work* to do things such as play games, chat online or blog.

One of the best illustrations of this type of individual resides in Milton, a subject that we encountered at a local coffee shop while doing a survey of the computing terrain of this age group. Milton, a graduate student in English Literature, spends a great deal of his time studying and preparing written materials for his upcoming exit exam and Master's Thesis. Everyday, before and after work, Milton uses his laptop computer to access the coffee shop's free WiFi connection to receive comments from his mentor, download articles and, of course, write. He considers all of these activities *Work* in that they require his complete attention, and, while not distasteful, are not those things which he would willingly do for pleasure. Occasionally—and in carefully measured increments of time—Milton will simply stop what he is doing, load up either his messaging program or *13* (a FPS Shooter game), or, if he is feeling creative, work on the script for a low-budget horror movie that he is co-writing and *Play*. These short breaks from *Work* are absolutely vital to Milton, however, because he has learned to temper them with enough discipline to return to the more important task of academics, they do not prevent him from accomplishing those items that he *must* complete in favor of those things that he would *chose* to do but which do not facilitate his long term goals.

Importance of Portability for both *Work* and *Play*

Within this age group laptops are purchased primarily as productivity devices for schoolwork. While a great deal of this decision is tied to the actual mechanics of college productivity, i.e. software to write papers, create presentation or conduct research on the internet, the portability aspect of laptops has enabled them to become favored over their cheaper—yet immobile—desktop counterparts.

Commuter students—those who reside a fairly large distance from the campus that they attend—viewed the portability of their devices as essential to maximizing the amount of time available to them to complete assignments, work on projects and communicate with their instructors. For these students, time is very carefully weighed, measured and allocated on the *WvP* teeter-totter, and, as such they typically either possess the internal drive to achieve usage balance, or, are able to purposefully limit the function of their device to guard against distractions from *Work* related tasks.

For those individuals in our study group who did use their portable devices on a regular to semi-regular basis outside of the home—be they on campus or commuter students— the ability to change environments to avoid distraction was viewed as being vital to accomplishing *Work* related tasks. Dorm rooms and apartments were often viewed as not being the ideal location to accomplish tasks due to either the presence of roommates, friends, or other devices that would compete for the attention such as gaming systems and television. In addition to the potential for distraction in their home environment, ambience and the availability of a WiFi connection in a venue (such as a coffee shop) were also significant in the choice by students to work outside of their dwellings and thus contribute to the potential for success in accomplishing their *Work* tasks.

Portability, however, is not restricted as an impetus to the selection of *Work* devices. For those items which are considered as being designed around *Play*—such as digital cameras

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and MP3 players—and which are not tied to a television or computer monitor, portability served as one of the device's most attractive features. Because *Play* specific devices allow for the user to either fill time and as our hypothesis suggests, avoid *Work* related tasks, they are more likely to accompany their owners as daily devices. *Work* devices that also have *Play* functionality on the other hand tend to be characterized as being task specific and as such are only carried by their user when a specific situation occurs such as having to complete a paper. However, laptops that have the capability to play DVDs will, on occasion, be carried by the user into other environments—most often those places designated as *Work*—for the sole purpose of entertainment.

Play

The definition of *Play* for the purpose of our study encompasses a wide range of activities that our subjects enjoy engaging in merely for the "fun" of it, and that the activity or activities are not imposed upon them in such a way that brings about negative feelings.

These activities can be, but are not limited to:

Communication
1. Communicating with friends
2. Communicating with family
3. Communicating as part of a mating ritual
4. Communicating with classmates

Music
1. Playing music
2. Sharing music with others

Video/Pictures
1. Playing video files
2. Sharing pictures

Games
1. Playing games

News
1. Reading news on the web to construct one's understandings of world events
2. Following sports news on the web

Creative writing
1. Writing a novel

Communication

Simply talking with friends or family is seen as a fun experience that few do not enjoy partaking in. However talking to family at times can seem like a chore. Certain subjects preferred the method of e-mail only for talking to family (Phil), whereas a few subjects talk to family and friends via AOL instant messaging (Hemmingway, Phil). Text messaging is in the process of becoming quite a popular thing to do. However it is the general consensus that America is still not "up to speed" like Europe in that Americans do not text message each other enough. One thing we must take into account is the fact that the technology for text-messaging was introduced much earlier in Europe and is still a very new concept for Americans to accept. It used to be that a young man would go over and ask a girls parents if would be appropriate if he ask her out for the night but times have shifted towards a more informal and speedy process of getting together with on e's love interest. Today if a guy would like to ask a girl out, he does so by getting her number, and at a more appropriate time calls her back to ask her out on a date. It is usually later into a relationship that the guy will meet the parents, unless that is if you still live with your parents. From tying up the house phone until your parents have to tell you to get off, to talking all night long on one's cell phone or via instant message is how the mating ritual has been changed. The use of cell phones has been a great way to not only keep in touch with family and friends, but also to keep in contact with those who you go to school with. It is a way of keeping in touch with those who you share projects with so that you are aware of what is going on at all times.

Music

The music world has captured our attention through new and improved ways that we once thought were not possible. The ways cell phone manufactures have gone from monophony (single moving musical line) to polyphony (multiple moving lines) in how a cell phone rings, has really flooded the market in many ways. It is now quite accessible to download your favorite tune to your phone in a matter of only a few seconds for a small price. Some of our subjects have picked out certain ring-tones for each person profile on their phone, so that when that particular person calls, they recognize the tone and know instantly which friend is calling (Cindy). Also sharing one's music with others creates a certain sense of community by establishing a common bond between you and the people you are sharing the music with (Wonderwoman). This process of sharing can be done with either laptop or cell phone.

Video/Pictures

The concept of camera phones and all that a person can do with one is an exciting but scary idea. It is with the help of modern technology that we are now able to actually film a short video clip on cell phones that have that capability and send it to someone. This is quite popular for informing friends of where you are and what you are doing at certain times of the day. Some of our subjects have taken pictures and transferred them to blogs so that their friends can keep up with what they are doing. Also as seen with (Hemmingway) if you do not have access to a web-blog you can simply download your

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friends' pictures to your computer. It is a way that a person can feel like they were there physically with their friend(s) when the picture was being taken but in all actuality they were not.

Games

If you find yourself bored and nothing to do just pull out your cell phone and play a game! That is how easy it is to solve the problem of boredom, and of course wireless providers are making a profit every time someone wants a new game. The only problem is that it is quite addictive, and if not careful a person can "play" their life away. This not only goes for cell phones, but also computer users as well (Jester, Phil). One subject by the name of (Jester) had a laptop, and a desktop computer. He typically plays games on his desktop, and for doing any writing he takes his laptop with him to the nearest IHOP restaurant to avoid distractions or the tempting thought of playing games. It has progressed now to the point that people have to physically remove themselves from or turn off certain devices in order to accomplish work.

News

Just a few years ago the ability to read the top current events on a cell phone was impossible. Today however it is quite the opposite and most all phones are equipped with internet capability to some extent. The idea of keeping in touch not only applies to communicating with others, but also applies to keeping in touch with current events. Some of these include being informed about sports scores, weather, top stories, newest trends, and the stock market. The internet was available much earlier on desktop computers than on cell phones but people use it much the same way. It has been observed that people will set their homepages to what ever suites them. One subject by the name of (Phil) chose ESPN as a way to personalize his homepage due to the fact that he likes to be informed about sports several times daily.

Creative Writing

There was one particular subject that was writing a novel just for the pleasure of it (Jester). The fact was that he was writing this on his laptop which was old and heavy but still proceeded to carry it with him to write. He did this mainly to not be distracted or to be tempted to play games on his desktop computer. It is the classic guilty temptation issue arising with him, but it is interesting to note that he physically has to remove himself from his house in order to get work done on his novel. It shows that even when doing work that you consider to be fun, there are always other options that are even more fun.

Work

. The concept of *Work* can be described as an activity that is not usually for enjoyment purposes, requires a certain amount of effort that is not easily put forth, and can arouse an attitude of "I have to do this."

These activities can be, but are not limited to:

1. Writing a school paper
2. Using the internet for research purposes
3. Job Tasks

Writing a School Paper

If college could be summed up into one word it would be "write." That is the principle thing that goes on at college these days is writing. This is the best time to witness procrastination at its best. Hemmingway would be the best example of this by far. She was at a local coffee shop that had WIFI and was supposed to be working on a paper but was distracted by all of her devices instead. Obviously this was something she truly did not have an immense amount of interest in or otherwise she would have been focused on writing. She paid attention to how her Google mail was not working, and how she was not receiving any phone calls on her cell. She was more interested in these things, or just anything to capture her attention away from the idea of writing the paper.

Researching on the Internet

Today when someone needs to research information they access the internet. However the days of using books as sources is not over yet by any means, but using internet sources is more acceptable now than it was several years ago. If one is looking up information for a research paper this can be seen as boring and a person can be easily distracted to "surf the web" or looking at their e-mail instead of finding sources for a paper.

Job Tasks

This can include cleaning up the hard drive on a computer, or cleaning out old folders or just simply anything that is considered not be enjoyable, or is something that has to be done.

Time Management

Time Management is a way to sequence events according to importance, and can serve as a reminder service.

Examples of *Time Management*:

1. Using one's cell phone as a watch or to keep time
2. Using a cell phone to give oneself reminders
3. Using the calendar function on a cell phone

The issue of how to keep time and how to manage a schedule is something that needs to be assessed. With this age range the question is how does one successfully keep up with engagements, and keep track of every thing that is due in school and what time to go to work? Try a cell phone that has a calendar with an alarm function that goes off at certain times to remind you where and when you should be somewhere. This of course can be used for reminding oneself when upcoming projects are due in certain classes. Also if you do not wish to wear a watch just keep your cell phone handy to keep track of the time (Jester).

