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Original Paper

The Effect of Mobile Phone Use on Social Interactions among Millennials: An Ethnographic Study

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Abstract

The use of mobile phones among Millennials has grown to alarmingly high rates thereby affecting face-to-face social interactions and group dynamics. This ethnographic research study observed 150 individuals in real world, social group setting, ranging from dyads to groups of four. Analysis found that a majority of the individuals in groups participated in mobile phone interactions and some even spent more time on their mobile devices than did interacting with other members of the group. Analysis also found significant incidents of shared mobile phone use and reduced offline social interactions among individuals.

Keywords

ethnography, ethnographic research, millennials, mobile marketing, face-to-face communication, and social interactions

1. Introduction

1.1 Ethnography and Ethnographic Research

Ethnographic research is a cross-disciplinary, qualitative research method initially used by the disciplines of anthropology and sociology, and evolving to be used in several other areas such as psychology, business, health science, and even computer and information sciences (Goodman, 2011). Schensul, Schensul, and LeCompte (1999) best describes ethnographic research as “an approach to learning about social and cultural life of communities, institutions, and other settings” (p. 1).

An important element of ethnography is its attempt to accurately record detailed qualitative information in addition to quantitative data in an attempt to reach an intimate understanding of human behaviors

and conditions. Willis and Trondman (2000) defined ethnography as "a family of methods involving direct and sustained social contact with agents, and of richly writing up the encounter, respecting, recording and representing at least partly *in its own terms*, the irreducibility of human experience. Ethnography is the disciplined and deliberate witness-cum-recording of human events" (p. 395). Brewer (2008) defined ethnography as "the study of people in naturally occurring settings or 'fields' by methods of data collection which capture their social meanings and ordinary activities, involving the researcher participating directly in the setting, if not also the activities, in order to collect data in a systematic manner but without meaning being imposed on them externally" (p. 189). The goal of ethnographic research is to accurately study the many components of the environment under research (Lecompte & Schensul, 1999; Goodman, 2011). The researcher observes the environment in a was as to best report his or her findings (Fetterman, 1998). In fact, Fetterman (1998) describes the role of the ethnographer as "both storyteller and scientist" (p. 1).

Following these operational definitions to determine method, importance was placed on the *direct* and *sustained* nature of the social observation, *systematic* and *nonbiased* data collection, richly writing up the encounter, attempt to document an aspect of social interaction *in its own terms*, in this case, a public, non-artificial social environment with direct researcher presence.

1.2 Study Stetting & Ethnographer Training

Many times, it is normal practice to gather information about groups, and social interactions among them using other research methods such as surveys and questionnaires, the best method to intimately understand groups, especially with regard to mobile technology use and effects of this on social interaction within these groups, the ideal method suggested is active observation over a period of time (Goodman, 2011).

This researcher used Dell Hymes' SPEAKING mnemonic to help record and account for various details of the social environment in which the ethnography takes place; S meaning setting, P meaning participant identity (observed demographic information), E meaning ends (observed purpose of the social interaction, e.g., business or recreational), A meaning act (or organization of speech acts), K meaning key or tone of the social interaction observed, I meaning instrumentalities (language, dialect, face-to-face interaction vs. writing), N meaning norm or social rules and customs, and G meaning genre or type of social interaction (lecture vs. dialogue) (Johnstone & Marcellino, 2010).

1.3 Social Interaction & Online Environments

Hallet and Barber (2014) noted that ethnographic studies traditionally sought to observe people in their natural physical environments. Ethnographic studies were defined as "the study of people in their own time and space, in their own everyday lives" (Burawoy, 1991, p. 1). However, one challenge faced in ethnography today, including this study, is the acknowledgment and incorporation of the online environment in research (Hallat & Barber, 2014).