Opportunities

Those students who excel in college are typically better able to balance the *WvP* teeter-totter than their peers who experience difficulty with either academics or socialization; however, this is not the result of a sudden and immediate maturity granted with the student's high school diploma. Rather, their success is the product of learned behavior refined over time, and which, if embraced by the individual, will result in the work ethic that they will carry with them outside of academia into their future field of employment. College, as the arena in which these habits are formed, must be viewed not only as an academic learning environment but also as the proving ground for all aspects of an individual's behavior towards work and play types of activities. A good work ethic in college, will, more often than not, translate into an equally good work ethic in the workplace. Likewise, the capacity to manage time spent pursuing social relations, entertainment and academic success carry over into adulthood.

Historically, products have been developed for college students under the assumption that the need to perform academically would far outweigh other equally important needs that the student may experience. It is unreasonable to expect that high school students, upon entering college, undergo an immediate transformation of their behavior, instead, as stated previously, this process is gradual and based on the collective experience that constitutes college. Since users that are typical or similar to those identified in this report may undergo this maturation process at different rates, devices designed and marketed for this age segment must be able to assist their owners in helping to balance *Work* and *Play*.

Tools to Help Students Manage the Temptation to Play

Because nearly all of our subjects stated that they valued, yet were often distracted by, the *Play* functions of their devices, thought should be given towards helping students remain focused on *Work* related tasks when appropriate. One way of potentially accomplishing this goal is to give users the ability to limit the functionality of their

device for designated periods of time, or, by allowing devices to limit their own functionality based on the schedules of their users.

Scenario 1

Denise is working on a paper for her English Literature class in which she must spend time researching and writing a comparison between Thoreau and Emerson. Because she is at heart a Biologist, concentrating on the task at hand is far from enjoyable, and, as a result almost inadvertently she goes to her "start menu" with the intent of playing a quick game of *Minesweeper* in an effort to delay working on the project. This delaying of *Work* in favor of *Play* is something that she had done quite often in the past with other projects, but this time, because of her past actions, she had the foresight to activate a background program which restricts what software packages she can run on her laptop during those times that she has scheduled as being reserved for studying and homework. As a result, *Minesweeper* is unavailable and she is forced to reconsider her aversion from *Work*, and return to the task that she must complete.

Scenario 2

As the semester progressed, Roberto found himself becoming very bored by the monotonous sound of his instructor's voice during her lectures to the class on the correct procedures for cost accounting. He found himself using the wireless capacity of his laptop—which he originally bought for the sole purpose of taking notes and working on class projects—to log into his MSN messenger client to chat with his friends. As a result of his attention being divided between the class and these online side conversations he failed to copy down a few key concepts and the main essay topic for the last test severely impacting his grade. In assessing what went wrong, Roberto has decided that his ability to multi-task while in class is not high enough, and, as a result has added his Cost Accounting class to a background task manager which, while active, will only allow him to access his text-editing program to take notes during the three hours a week in which he is in lecture

Incorporating Devices into Class Activities

While limiting functionality of devices may help students manage their time or remain on task it is by no means the only opportunity for devices to take a more positive, proactive role in education and the classroom. Course instructors can make use of the temptation that students experience to use their devices by incorporating those devices into class activities or by providing *Work* type material that can be utilized on highly mobile *Play* devices.

Scenario 3

Dr. Martinez teaches a class in Current Events. Because the class is part of the required Freshman curriculum it is typically large, and, as such is held in a lecture hall where the hands—and faces—of individual students are rarely, if ever recognized. Rather than have a discussion style class (which he would prefer), in which students express their viewpoints instead of passively listening to his lecture, Dr. Martinez has found himself facing a room of silent, faceless students. To combat this he has purchased two cell

phone devices capable of receiving SMS messages and has tasked two of his assistants to monitor the devices and receive student questions or statements. In addition to these "electronic hands", Dr. Martinez has also set up a simple website that allows students to vote on issues electronically while they are being discussed, or, to input their comments on a text scroll that cycles on a "ticker" that runs across the bottom of the projected course visual.

Scenario 4

The State University utilizes Teaching Fellows in a significant number of undergraduate courses as a way of saving money on instructor salaries. Typically, these "TFs" are tasked with teaching introductory classes, operating course labs, and, on occasion, providing short lectures to students. However, students often complain that because the information being given to them does not come from a fully accredited professor, it is suspect and potentially erroneous. To combat these feelings, State University has begun distributing MP3 files of course lectures as part of the course material that students will be responsible for. These files, created by full professors, can then be transferred to ordinary MP3 players, or, if preferred, accessed online by those students with internet accessible laptops.

5. Constructing and Sharing Life Narratives by Yvette Justice

■ ■ ■

Sharing Oneself with Others

Adults between the age of 18 and 24 in the Dallas/Fort Worth area allocate significant amounts of their time to sharing their lives with each other. This sharing includes everything from describing the most mundane activities to important life events.

Examples:

■ Wonderwoman calling her mother to tell her about the sale at a local clothing store
■ Psychatog blogging what he did yesterday and asking if anyone wants to see a movie
■ Ranger Joe text messaging his mother to thank her for sending money
■ Tilton instant messaging his friend to talk about the death of a mutual friend's father

These life events are shared through stories young adults tell about their lives. Linguists and anthropologists have identified the central importance of the stories that people tell about themselves. As Charlotte Linde put it, "In order to exist in the social world… an individual needs to have a coherent, acceptable, and constantly revised life story" (1993:3). Constructing and sharing such narratives may be especially important to members of this age group as they are still experimenting and developing their identities.

Construction of Life Narratives

Through Personalization

To share their life narratives, young adults surround themselves with personalizations that reflect who they are. Each piece of personalization can be viewed as a bone within the body of their narrative. Together, these bones create the structure that they use to construct a living life narrative. Like their bones each piece of personalization is specialized to fit a specific location. This specialization does not restrict its ability to be used for multiple purposes. Each personalization is designed to support many different life narratives. Practically, this multiplicity allows the young adult to choose which life history they would like to tell. The various possible narratives are equally valid and provide different exploratory avenues of sharing. For example:

> Phil has a picture of Mark Bussard as his laptop background and his AOL Instant Messenger. These pictures were collected on a trip to Louisiana. He mentions that he chose these pictures for his background to promote this singer's work,

something he does frequently. Later, Phil says that he also used these pictures for the memories he associated with the trip to Louisiana.

In Phil's case his one piece of personalization allows him to convey two equally valid life narratives. Through personalization he constructs the persona he wants to share through the stories he tells.

Through their Six Senses

Young adults, like other age groups, sense the world through their five senses, hearing, seeing, touching, tasting, and smelling. Naturally, they construct and share life narratives that reflect these experiences. In addition to the five senses listed above, young adults experience their world through a sixth sense, intuition. This section will look at how they construct life narratives through their senses. To illustrate this concept, Ray, a shadowing subject we followed for this study, will be used as the archetypical young adult.

- Auditory – Soundscapes:
  The inventions of the telephone and the cell phone have impacted the amount of auditory communication that occurs between young adults. Young adults use these technologies to contact each other. Each contact allows them to share some portion of their life narrative. Ray is no exception. He uses the walkie-talkie function on his cell phone to quickly contact his sister verbally. Because of technological limitations, this method of constructing life narratives can make some narratives difficult to portray or exceedingly time consuming. Ray put it best when he stated that "calling is a good form of communication but you can't visually see them." To adequately construct some narratives, other senses must be included.

- Visual:
  The increasing accessibility of camera phones and other digital cameras has led to an increase in the creation of visually based stories. These stories become visual narratives of their lives and experiences. For Ray, he incorporates visual narratives by using his webcam to videoconference with his boss, other co-workers, his mother in New York, and his grandmother in Dallas.

- Touch, Taste and Smell:
  With today's current technology, expressing oneself though mobile devices using touch, taste, and smell is not possible. Despite this technological problem, young adults express their experiences with these senses verbally and visually. For example, Ray expresses that he enjoys using his laptop at Starbucks because of "the environment, the smell of the coffee beans."

- The Sixth Sense – Intuition:
  In addition to the typical five senses, young adults also experience the world through a sixth sense, intuition and feelings. They incorporate these feelings into their life narratives. The most common way feelings are currently being incorporated is

through icons, backgrounds, and emoticons. Ray does this by changing his emoticons to match his moods.

Sharing Life Narratives with Respect to Time

Once constructed, young adults communicate these life narratives to each other. The communication of these life narratives may be either synchronous or asynchronous.

Synchronous Communication

Synchronous communication is the immediate sharing of life narratives. This form of communication is used by young adults to quickly convey their life history. Often times this fleeting form of life narrative is used when immediate feedback is desired. The forms of communication are described in the Chapter 3.

Asynchronous Communication

Asynchronous communication is information that can be accessed at the convenience of the receiver. This form of communication often times involves the long term storage of pictures, music, and written information.

Communication Mechanisms Used to Share Life Narratives

Deconstructing the reasons young adults use certain communication mechanisms to share their life histories are difficult. Multiple factors go into the selection of mechanism types. Constructing asynchronous life narratives, as mentioned above, can take a considerable amount of time. Often times this time investment dictates the communication mechanism chosen. Factors addressed in Chapter 3 also strongly influence their decision. Below are the common forms used by our subjects to document and convey their life narratives.