With the advent and proliferation of the Internet, people now occupy online as well as physical "habitats", and these spaces have become important for the creation and reproduction of relationships,

identities, and social locations. However, the bulk of traditional ethnographers in the twenty-first century often overlook the importance of online spaces in the lived experience and thus miss data that could help them more fully understand the populations they study (Hallet & Barber, 2014). When exploring social interaction, the researcher must now take into account the influence and overlap of the digital environment in the physical environment.

1.4 Face-to-Face vs. Online Social Interaction

You et al. (2016) acknowledged that the popularization of the Internet has impacted the communication behavior of adolescents. They used the *Preference for Online Social Interaction* (POSI) scale to analyze Chinese adolescents' preference for online social interaction over Face-to-Face (FtF) interaction.

Su et al. (2016) found that humans' conscious perception prioritizes social interactions, namely information communicated by the human body. This would suggest that people would prioritize FtF interactions over interaction with technology. However, the proliferation of live-action pictures and videos in technological media (e.g., YouTube, Instagram, Snapchat) could offset the conditioned preference for FtF interaction.

1.5 Mobile phones and Social Norms

At present, one of the most popular and convenient methods for engaging the online environment is the smartphone. Wei and Lo acknowledged that the smartphone "will undoubtedly change the way people live, work, and interact with one another, perhaps even more profoundly than did the fixed telephone" (2006). Jin and Park noted that, in addition to the convenient accessibility to online information, the modern mobile phone provides various avenues by which to establish and maintain gratifying interpersonal relationships (2010).

As stated previously, online media has the potential to offset the need for FtF interaction; this may be most profoundly observed in the incorporation of mobile phones into the physical environment. "The mobile phone is no longer just a device that facilitates communication between two individuals; it is also a hybrid technology that integrates audio, video and text with a display screen" (Chan, 2013). The proliferation of cell phone use in public environments has the potential to drastically alter accepted social norms and presents social dilemmas concerning our interactions with those whom we share the public space (Humphreys, 2005).

1.6 Mobile Phone Use in the Millennial Generation

The Millennial Generation (born between 1981 and 1997) have accepted and incorporated the use of mobile technology much more quickly than their parents' generation (Brown, 2017). Millennials today have grown up in a technologically-rich world, using mobile phones, chat rooms, email, computer games, and listening to music and watching TV and videos, many times simultaneously as part of their social engagement (Hanson, 2011).

Younger generations have also preferred the incorporation of mobile phone technology in the classroom, from secondary school to college. A study by Nowell (2014) showed that secondary school

teachers have sought to transform what was seen as a disruptive technology into a tool to encourage classroom engagement and participation. All the researchers of this study had firsthand experience in a college classroom in which a mobile phone app was used to encourage class participation in discussions.

1.7 Negative Social Implications

A study by Isiklar et al. (2013) addressed the potential for habitual mobile phone use to cause symptoms such as loneliness, anxiety, and depression in adolescents. Walsh et al. (2010) explored the possibility of pathological addiction to mobile phone use, which may act as an inhibitor to FtF social interactions. Khosrovani and Desai (2016) highlighted the potential of social media to permit high-risk sexual relationships and encounters among college students as an alternative to traditional sexual courting. Jiang and Chen et al. (2017) explored the role of gender in mobile phone use, and found that women may experience higher dependence on habitual mobile phone use as an outlet for social gratification and self-esteem. These potential negative social implications may be considered in the qualitative analysis of this study's results.

1.8 Implications for Mobile Marketing and the Millennial Generation

Current business trends force all practitioners and businesses to adjust to the needs of the customers. As mobile technologies grow, so does the need among marketing practitioners to leverage these technologies to achieve their marketing objectives (Gregor & Gotwald, 2013). Because of the popular use of mobile technology among members the Millennial Generation, Serazio (2013) emphasizes the importance of mobile marketing methods to reach a demographic that is more difficult to reach through traditional media outlets. Gregor and Gotwald (2013) noted the potential for the dissemination of marketing communications through social media networks. Marketers can get access to a wealth of information using technologies connected to mobile phones. For example, when users access and interact on social networking sites using their mobile devices, marketers can an excellent chance to get to know their customers a lot better (Gregor & Gotwald, 2013).