Blogs

Blogs are used to create and communicate stories with historical depth and permanence. The creation of stories includes how they personalize their blog, the name selected, and the type of information placed in the blog. Example of sharing life narratives through blogs include the blog used by Psychatog's circle of friends. They used this blog to share their lives, make plans, and express their opinions on topics and issues. Although some of the messages posted on his blog are not pertinent to everyone reading his blog, it did provide these people with a background narrative of Psychatog's life. This form of communication eliminated the need to personalize information for specific target individuals, a communication tactic commonly found in e-mails. Psychatog routinely checked the website that housed his blog to check the narratives shared by his friends. He posted information to his blog periodically.

Although some young adults view this form of communication easy to use and simple, some young adults find it time consuming. Hemmingway used to blog. She does not blog any more. She said they are too much work. Jester, another shadowing subject no longer used blogs because his computer died, implying that he did not post because he was away from his routine. When he did post, Jester had a program that randomly generated personally selected quotes. These quotes gave the reader a "little bit of Jester."

Websites

Websites are used for multiple purposes when constructing life narratives. One common use was photo websites. These sites, which house photographs, were used to document their lives creating life narratives. Young adults frequently take pictures of usually themselves and their friends. They then share these photographs by posting them on a website for their friends to see. When strung together these photographs create a visual life narrative. Some young adults also believe this form of life narrative was too much work.

Sending Photos by Cell Phone

In addition to websites, photographs are shared by cell phone. One subject, Ray took a picture of himself with "a White Castle stuffed in [his] face" and sent it to his mother "to tease her."

Talking and Writing to Friends about Life Events

The most common mechanism of sharing life histories included talking and writing directly to friends and family, sharing life events. These include:

- Writing e-mails
- Visiting typical hangout spots, finding, friends and talking
- Scheduling time to socialize
- Calling on the phone

Non-Consensual Sharing

Sometimes the sharing mechanism can be non-consensual. Non-concentual sharing of information reveals too much of the subject's personal narrative. For example at Common Grounds, a local café, Hemmingway received access to someone's laptop as they entered. She was concerned about whether this person could access her laptop too.

Building Community

The Influence of the Community on the Creation of Personal Narratives

Young adults construct personal life narratives for themselves. However, as mentioned above, communities of young adults often influence the narratives of particular members. While individuals believe that they create their own stories, the reality is that their narratives incorporate many personalizations collected from other people in their groups.

> Example: Tech Guy mainly text messages his friend's jokes. He saves the exceptionally funny messages by emailing them to himself.

Although Tech Guy chooses which text message to save and add to his collective life narrative, he would not have this addition if it were not for his friend.

Creation of Community Narratives

In addition to the construction of personal life narratives for themselves, communities of young adults also construct shared life narratives for the group.

> Example: Wonderwoman shared MP3 downloads with the people she worked with. Together they would create Holiday Cds for everyone in the office. When she left this office she no longer participated in this construction of life histories.

Opportunities

Young adults create shared narratives for their lives. This creation provides opportunities. These opportunities include:

■ Support users' ability to construct narratives about their or their group's life. One method of supporting this construction is to provide them with an online way to scrapbook. In recent years this hobby is becoming both popular and lucrative. This online scrapbook would allow the easy inclusion of items typical in scrap books.

These include:
☐ The easy annotation of pictures with text
☐ Thought bubbles
☐ Frames
☐ The addition of clip art

■ Support users' ability to build community by facilitating the sharing of narratives. This sharing would facilitate the moving of narratives across devices. The form can include but are not limited to:

☐ Websites

□ Realtime picture sharing during phone calls
□ Streaming video, etc.

This sharing allows both a historical/asynchronous record, and connects people during synchronous communications

■ Support user's experience of the world through their six senses. Find clever ways to allow users to express their sense of touch, taste, and smell. Develop for effective ways of expressing intuition and feelings across the digital divide.

6. *Mapping Social Networks by Gene Luster*

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One of the most important tasks for the 18-24 year olds of our sample group was managing and maintaining their social networks. The opportunity for expanding social networks increases dramatically after high school. Individuals find that the dozen or so friends that they were close to in high school are now a small minority within their new expanded social network.

Subjects usually communicate with their social networks using a variety of communication channels that include email, instant messaging, and cell phones. All of these mediums require separate contact lists that can grow rapidly over time, making it difficult to maintain the level of personal contact that they once enjoyed with a smaller, intimate social network.

Several key themes arose from examining how our subjects used the features of cell phones and instant messaging technologies to help manage their growing dynamic social networks. Subjects most commonly employed contact grouping in order to break their lists into smaller, more manageable lists and used distinctive ring tones and picture caller ID to rank the importance of contacts based on the proximity of the social relationship with the contact. Subject implicitly divided their contacts into existing established and new potential relationships. Contact list capacity, size limits, and device specificity played a significant part in shaping the users management of their own social networks. The features and benefits of technology caused anxiety in users because of its changing definition of the rules of social engagement and helped to shape their own personal sense of community.

Personalization

Personalization of contacts is important for our subjects. Grouping contacts is a reflection of how the subject envisions their particular social network and how these groups are ranked indicates the different levels of access that the subject assign relationships within their own lives. Established contacts receive the most personalization, with pictures, nicknames and distinctive ring tones that often symbolize not only how that contact is perceived by themselves or others, but also by the specific social relationship that that contact has with the subject. This can bee seen by Phil who assigns NFL ring tones to friend that he watches football with. Subject Tilton overrides the instant messenger icons of his friends, their "virtual visual persona", with the ones from his own address book the he prefers.

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Grouping Contacts and Channels of Communication

The integrated contacts lists used in cell phones, email, and instant messaging programs have allowed our subjects to store and maintain contact lists that are much larger than the actual social networks that they actively communicate with. It seems as if the days of collecting hand written phone numbers on paper, a practice in the past that usually resulted in the contact information being physically discarded after a few weeks of no contact, has given way to these potential new contacts earning a place in the subjects electronic contact lists.

The challenge for these individuals, whose contact lists can number in the hundreds, is how to effectively manage and maintain their expanding social network. Within our sample group, we found that a number of individuals use contact grouping within their contact lists to break the list into smaller, more manageable chunks. Family, work and friends are very frequently used grouping methods, with friends typically broken into several sub categories including friends from high school, hometown friends, new school friends, and new social friends.

Subjects will often mix and match channels of communication used with contacts based on a variety of reasons, including the current context of the subject, relationship to the contact, and the mood or preference of the subject. Subject Phil talks with his two best friends almost daily in some form either by phone, instant messenger, or in person, the latter method being the one which he prefers the most. Phil says that he cannot remember a time when he has talked more than 15 minutes on the phone to anyone and does not like to get involved in lengthy instant messaging conversations.

Twiddle one and Twiddle two, two subject encountered during an intercept interview, use specific ring tones on their cell phones to indicate family and friends. Subject Phil categorizes his contacts with the group "friends", "family", "people at work", and "people that I will never talk to again ever."

Subject Tilton recently pared down his buddy list to about forty contacts after realizing that he never communicates with the majority of the people on his list. These purged list represents a de-facto grouping of "people that I wish to talk with".

Ranking Importance of Contacts

Subjects often rank individuals on their contacts lists based on the closeness of their relationship. Close relationships to contacts can result in those contacts occupying one of the coveted speed dial positions for subject Ray on his cell phone. Personalized ring tones, picture caller ID and customized instant messenger icons are used to audibly and visually cue incoming communication for close relationships. These cues aid the subject in quickly deciding whether or not to answer to incoming communication, a decision that again often seems to be based on the current context, preference and mood of the subject as well as the caller's relationship to the contact.

Subject Cindy has given most of the 200 or so contacts on her cell phone a distinctive ring tone so that she can decide by if she wants to answer her phone without having to look at the display. During one of the shadowing sessions, Cindy repeatedly ignored incoming phone messages with comments "Oh that's just Carl, I never answer his calls the first time, … he calls all the time … its cool, we're good friends." When Cindy as asked if she had an enemy ring on her phone, she jokingly responded, "That's her ring" referring to her mother, who was with her in the kitchen making dinner.

The prevalence of ranking of contacts by subjects indicates that the flat database structures currently employed in typical contact lists need improvement. Our findings here are similar to the work of Richard Harper and his collaborators. Their design solution, described in articles such as "Mobile Phones for the Next Generation: Device Designs for Teenagers" (Berg, Taylor, and Harper 2003), envisions a contact list that spatially represents contacts based on importance to the user, with close contacts up front and distant contacts pushed to the back.

Potential versus Established Relationships

Subjects implictly divided their contacts into two groups – established relationships and potential relationships. Cindy's contact list represented this division with a very lop-sided distribution of 200 contacts that were deemed potential contacts that she rarely communicates with and 20 primary established contacts whom she talks with very frequently.

Established contacts are primarily composed of family, co-workers, and friends that the subjects have had for a number of years. Established contacts usually receive distinctive ring tones or other means of personalization that singles them out them from the rest of the other contacts on the list. The personalization associated with established contacts often symbolizes the current state of their relationship

Potential contacts are any new contacts where the subject feels that there is either a potential for either friendship or romantic involvement.   Each subject has their own rules and protocol for transition between the established and potential contact divisions. The frequency in which subjects add new contacts to their lists, a ritual that symbolizes the start of a new connection, varies greatly depending on the social nature of our subjects. Subjects with large contact lists seem to derive some affirmation from having such a large social group, even if most of the contacts are potential. Potential contacts are usually deleted when no contact has occurred over a long period of time. This deletion symbolizes the end of the potential possibility for connection in the mind of the subject.

For subject Cindy, new contacts of the potential romantic nature typically do not get their own ring tone until she has dated them for at least a month, until she knows that it is "kinda real, or at least I can come away with a friendship."

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Subjects also use their contact lists to "browse" for potential contacts when they are bored or looking for something spontaneous to do with someone. The accessibility to a large group of potential new contacts allows for the subjects to loosely manage their time and keep their options always open in regards to social commitments.

Contact List Loss, Limits, and Device Specificity

A common characteristic of the large contact lists on our subjects' cell phones is that they no longer have any idea of the actual telephone numbers of their contacts. Lost and broken phones almost always result in the subject losing all of their contacts and having to rebuild their contact lists from scratch. Having to rebuild contact lists was also cited by our subjects as a reason not to upgrade their telephones or service.

Limits on the number of contacts that can be stored in a particular device or contact list were a pain point for our subjects. These arbitrary limits forced Hemmingway to decide on which contacts she would have to delete to make room for new contacts.

Subject Jester explains that he saw no reason to switch providers and upgrade his phone because " I would have to call everyone on my cell phone and be like – Hey I got a new cell phone number and you are going to have to reprogram and take the time out of your life to do it, when it's not necessary."

Subject Ray, who was the most high tech of our subjects, made sure that he purchased a phone that kept his contacts on his SIM card so he would not have to go through "serious hell" to reprogram his 250 contacts on a new phone every time.

Subject Cindy broke her phone in half and was very worried that she would lose the numbers of people for whom she couldn't remember their numbers. A friend was able to recover the numbers for her.

Some of our subjects have reached the arbitrary limits by vendors as to the amount of contacts that can be their contact lists. Subject Hemmingway has a list of 200 contacts that can be in her iChat instant messaging program and she explained "I reached the limit of 200 about 3 years ago so every time that I meet a new person that I work with or a new friend, I have to take someone out of my life and they are replaced."

The integration of contact lists to a specific device did provide a convenient excuse for the subjects when they were confronted by a potential relationship that had not been contacted in a very long time, "Sorry, I lost my phone and didn't have your number."

Anxiety and The Unknown

The large social networks enabled by the use of email, instant messaging, and cell phones can be overwhelming to our subjects as they try to keep up and balance their time

between communication and other obligations (as described in Chapter 4). Subjects seem to accept the new twenty first century definition of constant access to contacts and information made possible by all of this technology. The resulting near constant contact and a lack of formal structure blur the definition between shared and personal time. Both subjects Cindy and Hemmingway made sure that their cell phones were always within audible range all of the time. Hemmingway relied so much on her Google gmail account that she literally checks it a hundred times a day and when the gmail server was down during one of our shadowing sessions, she was visibly disturbed by her lack of access.

Another form of anxiety that was observed with our contacts was that of the unknown: not knowing whom exactly is calling. With her aggressive use of distinctive ring tones for a large number of her contacts, Cindy has taken the mystery out of who is calling, almost that is. When Cindy hears the default ring tone on her telephone, she finds herself in an intriguing situation where she is completely unaware of who is calling and rushes to answer the phone, especially, as in the case during on of the shadowing sessions, if she has recently made contact with a new potential romantic relationship. It seems as if subjects are trying to use features on their devices such as distinctive ring tones bring a certain level of order back into their world, possibly in an attempt to replace the order lost by the use of these very same devices.

Building Community

Mobile devices and communication technologies such as email, instant messaging, and cell phones are central resources for our subjects to build a sense of community. This new sense of community transcends tradition and physical space where once impossible or prohibitively expensive channels of communication are now commonplace. The subjects often combine multiple channels of communication to manage and maintain their communities and allow for a loose association between members when it comes to specific plans for physical meetings. This new emerging sense of dynamic community is constantly being shaped and guided by new technologies as well as by the changing social patterns that result from people's use and acceptance of these technologies.

Opportunities

Several opportunities exist for improving the way our subjects manage and maintain their social networks. The greatest opportunity for users is to integrate the various contact lists and features of email, instant messaging, and cell phones into a single device or service. This resulting integrated contact list could also be aware of the users specific preference for accessibility and could employ an intelligent management interface for incoming communications based on the users preferences, mood, and context.

■ Create a method of indexing contacts across groups that reflects the proximity of relationship between the subject and their contacts. These indexes (logical ways to represent contacts) might be composed of tiers and each tier could include its own

unique list of contacts that could overlap between tiers. These tiers would represent levels of incoming access to the user.

■ One tier might be called "No weekend contact" that would included co-workers, bosses, and school contacts. Another tier might be "Fun" that would include close friends, potential romantic relationships and sports friends.

  ☐ For incoming communication on either cell phones or instant messenger, the users could enable or disable each tier's ability to get through based on their preference, mood and current context.

  ☐ For outgoing communication, users could browse through each specific tier group depending on what type of activity they wished to participate in or what type of person they wanted to make contact with. This would fit very well into the loose time model where users prefer to keep their options open and make plans on at the last minute.

■ Develop the above idea and go one step farther to create a "social firewall" where rules could be applied to the incoming tier groups based on location, time, and preference. This firewall could also be adaptive to the users habits and needs and learn that when a certain contact calls three times in a row with the user sending them straight to voice mail, the social firewall could as the user if they wanted to move them to a "DO NOT ANSWER" tier, much in the same way network firewalls detect and isolate intrusions. The social firewall could also be aware of an integrated calendar on the device and modify access of incoming communications channels based on the users schedule.

■ Develop an online, directly connected Internet directory where users can upload and store the contents of their various contact lists. By utilizing a centralized, Internet location that can easily be accessed via web browser, users can greatly simply the task of transferring contact information between devices and updating contact information across platforms. This connection must be simple (not requiring and special software or cables) for the user to operation and should work across a wide variety of platforms. Users could even use this feature to "archive" names from their contact lists that are being deleted to make room for new ones instead of deleting them for later retrieval if necessary.

■ Finally, develop better and innovative ways for contacts to manage the new potential relationships that seem to dominate their contact lists. Automatic time and date stamps on contact records when they are created, fields for location of first meeting and relationship to other contacts (friends, relatives, co-workers, fraternity, sorority), personal notes and indexes for romantic possibilities would greatly increase the users ability to place potential contacts in time and space.

7. Near-Constant Contact by Michael Foitek

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Some of our projects goals were to uncover common themes of 18 to 24 year olds, their uses of mobile devices, and how they personalize them. It is pivotal to understand why these individual believe they need near-constant contact, as this could yield information as to why they personalize their devices a particular way. Before I go into depth about the project, I will first address why our subjects desire to have near-constant contact with their friends, and why they believe this contact is necessary.

Why We Need Social Contact

Humans have evolved over hundreds of thousands of years. The only reason we have successfully become this planet's dominant species is cooperation and communication. We have evolved and developed language to allow us to communicate with one another, thus facilitating cooperation. This cooperation has allowed us to overcome many obstacles over our long history. In fact if it weren't for cooperation, humans probably wouldn't be here today. We need one another for survival, and without cooperation civilization would not be possible. It is only through this cooperation that humans have achieved such a spectacular civilization. It has allowed us to construct tremendous statues and buildings, truly monuments of civilization. We have been cooperating and communicating for so long as a species, we have indeed developed an inherent need for this constant-social-contact.

 As humans we are social creatures and require contact with friends and family, not only for physical health, but mental health as well. The younger we are the more contact we typically require. This is evident as humans grow from infants into adulthood. Infants need constant care from their parents to ensure their health and survival. We are born into this world unable to care for ourselves, requiring parental supervision. As we age, our need for parental care diminishes.

In modern America teenagers typically become rebellious to their parents and authority-type figures. These teenagers see authority figures as overbearing and controlling. In fact, in high school and even junior high school, it is not uncommon for many teenagers to escape their homes and run to their friends for assistance and guidance. Teenagers develop a need for nearly constant contact and communication with their friends, and feel alone without them. High school occupies a significant amount of time in a teenager's typical day. Throughout this day they see their friends constantly, and many even make plans to see these same friends outside of school. In fact the typical teenager spends more time with their friends than with their family. This is one of the primary reasons why teenagers become so attached to their friends. They spend four years of their life seeing these friends on a nearly constant basis.

As they graduate high school, they step foot into something new and unknown. These teenagers typically desire their friends' companionship on this journey into the unknown, and fear going into the world without them. Many of these teenagers go from high school to the dorms, where they are also always in contact with friends. It becomes ingrained in these teenagers that being alone isn't good, and you should socialize to be normal. They fear being alone, and always desire the company of fiends. For these individuals communication with friends is of paramount importance, they want to feel like they belong. In fact this is a primary reason why teenagers enter dorms or fraternities/sororities, so they never have to be alone. They have people around all the time, even if they have to study alone in their room. Living in close proximity to their friends, they are never left out of social activities, and they can always feel like they belong to the group. One of our subjects, Chill, in fact lives in a fraternity. He is very busy; being a music major he must practice all the time. Living in close proximity to other people his own age allows him to never be alone, even when he has to study. With wireless communications these teenagers can now maintain an open channel of communication with their friends indefinitely, never having to worry about being passed over by the group.

The Advent of Mobile Communications

With the advent of wireless communications many devices have been developed to make use of this new technology. Laptops, cell phones, palm pilots, and iPods just to name a few. One of our subjects' primary purposes for these devices was to maintain contact with their friends and family. They no longer had to worry about being alone, or being left out. With a cell phone they can call their friends, or family, whenever they desire. They could truly achieve nearly constant-contact with their friends and/or family.