Although there is a plethora of research available in regard to mobile marketing, its is focused more on the technology side or effect side. There remain gaps in knowledge with regard to a deeper understanding of how Millennials use mobile phones in real-word group settings, and what if any, are the effects of group interactions on cell phone use and vice versa.

1.9 Shared Cell Phone Interaction in FtF Social Interactions & Knowledge Gap

One topic on which this researcher did not find much previous data is the use of mobile phone technology to facilitate and enhance FtF interactions. While data was found on mobile technology used to facilitate classroom learning, or how mobile phone use could interrupt or inhibit FtF interaction, a review of relevant literature failed to find notable information on the potential for shared mobile phone interaction in a recreational social setting. In the future study and development of mobile marketing, scholars and practitioners should take into account the possible benefit of shared cell phone use in social settings to understand social interactions and disseminate messages. Examples of shared cell

phone use in social settings include group photos for social media; Snap chat stories; augmented reality technologies (Ihlan & Celtek, 2016); face-to-face sharing of articles, photos, and videos, etc.

This study aims to use ethnographic research methodology to provide detailed quantitative and qualitative data and analysis concerning interruptive and shared cell phone use during social interactions among college-age Millennials in public social settings.

2. Methods

2.1 Research Questions

The following research questions and hypotheses were developed based on the review of literature:

Research Question 1. What is the total time percentage in an FtF social interaction that cell phone use occurs?

Research Question 2. What total percentage of cell phone use during FtF interactions is interruptive, and what percentage is shared use?

Research Question 3. From the total cell phone use observed, will some cell phone use fit the earlier definition of shared cell phone use?

Research Question 4. What percent of cell phone use during FtF interactions will be interruptive as opposed to shared?

2.2 Operational Definitions

For the purpose of the study, researchers provided operational definitions of four key terms drawing from review of current literature, and making distinctions specific to the purpose of this study.

i. *Cell Phone Use*: "Any application of the cell phone as a tool, including talking, text messaging, game playing or the sheer accessibility of the instrument" (Banjo et al., 2008, p. 127).

ii. *Face-to-Face (FtF) Interaction*: Any in-person social interaction between two or more individuals including 1: face-to-face (eye) contact and 2: verbal communication. This study used earlier cited definition of cell phone use as "any application of the cell phone as a tool, including talking, text messaging, game playing or the sheer accessibility of the instrument" (Banjo et al., 2008, p. 127). However, researchers made distinctions between *interruptive* cell phone use and *shared* cell phone use.

iii. *Interruptive cell phone use*: Any application or use of the cell phone that breaks user engagement from FtF social interaction, including talking, text messaging, game playing or accessibility of the instrument, including checking one's phone for messages or updates. Interruptive cell phone use must include 1: break from face-to-face (eye) contact and/or 2: break from verbal communication.

iv. *Shared cell phone use*: Any application or use of the cell phone that augments or facilitates a FtF or group interaction, including the physical sharing of text, audio, or video; and group use of cell phone tools, such as group photos. Shared cell phone use must include 1: shared engagement in cell phone video or audio and 2: unbroken stream of verbal communication.

2.3 Samples

This study seeks to observe the cell phone use and social interaction behavior of college-age Millennials. The study used a convenience sample of randomly selected social interactions of college students in public settings at a large northeastern university. This sample may have presented restrictions regarding demographic factors which were addressed in the discussion and limitation section of this manuscript.

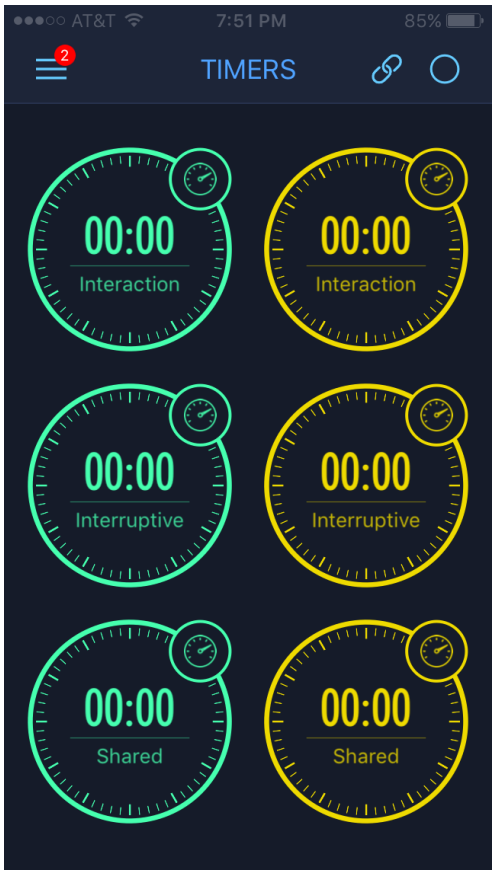

Figure 1. Screenshot of MultiTimer app

2.4 Procedure

This study employed ethnography as the primary data collection method. Target sample were observed in their natural environment to gather the most accurate, unmodified and unbiased natural behavior (Brewer, 2008) of Millennials' interaction with their cell phone while in social group setting. This researcher observed a target of 60FtF interactions between two or more individuals from the sampling frame of almost 5,000 students over a course of three weeks. Interactions were observed for groups of two and more. A total of 150 individuals were observed. The total sample size included 25 dyads, 20 triads and 10 groups of four individuals. The duration of each interaction, total duration of interruptive cell phone use per interaction, and total duration of shared cell phone use per interaction was recorded via the MultiTimer application for accuracy and covertness (see Figure 1).

At the start of each FtF interaction, the *interaction* timer was initiated. The *interruptive* and *shared* timers was activated intermittently upon the observation of interrupted and shared cell phone use occurrences, respectively. At the end of each interaction observation period, the *interaction* timer was stopped, and the values of each timer for the interaction were recorded to calculate the total interaction time, the total time of interruptive cell phone use per interaction, and the total time of shared cell phone use per interaction.

Qualitative details from the Dell Hymes SPEAKING mnemonic were noted after each observing session for thorough qualitative analysis of results.

3. Results

For answering research questions 1 and 2, over the course of one week, during three separate data collection periods, researchers observed 60 unique FtF interactions averaging 3 minutes and 48 seconds each, totaling 3 hours, 47 minutes and 55 seconds. Of this time, 39 minutes and 52 seconds of interruptive cell phone use occurred, and 5 minutes and 22 seconds of shared cell phone use occurred. 19.84% of all interaction time observed contained cell phone use. 17.49% of all time observed contained *interruptive* cell phone use, while 2.35% contained *shared* cell phone use (See Table 1).

Table 1. FtF Interactions and Cell Phone Use

Activities	Time spent
Interruptive cell phone use	39 minutes and 52 seconds (17.49%)
Shared cell phone use	5 minutes and 22 seconds (2.35%)
Uninterrupted FtF interaction	3 hours, 2 minutes and 41 seconds (80.15%)
Total time	3 hours, 47 minutes and 55 seconds (100%)

To explore research question 3, the time spent in interruptive cell phone use and shared cell phone use was measured. Approximately 88.14 percent of the entire cell phone use were interruptive cell phone use (39 minutes and 52 seconds) and 11.85 percent were shared cell phone use (5 minutes and 22 seconds). (See Table 2.)

Table 2. Cell Phone Use

Activities	Time spent
Interruptive cell phone use	39 minutes and 52 seconds (88.14%)
Shared cell phone use	5 minutes and 22 seconds (11.86%)
Total time	45 minutes and 14 seconds (100%)

To explore research question 4, the numbers of instances of (1) FtF interactions without cell phone use, (2) Interactions with instances of interruptive cell phone use but not shared use, (3) interactions with instances of shared cell phone use but not interruptive use, and (4) interactions with instances of both interruptive and shared cell phone use were counted. The numbers of instances are reported in Table 3.