Texting

While the cell phone was undoubtedly the most popular way to maintain this contact, many of our subjects wouldn't just talk on the cell phone; they would text message as well. In fact two subjects from the TCU guerilla field work (named the Twiddle sisters), text messaged a lot. One had 45 messages in her outbox, and that's with her clearing it every couple of days. To quote one of them, "I text message like a fiend". This form of communication via the cell phone provided our subjects with the unique opportunity of talking to their friends passively, and responding to them at their convenience. One of the only limitations about text messaging that kept coming up in our field work was the cell phone plan. The subjects who had text messaging included in their cell plan did it frequently, while those that either didn't have the capability (due to an old model cell phone), or were charged per message, did not. However text messaging via the cell phone wasn't the only form of passive communication available to our subjects. For those subjects who had an IM program on their laptop or cell phone had the advantage of instant messaging friends whenever they want, as often as they want. IM is usually cheaper then text messaging via cell phone, and is usually incorporated in monthly

charges for those who had an IM program on their phone. However, most of our subjects didn't make use of their cell phones IM capabilities (if it was available), they usually used their computers instead. Rather they use the cell phone or laptop and what kind of communication (text or voice) depends on several factors (as described further in Chapter 3):

■ Individual preference
■ If they can or can't use a certain channel of communication (ex: if they are multitasking they will probably choose text)
■ Who they are contacting
■ Situation of sender / situation of receiver
■ Gender
■ Saving fact for either sender or receiver depending on the topic (i.e. if it is sensitive)

Passive Communication

Many of our subjects who had wireless internet capabilities on their laptops would nearly always have an IM program running (when an internet connection was available). This program was usually running in the background, not being the primary program they're using at that time. This is what is meant by passive communication, they are communicating with friends, however, they are primarily engaged by something else. Two of our subjects, Tilton and Hemmingway (just to name a few) nearly always had an IM program running while they did their school work on their laptop. They would passively talk with their friends over IM, while actively doing school work (if wireless internet was available). Like text messaging via the cell phone, instant messaging allowed our subjects to talk to their friends at their own convenience. They were never alone, away from their friends, even when they were hundreds of miles typing a paper on their laptop. In fact Hemmingway would actually make plans with her long-distance friends exclusively with email and IM, meeting up with them without ever talking on the cell phone once. Passive communication was in fact the primary reasons our subjects had instant messaging programs on their laptops and cell phones. They could communicate with friends and/or family while they were busy doing school work.

Multitasking

IM and text messaging allowed our subjects to multitask easily. As I said earlier, this form of communication could be passive, secondary to the primary purpose for which they were using their computer (like typing a school paper). This multitasking capability allowed our subjects to engage in communications with their friends whenever they wanted, whether they were at school or at work. They never had to worry about what their friends might be up to, they could just send a communication to them and wait for their response. Hemmingway was a good example of this multitasking. She would check her IM and email constantly while typing a school paper during the shadowing. In fact this form of communication offered many of our subjects an irresistible distraction from

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their task at hand. Hemmingway even mentioned she had to leave her laptop at home in order to get serious amounts of work done. However she was still never truly alone, because she always had her cell phone with her. Overall, for many of our subjects, multitasking would include some sort of communication with friends, whether checking their email while they should be working, or running an IM program while typing a paper. Again this is probably a result of this age group's desire to maintain contact with friends.

The intensity of this multitasking relied on a number of factors:

- What they have to do for class
- When their class work is due
- What is currently happening in their social circle

If the subject had a lot of school work to do, or their school work was due in a relatively short period of time, they might not even take their laptops with them, so they wouldn't be offered the distraction of communicating with friends through email or IM (like Hemmingway, as mentioned earlier). On the other hand, if there was something major happening within their social circle they might exclusively be communicating with friends, not even paying much attention to their work at hand. Tilton was a good example of this, during our second shadowing of him he IMed with his friends quite a bit about one of their mutual friends whose father recently passed away, even though he was typing a paper for class. Very rarely would our subjects be using just IM, without doing something else school or work related (they would probably just use their cell phone if they weren't multitasking).

Proximity of Mobile Devices

Most of our subjects kept their cell phone on them at all times. Some even kept their cell phone in full view whenever they could (Hemmingway, as well as many other subjects, kept their cell phone on the table in front of them when working on their computer). In our guerilla fieldwork we noticed several individuals with pouches on their back pack-straps for the cell phone, making in easily accessible. Some of our subjects even had clips so they could attach their cell phone on their pants or belt. Our subjects effectively "wore" their cell phone, almost as an ornament or clothing. Most of our subjects would in fact feel "naked" without their cell phone, as they wouldn't be able to get in contact with anyone. This, again, may make them apprehensive about being alone, cut off from their group. The cell phone was the only device our subjects would keep on them at all times for the purpose of contacting friends (as their laptop is to bulky to be carried around all the time).

Temporary Isolation

The fact that these individuals always have an open line of communication with their friends or family makes many of them want to be alone once in a while. Although they are never totally alone, they will isolate themselves by listening to music, or going to the library to do school work. This is never total isolation though. They may shut off their IM program to get school work done, but their cell phone will still be active. They may be listening to music, but they can still check messages on their phone, or on the computer (IM or email). Being alone is considered a negative aspect for many of our subjects and it is something to be avoided whenever possible. Sometimes, however, they must isolate themselves to get something done (like Hemmingway not taking her laptop with her to do school work, effectively preventing her from emailing or IMing friends). This isolation is only temporary though, and they can always re-open these lines of communication whenever they want. As I mentioned earlier, this open line of communication can be a distraction for many individuals, and some may have to actually isolate themselves because their will power may not be so great. This form of temporary isolation is one exception to being alone. Our subjects knew it wasn't permanent and they could always get in contact with one of their friends if they desired.

Personalization

When our subjects were without their devices they typically felt as though they've lost their social identity. This age bracket prefers to be constantly connected over not knowing where their friends might be. One example is when Hemmingway was freaking out when she didn't have internet access at the coffee shop during one of the shadow sessions. She kept trying to see if the internet was back up so she could check her email and IM with her friends. These subjects' friends were part of their personal identity; in fact some might even personalize their mobile devices similar to how their friends personalized theirs. After all, many individuals in this age group want to belong to their social group, and that might entail making similar choices as their friends. This would sort of make it the inverse of personalization, as they are trying to belong so they sacrifice individuality. They want their friends to appreciate them, so they personalize their devices in a similar manner. In this way they could believe they belong to the group, thus not being separated. Younger age groups typically want to belong, and could conceivably sacrifice individuality for this goal. In fact, friends actually do influence their friends' social identity. This was evident with Hemmingway, who had cats all over her apartment, yet didn't really like cats herself and only put them up because her friends gave them to her. She probably only kept the cats up to please her friends in the first place, however gradually accepted them and chose to keep them up herself. Although it is debatable as to what extent friends influence their friends social identity, the fact remains that this influence does in fact occur, and is probably (at least) part of the reason they choose to personalize a device in a particular way.

Conclusion

Humans are social animals. We've cooperated with each other for thousands of years to overcome obstacles of all sorts. Social contact is definitely a necessity of humans' survival just like food and shelter. Without it we would not be healthy (mentally). Teenagers, who typically desire their friends company to their parents, are subject to this rule just like the rest of us. They prefer to be involved with the group; they never want to be alone. Mobile communication allows people to stay in contact whenever they want. Young adults make use of these devices to stay in contact with their friends, so they are never truly alone. In fact these younger students could even sacrifice individuality, and personalize their devices similar to their friends'. In this way they can achieve a kind of "collective", enforcing their belief that they belong.

Texting is just one way that these teenagers keep in contact with their friends. This is a form of passive communication that allows them to talk and respond at their convenience. This way they can multitask, do work (whether for school or a job) on the one hand, and talk to their friends on the other. With this constant communication they never have to worry about being left out of the loop. They never have to fear being alone, away from their friends for extended periods of time. However, as our subjects age their need and/or capacity for constant social contact will probably decrease. As we age, we typically become busier and can't afford to dedicate so much time to our friends. However, with mobile communication devices this desire never has to be abandoned completely.

Opportunities

Opportunities in the field of "near-constant contact" mainly consist of:

- Creating better links between communication channels (IM, texting, voice, etc.).
- Integrating mobile devices and help users know which channels are best at any given moment for the person they want to reach
- Develop tools to support multi-tasking
- Move toward more wearable, unobtrusive devices so that the device gradually "disappears" from view

Our subjects would probably appreciate mobile devices that rarely have to be re-charged, so as they don't have to go without their cell phone for long. They may desire laptops that were much smaller, so they could carry them on their persons easier. This would allow for them to take the laptop more places, thus allowing them to be logged into their instant messaging program more often (if there is an internet connection available). One device our subjects would probably desire is a cell phone that lets a potential caller know they are only available for text messaging. This way they wouldn't get phone calls at inopportune moments, and they could respond to the text message at their convenience. This type of device would help users know which communication channels are the best at a given moment.

Another device our subjects would be sure to appreciate is a voice activated texting device that types whatever the user says. This way a device could stay small (not requiring a big key pad), and still allow users to text or IM as much as they want with ease. This would serve to keep the cell phone small and unobtrusive, so the user could keep in on their persons at all times. This would also allow the user to multi-task easier, as they wouldn't have to devote as much time as it typically takes to type out a message (thus sending text messages faster and easier).

8. Identity and Symbolism by Ethan N. McGaffey

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The search for ways to express one's identity through rich and meaningful symbols is an ancient human practice that carries over to today's mobile devices. With the absence of the cave wall and a drum circle around the fire, humans have turned to decorate their cell phones and laptops in hopes of capturing symbols to better represent their identities. As with ancient humans, symbols chosen to express the identities of modern humans are largely comprised of music and sound as well as visual images.

Mobile devices often symbolize the identity of their owners as well as the identities of important people in their lives. In addition to the devices themselves, the manner in which an owner personalizes their device symbolizes the identity of the owner, places the owner has been, things the owner likes and communities the owner is a part of. Meaningful symbols are also used in the personalization process to represent the identities of others who are significant to the life of the device owner.

Devices Symbolizing Owners

Devices themselves may symbolize their owner: people identify with their mobile devices or consider the devices a part of themselves. "My brother is like the walking gadget man. Two cell phones, his PDA, his keyboard for his PDA, his laptop and all this stuff. We call him Inspector Gadget." In this case, the identity of Kate's brother as "Inspector Gadget" is determined by his ownership of "all this stuff." For the brother, the presence of these devices has become a symbol of his identity.

I am My iPod

Music and musical devices are often important symbols of a person's identity. Tilton says that of his mobile devices, his iPod most accurately represents his identity. He feels that due to his particular taste with different genres of music, he could show his iPod to someone and say, "This is me." For Tilton, his iPod is more than just a physical device. It is a symbol of his identity, which conveys a message about who he is to others. Showing his iPod to someone can be an intimate act that begins a series of social actions and reactions. If the person being shown the device reacts in a "positive" way, then Tilton's reaction might be to categorize the person as having "friend potential."

Devices and the Body

A mobile device can become so ingrained into one's identity, that forgetting to bring them along can be like forgetting to wear clothes. In a statement expressing the importance of his cell phone, Jester reports feeling "naked" without it. Mobile devices can become an extension of the physical body. While making a balancing motion with his

hands, Ray says that he has had his cell phone on a belt clip for so long that if he accidentally leaves it behind he notices a difference in the way he walks. For Ray, forgetting his phone can be as physically disorienting as if he had forgotten to wear both shoes. Cindy keeps a hand on her phone for almost the entirety of the interview. She is even careful to bring her phone for a short drive around the block. Due to her almost constant physical contact with her phone, Cindy has mastered a dance of sorts when multitasking. She is able to gracefully perform any necessary function on her phone with only one hand and sometimes without looking. While driving to her salon, she is able to call for directions with only a few quick glances at the numbers she is dialing. When she is finished with her call, she uses her chin and teeth to close her flip phone and puts the antennae down, all with one fluid motion.

Phone Numbers as Symbols

Many times a cell phone owner will choose to keep their phone number even if they move to a different area. Most phone companies offer free long distance with cell phone plans. There is therefore little reason to change cell phone numbers if you move to a different area. Changing numbers can be a hassle and in doing so, the device owner risks loosing contacts that cannot keep up with the switch.

Choosing to keep the number is another way to personalize the cell phone. The phone number itself is seen to be of symbolic importance. While interviewing Jester, he and our ethnographer realized they were from the same city by the their common Houston area code. The symbol of the area code serves as an "ice breaker" and a point of bonding between two people who, both being from Houston, have realized common aspects to their identities. Furthermore, switching phone numbers is a risky action because the owner might loose contacts. Wonder Woman has kept her old phone number because, as a Mary Kay saleswoman, potential employers have to be able to keep in touch with her.

Devices Symbolizing Others

For some, the experience of college is an interesting amalgam of declaring one's independence coupled with a lingering need for familial support. This often results in a feeling of shame in regards to the particular devices owned. This is especially prevalent if another in one's family previously owned the device. For others, devices are procured new, but reflect the identity of another person either because of the means of procurement or because of a person's influence on what device the owner decides to buy.

Hand-Me-Downs

A feeling of shame was often reported if another in the owner's family previously owned their device. Jester's laptop was originally his mother's. He's embarrassed by the bulky appearance and wishes he could get a new one. Punk reported feeling ashamed of his cell phone. He said it was a hand-me-down from his mother and it was "big and bulky." It's important to note the significance placed by these owners on the fact that their mothers

previously owned their devices. The statement of this fact is closely followed or is preceded by expressing their feelings of shame. This is not to suggest that Jester and Punk are ashamed of their mothers. It does, however, convey two different messages. First, it signifies their inability to procure an object on their own. It symbolizes to others that they are not yet the independent people they have left home to become. Secondly, their shame shows that they believe their devices inaccurately represent their identity. Instead, their devices represent the identity of their mothers.

Devices, Means and Outside Influence

Many times a device is purchased for the subject and reflects the identity of the gift-giver. Phil's laptop is a symbol of his father's identity. His father bought the laptop for him because he works with Compaq and was able to get a good deal. Phil's laptop is a symbol that represents not only his father's job, but also the bond between Phil and his father. Phil can look at his laptop and be reminded of the trouble his father went to not only purchase the device, but to use his connection in order to get the best deal. He is reminded of how much his father cares for him.

Outside influences can also hold enough weight to convince a potential device owner on what to buy. Lanka continually expresses her identity as someone who is "not really into technology." She says she wants a phone to "just be a phone." But she allows her husband and brother-in-law to influence her buying decisions. When speaking about her cell phone, Lanka says: "I have the newest phone…not sure what edition it is, I'm not very into technology, but my brother-in-law and husband are all about the name brand." Her phone now symbolizes the identities of her husband and brother-in-law more than her own.

Personalization Symbolizing Owners

Personalization of mobile devices with special backgrounds on computers and cell phones, cell phone covers and ring-tones are often ways that owners symbolize their identity. We asked Ray to respond to the question, "What makes Ray's instant messaging Ray's?" Here is Ray's response: "I have my own little icon, backdrop and I have my font and also the sounds." He also suggests that the way a person interacts leads to how they personalize their devices. "People have different aspects of interaction and mine is through sounds, through colors, through things like that, I have my icon specifically for a reason." The importance of personalization in expressing one's identity is, for Ray, made very clear. His interaction with others is determined by how he is able to personalize his icons, sounds and colors.

Backgrounds, Screensavers and Identity

Music and bands are an important part of a person's identity and many choose to put pictures of bands as backgrounds on their mobile devices. Bands are powerful symbols to others about the device owner and their identity. One informant had the band "Incubus"

as his laptop background. Punk had a picture of the punk band "Greenday" as the background on his laptop. The alias "Punk" was derived from the message this symbol related to our ethnographer about the informant's identity.

People also personalize their devices in ways that express important aspects of their lives and dominant aspects of their personalities. Chill, who is very interested in girls, had a nude picture from the waist up of Carmen Electra lying on her back. Jester, with an interest in NASA and astronomy, has a picture of the night sky as his laptop background. Jester's good luck charm is a Count Dracula doll with a noose around his neck. This helps to explain why his "usual backdrop" is a picture of the character Willow from the movie based TV series, Buffy the Vampire Slayer.

Dan's "no-fuss no-muss" personality was symbolized through the background on his laptop. Dan, a hard working 22-year-old consultant for a concrete company, stores the work he does on his laptop on his more powerful desktop. Dan had a picture of his desktop at home for his laptop background. He seemed to imply the relationship between his two computers and the importance of his work through his unique personalization.

Phil says that he does not "personalize" his IM with fonts or backgrounds. Saying he relies on, "my personality to come out in my text." But Phil's fascination with sports is expressed by his home page setting when he logs on to the Internet. It goes straight to the ESPN web page.

It doesn't take long upon meeting Blue for her hilarious sense of humor to penetrate the conversation, but a person doesn't have to talk to her to know she's funny. One can simply look at the wallpaper on her phone, which is a picture of her making a funny face while she eats Corn Pops. Many times an owner's nickname is displayed on their cell phone screen savers. Cindy has the name "drunkie" on her screensaver, which symbolizes her love of "bar hopping."

These personalizations are clear and powerful symbols of the identity of the device owner. With only a quick glance at the owner's device personalizations, one can tell much about the interests and identity of the device owner.

Personalizations as Symbols of Communities and Experiences

Not only do personalizations reflect the identity of the device owner, devices are also personalized using meaningful symbols of places the owner has been and communities the owner has been apart of. Symbols of communities and experiences usually take the form of pictures displayed as backdrops.

Ms. Gator's cell phone cover is a large, green, fuzzy, cartoon alligator. She bought it when she was a camp counselor at "Camp Longhorn." The experience is one she remembers fondly every time someone makes a comment about her unique fuzzy phone cover. Her summer trip to Bermuda is remembered every time she looks at the picture displayed on her cell phone. For Ms. Gator, these were memorable experiences that are a

part of her identity. She is able to use symbols of these experiences as a reminder to herself and as a message to others about what experiences make up her identity.

Bertha's community is made up of her sorority sisters. She uses the Greek symbols of her sorority as the backdrop for her cell phone. Her cell phone background symbolizes the importance of her community's identity to her and of her own identity as a part of the community. Alex not only uses nature scenes and racecars as backdrops, he uses beach scenes that remind him of Mexico, where his family is from. Psychatog uses, among many other things, a picture of his latest trip to New Mexico as his backdrop.

Symbols of experiences and communities are used to create powerful memories for device owners. They also give clues to others about the communities and experiences that make up their identity.

Personalization Symbolizing Others

Many times owners personalize their mobile devices in ways that symbolize the identities of important people in their lives. Two categories emerge when personalizing to symbolize the identities of others. The first category, identification, is characterized usually by ringtones. The owner of the device will choose a ringtone which best represents the caller. The owner will use the ringers to identify callers and will know how to respond. The second category, nostalgia, is characterized by using symbols that simply remind the owner of the significant other person.