Table 3. FtF Interactions and Cell Phone Use

Activities	Number of instances
FtF interactions without cell phone use	13 (21.67%)
Interactions with instances of interruptive cell phone use but not shared use	33 (55%)
Interactions with instances of shared cell phone use but not interruptive use	2 (3.33%)
Interactions with instances of both interruptive and shared cell phone use	12 (20%).
Total numbers of instances	60 (100%)

4. Discussion

Of the total number of interactions observed, a majority (78.33%) contained some instance of cell phone use (See Table 3). Nearly one fifth (19.8%) of the total interaction time observed was permeated by cell phone use (See Table 1). These data confirm secondary research acknowledging that the deep incorporation of mobile devices into the social lifestyle of the Millennial Generation. Cell phone use during FtF social interactions has become an accepted social norm in this age group. The researcher observed no visible negative reactions by any group member(s) when other group member(s) engaged in mobile phone interaction(s).

Of the total time of cell phone use observed, over one tenth (11.86%) was observed as shared cell phone use. This previously unexplored observation illustrates the potential of mobile phone technology to augment and even help facilitate social interaction between individuals. This reveals significant opportunity for mobile marketing techniques and campaigns to utilize and encourage shared cell phone use to help disseminate targeted media and messaging in social environments.

The data recorded were used to probe research questions 3 and 4. As to the research question 3, time spent to engage in interruptive and shared cell phone uses was gauged. A total of11.86% of cell phone use observed seemed to fit the operational definition of shared cell phone use. With regard to the research question 4, the numbers of instances of various cell phone uses were calculated. The data indicated that 88.14% of cell phone use observed fit the operational definition of interruptive cell phone use. However, 11.86% of all cell phone use observed is not a negligible time percentage. Hence, shared cell phone use must be taken into account in future ethnographic research of cell phone use in social environments. Also, shared cell phone use must also be considered by marketers as well as scholars as an important area to develop and study.

5. Limitations & Suggestions for Future Research

During the data collection periods, researchers noted several qualitative details that may have affected data collection and must be considered in future research. The primary setting of observation was a food court of the university, a popular gathering place for students to eat and socialize together. For the sake of covertness, other social environments on campus such as study rooms and lecture halls were left unobserved. It is possible that observation of the selected sample engaged in other social purpose may yield different results.

Another limitation to this experiment was the use of a convenience sample, college-age Millennial students at a large private Catholic university in the Northeast United States. The demographic of this sample is predominantly Caucasian, middle-to upper middle-class and with a slight female majority. Potential influence of underlying factors such as ethnicity, gender, and economic status on observed social interaction remains unexamined in this study.

In addition, researchers did not initially take into account the varying social dynamics between one-on-one interactions versus group interactions (more than two individuals). In multiple instances, social interactions were altered by the introduction of new members into the group, whose patterns of cell phone use may have differed from the initial interaction participants. Although we reported group numbers based on the number of individuals in the group for a majority of the time observed (50%+), it may be likely that these surprise developments in the observed social interactions influenced the nature of the data collected.

For further research of a similar nature, we recommend several key advancements. For a more representative sample and comprehensive data collection, multiple researchers may be employed to observe social interactions of the target demographic in different locations, such as different college campuses and public spaces in different regions. Researchers should specify what types of social interactions are to be observed, such as one-on-one versus group interactions, in their methods. In addition, researchers may take into account other instances of face-to-face interruption, such as distraction by outside influences other than cell phone use. Also, it may be a good practice for a set of researchers to observe a sample of the same interactions to ensure consistency of data collected. This research can also be expanded to include other demographic groups, especially different age groups and ethnic groups.

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Resources

MultiTimer iTunes Application. Developer: Astakhov, Sergey. Updated: 17 April 2019.