Identification

Identification of others is an important step in the social process of friendship. Accurately choosing a ringtone that represents the caller is a symbol about the depth of friendship in the relationship. Ringtones also help the device owner identify who is calling so they will be prepared to greet the caller appropriately.

At times, the cell phone owner will incorporate a potential caller into the personalization process. Wonder Woman begins the process of selecting a ringtone for her friend. She wants to find one that she feels most accurately symbolizes her identity. She carefully listens to the different ringtones on her phone and watches to see how her friend reacts to them in order to make the "right decision." There seems to be a sense of play combined with a real importance in finding the "right one." Phil selects ringtones for people based on their shared experience of watching sports together. He may select a ringtone for them based on the team a friend likes and uses the ringtone to identify the caller.

Quite often, a call will be ignored completely if the owner doesn't want to talk to the caller. Being able to "screen" calls allows the device owner to avoid someone indirectly. Indirect avoidance allows the owner escape from the caller without social ramifications.

Ms. Gator expressed the importance of giving individuals ringtones so she can screen who's calling. For Ms. Gator, the importance of ringtones is more about the function than about accurately expressing the identity of the caller. She may even begin to form a negative association with particular ringtones she has learned to associate with certain unwanted callers.

In addition to symbolizing the identity of the caller, ringtone personalization serves a function to the device owner in the social process of friend selection. This function can serve to seal bonds between friends, or used to continually avoid them.

Nostalgia

Device owners often personalize their devices to remind them of significant people and pets in their lives. These personalizations rarely serve any particular function other than creating a nostalgic representation of others. An exception to this rule is Phil's laptop background. Nostalgic symbols almost always take the form of pictures and visual images.

Psychatog's mother currently lives in Wichita Falls. He has been trying to find the time and money to visit, but in the meantime must settle for a picture of Wichita Falls on his computer's background. He chooses between five pictures that he often switches back and forth depending on his mood. Besides the picture of Wichita Falls is a picture of Milwaukee, which is where his father and a close friend live. Hemmingway has a picture of her dog she uses to identify herself while Instant Messaging. Her laptop background, which was taken with a digital camera, is of her and her three cousins. Cindy's sister, whom she is very close to, has given her a sticker of a cartoon bat, which she has put on the back of her flip phone

For many device owners, there are only one or two significant symbols that they use repeatedly over their entire collection of mobile devices.

Lanka's laptop wallpaper is a picture of a tree in Sri Lanka, which is where her husband is from. She often searches for pictures of Sri Lanka on the Internet. She likes to send them to "everyone" to show them, "hey this is where my husband's from." She also has a camera phone with a picture of her husband as the screensaver. Wonder Woman's laptop background is a collage of pictures including her tattoo, her brother, her best friend, and two different pictures of her dog. Her phone screensaver is also a picture that reminds her of her dog.

Phil's laptop background serves as the exception to the rule that nostalgic symbols of the identities of others do not serve functions. Phil personalizes his desktop wallpaper with a picture of his friend and a musician that he saw in concert. His personalization serves the dual purpose of creating memories associated with the trip and promoting the musician he saw in concert. He said that the main reason he has the musician on his laptop background is so that people will ask about it. He takes that as an opportunity to tell people about the musician and where to find his music.

Opportunities

Many opportunities exist to support users' efforts to express their identity and build their relationships by designing devices based on an understanding of the complex ways users symbolize and relate to their memorable experiences, their passions, their relationships, their regional identities and nicknames.

Symbolize Self

Given the constant physical connection between mobile devices and the human body, it makes sense to design mobile devices that support the shape of the human anatomy. Consider shapes that allow the most freedom of action while multitasking.

Allow a full range in expression of symbols the device owner associates with his or her identity. These subtle symbols are as numerous as there are device owners, but are usually expressed with visual images or sounds and music.

Further support the use of music and bands as important symbols of a device owner's identity. Know that these symbols convey powerful meanings about the identities of self to others.

Certain communities such as fraternities and sororities are very important to the lives of people in this age group. Expression of these communities is a symbol to others about the identity of the device owner.

Allow the ability to express the experiences of device owners through visual images. These experiences may be spontaneous road trips, summer vacations, leadership opportunities and other such adventures.

Symbolize Others

Support users' desires for an independent identity by allowing expression of self through pictures and music. The further away personalizations allow owners to get from the origin of the device (mother, other familial relations) the less their feelings of shame.

Many owners use repeat identity symbols across many different devices. Support the ability to express the same identities across many different mobile devices through the use of images.

Owners of devices have people in their lives with paramount influence. It is important to allow the use of symbols that express the identities of both the user and the influential other.

Further support the ability to express the identities of others through the use of ringtones. Also, support the importance of call screening as a way of avoiding contact.

Allow nostalgic representation about people in the lives of owners through visual images. These representations serve to remind the owner of a significant person. This becomes very important in this age group due to the recent departure from home.

9. *The Importance of Music by Paul Treviño*

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Overture: Music as Personalization

In the high-stress college life of the modern 18-24 year old, escapisms are few and far between. However, if identity was a namesake, music would be its heir. Music plays a key role in the molding of today's youth. It has become the label today's generation has proudly stamped itself with and worn on their arms. And being avid users of technology, this musical inclination inevitably channels into the students' usage of electronic mobile devices and is overwhelmingly used solely for their musical purposes. Substituting the large stereo systems of the past, the laptop, minidisk player, Mp3 player or iPod is the new entertainment system. In a culture obsessed with individualism, students grasp onto what they feel identifies them in a safe and fun way: music. Being part of this age group, it is difficult to say just why this is so and use the findings to back this up. However, the outcome of this ideal is evident in the findings through usage, choice and lifestyle. It is more obvious through straightforward behavior of the subjects rather than through dissecting analysis of their behavior or patterns.

Instances of Hullabaloo

Being a predominantly art and music school, UNT has a lot of students who study music. Subject Chill was one of these. Chill uses his minidisk player to transfer mp3 files from his player to his laptop. Being a music major, he uses it for practice reasons. However, a minidisk player is already seen as outdated or "old school" to many other 18-24 year olds. But Chill still uses it nonetheless because he feels that it has better recording capabilities despite the somewhat difficult transitional process from his player to laptop and vice versa. It is his preference for functionality over accessibility. Even in the days of mp3 players, he prefers a minidisk because he feels it prevails in recording. Recording is very important to Chill as a music major because he records his practice sessions and needs to play them back numerous times. So if the functionality he feels that a minidisk player has were combined with the ease of an mp3, then Chill might consider getting such a device.

Subject Tilton, a philosophy major, seems to be a very tech-savvy individual, more than the average 18-24 yr old, so he seems to take his usage seriously. His room is also decorated with a Frank Sinatra poster. Being an avid blogger, he manages many websites. Tilton uses iTunes to maintain his music library and carries his iPod with him most of the time. The usage of a mobile device to have one's music with them at all times shows the value of their music. Tilton says that his iPod mostly identifies himself because it shows his taste in music. Tilton goes further by saying "I am my iPod."

Tilton also enjoys the ease of data transfer from external devices with programs such as iTunes and iPhoto. The simplicity of transferring data seems flawless while he can do more important things like burning CDs.

Ranger Joe is a freshman who is currently an undeclared major but is also a musician with no plans of majoring in music. When asked to show things that he felt represented himself he showed his room décor, including a poster of Amy Lee from the band Evanescence and a poster of the band Rage Against the Machine. During the interview Ranger Joe wanted to hear some music on so he blared some AC/DC. Heavy rock music continued to play as background music throughout the interview. Furthermore, his IM window consisted of a drum set pattern because he is a drummer. It was "for me". Plus, he had a Led Zeppelin wallpaper on his laptop.

Subject Wonderwoman also portrays musical inclinations. Her apartment is decorated with framed posters of bands of concerts that she has attended and includes a vast collection of DVDs and CDs. However, her favorite CDs are "in the car" mostly containing heavy rock music such as Tool and Pantera. However, she says that she is not a CD person, mostly a radio person. The second shadowing took place in a venue in downtown Dallas known for having many bands play there. Many of her friends were there. I do not know if the shadow was planned to be there or if her interviewees found out later she would be there and thought it ideal to intercept in Wonder Woman's happy fun place.

Share and Share Alike

Take Five

Wonderwoman had a vast library of devices ranging from a PDA to a "crappy Playstation" to a laptop. However, most of her devices were old and outmoded. Her laptop is a Powerbook G3 running on an outdated OS. Her laptop has a DVD player among other features, but being slow and archaic, its sole purpose is for Internet access. However, despite these technological drawbacks, she still found time and ways to bring music into the mix. She was a production artist at her old job. She, along with her co-workers, would often download and burn CDs via iTunes. Since the entire office had these capabilities, the office would participate in gift exchange, creating mixes for each other, especially around Christmas. This helped build relationships within the working environment through common interests.

On actually sharing music files, subjects (mostly intercept interviewees) with these capabilities were often found carrying mp3 players as opposed to a hulking laptop. Laptops were mostly used for research/educational/homework purposes inside and outside of class. Being much smaller than the laptop, students preferred the mobility of the mp3 players, predominately iPods, because they could listen to music anywhere, mobile or stationary, without the hassle of the weight or space. Furthermore, when those without iPods were asked about having one, they were interested but were turned off the

price. Music sharing through the use of mp3 players is much easier to do given the nomadic life of university students. Sharing music is seen as an entertainment break from the stress of work, and helps students get along.

Videodrome

Sharing videos is the new sharing photos and music. The camera phone has evolved into the next inevitable link slowly being able to take short video clips. However, it is still fairly new to college students due to pricing, but what isn't?

With Hemmingway, her busy student life limited her time to hang out with her friends. So she played catch up with her friends by checking their blogs. She would download pics from their website and give them pics of her day so that everyone could be caught up in each other's lives. This form of digital catching up via blog has a lot of potential in the area of video sharing. It can become as prevalent as photos or music. Through this exchange of media users feel more connected with their environment.

Opportunities

Media Players: Consonance and Dissonance

Outside of the findings in class, I went around the dorm floor where I reside and asked mostly freshman/sophomore students about their media player of choice and its pros and cons. There was a predominant number of users who once used Windows Media Player but have now switched to iTunes. Some reasons for the change were that iTunes was simply easier to navigate through as opposed to the most recent WMP. Complaints included:

- WMP has too many options
- They can't find CD, songs in library – have to look for them
- They must first rip songs into library before being able to burn a CD ("it's a tedious burdensome process if I wanna burn a CD")
- The interface has too many words, needs more buttons
- The interface has superfluous information

Students felt that they had to "lead WMP along." The students would go back and forth between iTunes and WMP to compare and contrast. In addition, most of the people asked didn't even know that WMP had some features that iTunes did, such as a radio, until they accidentally came upon them. Some things they liked about iTunes were:

- Smart playlist options that they can modify themselves (i.e. play least heard, category, etc.)
- Open, multiple windows to multitask within the program
- Easy-to-read buttons
- Simpler interface ("straightforward")

■ Ease of customization a la playlist
■ More easy buttons

I feel that the main differences are options and the interface. Students seem to be more visual and don't feel like reading. They like the idea of buttons. Maybe more representative iconography is needed in WMP for easier listening, CD burning, and file sharing. I am not sure if WMP has these options but students tended to find them easier in iTunes than in WMP. Students use these programs to burn CDs, have parties or just background music while doing homework. The less they have to do the better, and then they use the program. Plus, it will make other events more enjoyable as well and dealing with their music less stressful.

Sharing Music and Video

Now files are files and they get shared constantly. However, within the past few years, the illegal sharing or downloading of music has become quite the issue when it comes to music and today's youth. It is an issue that may or may not go away within the next few years, however, being an important issue in our times it does need to be addressed.

At the same time, there are music and video files that users have recorded themselves. These files do not have copyright limitations, and opportunities exist to help users share such music and video files in a parallel way to how they already are sharing pictures with each other.

Recently, email accounts such as Yahoomail and Hotmail have bumped up their memory in order to compete with Google's 1 GB's worth of space with Gmail. This is obviously a great opportunity to help users share and spread larger files such as video and music. However, maybe there can be new programs to help students share music and videos. Maybe these programs can mirror already established picture sharing programs like Zoombrowser EX or iPhoto as a means to share music easier. Already existing programs could lay the foundation for these newly introduced programs. Users who already use these programs can carry the know-how from one to the other.

Cellphones as Mp3 Players

Cell phones already have mp3 capabilities, but could have more. Memory and sound quality are main issues when it comes to music on cell phones. Polyphonic sounds can only go so far, so cells should go beyond customized ringtones. Take online radio from WMP and iTunes and make it easily accessible on cell phones. Plus, phones with satellite radio capabilities would kill two birds with one stone. The phone would act as a phone, and take the place of mp3 players.

Plus, voicenotes could be more than just a reminder of sorts. It could be expanded into a full portable digital studio for demographics in need of fast recording. Users could compose their music in both the digital and analog world and use this newly created music in anyway they wanted, ranging from personalized ringtones to a portable musical

portfolio for web distribution, and jobs. Bloggers could create music for their websites. Any phone-to-internet data transfer system could be used to distribute/share this music created on the portable digital studio in the cell phone.

Finally, text messaging seems to be devoid of the personality of IM. Sound bytes, more emoticons or music relating to IM could be introduced into texting to liven it up a bit.

> " The whole problem can be stated quite simply by asking, 'Is there a meaning to music?' My answer would be, 'Yes.' And, 'Can you state in so many words what the meaning is?' My answer to that would be, 'No.' "
>
> **Aaron Copland**
> *US composer (1900 - 1990)*

APPENDICES

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10. Shadowing Subjects

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Pseudonym	Where Live	Gender	Ethnicity	Age	Inventory of Mobile Devices	Other Tech Info
Tilton	Parents	M	European American	21	Cellphone, laptop, iPod, digital camera	Internet on cellphone, Mac, Wifi
Ranger Joe	Dorm	M	Latino	18	Cellphone, laptop	XBox
Ray	Dorm	M	African American	20	Cellphone, laptop, sidekick, iPod	Wifi router
Wonderwoman	Off-Campus	F	Latina/ European American	22	Cellphone, laptop	Internet on cellphone
Cindy	Parents	F	Korean American	22	Cellphone, laptop	Picture phone
Phil	Dorm	M	European American	20	Cellphone, laptop	Desktop PC, XBox
Hemmingway	Off-campus	F	Irish/ Iranian American	23	Cellphone, laptop, iPod	Wifi
Chill	Fraternity House	M	Asian/ European American	19	Cellphone, laptop, minidisc	
Psychatog	Off-Campus	M	European American	19	Cellphone, laptop, camera, external hard drive, palm pilot	Xbox, CD player
Jester	Off-campus	M	European American	19	Cellphone, laptop	PC, gamecube

11. Project Members

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Rebecca Erwin has attended the University of North Texas for 4 years and intends on graduating in the summer of 2005. She is working on a bachelor's degree in anthropology with an emphasis in archaeology and would like to go to graduate school for archaeology. She also in her free time teaches little toddlers how to ice-skate, as well as trying to further her knowledge of the sport as well. She has worked at Minyards for 6 years and is currently a Certified Registered Pharmacy Technician.

David Howard is a first year graduate student at University of North Texas. His interest areas are primarily GLBTQ community development, gender identities, marriage systems, and design anthropology with a focus on technologies for the disabled. Prior to enrolling at UNT to complete his bachelor's degree in anthropology, he was employed by Boeing Aerospace as a Quality Inspector and is an avid enthusiast of online gaming and virtual communities.

Yvette Justice is a masters of science candidate in applied anthropology specializing in business anthropology. While studying at the University of North Texas, she has collaborated on multiple consulting projects using ethnographic research methods for a variety of clients including the DFW International Airport, the Denton County Department of Health, and not-for-profit organizations. Prior to graduate school, she worked in marketing, technical sales, and research and development. Her areas of interest are the anthropology of entertainment and play, marketing, and design anthropology.

Matthew Lamb is a third year undergraduate student at the University of North Texas pursuing a B.A. in anthropology with a focus on linguistics directed towards international mediation. Upon graduation, he intends on joining the Peace Corp, and hopes to attend law school sometime after that.

Gene Luster is currently a small business computer consultant and graduate student in applied anthropology at the University of North Texas. He was previously principal partner and CEO of Innovative Technology Solutions, a computer-consulting firm that employed thirty individuals servicing a variety of small business and government clients in the Denton/Dallas/Fort Worth areas. Gene was awarded the "Young Entrepreneur of the Year Award" by the U.S. Small Business Administration in 1995 for its Dallas county development district. After selling his interest in Innovative Technology Solutions in 2001, Gene downsized down to one employee (himself) and formed Braintrust Consulting, a consulting firm that specializes in providing personal service to small business clients. Gene has extensive experience in configuring, installing, and troubleshooting Microsoft and Novell network operating systems and application software, SCO UNIX, and Cisco IOS.

Ethan N. McGaffey received his B.A. in psychology from Stephen F. Austin State University. He is a first year graduate student in applied anthropology with an emphasis in business anthropology. He also has an interest in disaster relief for countries affected by war.

Rochelle Sykes is currently a senior at the University of North Texas working towards her bachelors degree in anthropology. her interests in this field rest mainly in applied anthropology, specifically in environmental anthropology. Future plans in this field are uncertain.

Paul G. Treviño is currently a communication design major/advertising minor at UNT. He likes salsa dancing, comic books, playing guitar, video games, sci-fi/horror/mob films, advertising and consuming mass quantities of Mexican food.

Mel White is a masters of science candidate in applied anthropology specializing in science, technology, and society studies. While studying at the University of North Texas, she has collaborated on an ethnographic research project for the Denton County Department of Health. She recently contributed a chapter on the development of systems of justice in cyberspace for a forthcoming book on digital gaming cultures, and has presented several papers at conferences, including one on mathematical modeling of patterns of conversation on Usenet for the Society for Applied Anthropology. Prior to graduate school, she worked as a systems analyst/network administrator/programmer/web designer/internet support specialist for a municipal government. Her areas of interest include the anthropology of the internet, and photographic analysis and digitizing of ancient Native American rock art.

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Christina Wasson is an assistant professor in the department of anthropology at the University of North Texas. She is a design anthropologist with extensive experience conducting research and consulting on the design of technologies, workspaces, and other consumer products and environments. Christina Wasson received her Ph.D. from Yale University, and has published in the fields of anthropology, design, and organization studies. In particular, she has published on the uses of ethnography in the field of design. Christina Wasson has been a manager in several consulting firms, including E-Lab LLC, the first design consulting firm to specialize in the use of ethnography. Past clients include Steelcase, Motorola, Texas Instruments, Quaker Oats, and the Field Museum.