This is to certify that the
thesis entitled

The Perceived Rudeness of Public Cell Phone Behavior

presented by

Jonathan Forma

has been accepted towards fulfillment
of the requirements for the

M.A. degree in Sociology

Jon Kaplan
Major Professor's Signature

3/27/09
Date

THE PERCIEVED RUDENESS OF PUBLIC CELL PHONE BEHAVIOR

By

Jonathan Forma

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTERS OF ARTS

Sociology

2009

ABSTRACT

THE PERCIEVED RUDENESS OF PUBLIC CELL PHONE BEHAVIOR

By

Jonathan Forma

Three studies were conducted to answer the question of why the use of a cell phone in public space is considered rude. The first study focused on what correction should be made to the average decibel (dB) level of a cell phone conversation. The second study took place covertly in a public setting and found that after controlling for certain variables, cell phone users talk (on average) 1.899 dBs louder than two co-present face-to-face individuals having a conversation. The third study built upon previous research that found hearing only one half of the conversation leads to a greater perception of rudeness from the participant. The speaker's volume was also recorded and controlled for. The results of the third study show that when only hearing one side of the conversation, participants rate the speakers as more rude. The amount of time the observers themselves use a cell phone lessens this effect. Results show that the more time spent using a cell phone, the lower the rating of rudeness given to other cell phone users. The increased volume of cell phone users and the effect of only hearing one side of a conversation seems to disrupt the social situation being defined by observers. This leads to a greater perception of rudeness of public cell phone behavior. Cell phone users may be rated as less rude than two people having a co-present face-to-face conversation because of a combination of expectations and the observers own cell phone habits.

TABLE OF CONTENTS

LIST OF TABLES

Introduction

Cell phone use has drawn the ire of many. Advanced technology coupled with the relatively cheap cost of cell phones has increased the pervasiveness of cell phone use in public spaces. Not surprisingly, as usage increases in public space, some find cell phone behavior rude and annoying.

Examples of perceived rudeness that stem from cell phone use range from the U.S. judge that was removed from the bench for jailing 46 people because none of them took responsibility for a ringing cell phone in his courtroom (Franklin, 2007) to individuals that have purchased cell phone jamming devices (Richtel, 2007). Swanbrow (2005) administered a survey to a nationally representative sample of 752 Americans. 60% of all respondents said that public use of cell phones has disturbed or irritated them. 42% of the respondents believed that there should be laws that prohibit people from talking on cell phones in public spaces, such as museums, in movie theaters, or in restaurants.

Given this perception of rudeness, the question becomes what specifically makes the behavior of cell phone users seem rude? Monk, Fellas, and Ley (2004) attempted to ascertain why one individual having a cell phone conversation in a public setting may seem rude, but conversations in the same environment between two co-present individuals are not. They discuss three explanations for the negative reaction to cell phone users: (i) different conversations – there is something different about the way that people talk when using a cell phone; (ii) the need for observers to listen – with a cell phone an observer only hears one side of the conversation and is frustrated at not hearing the other side; (iii) negative attitudes toward cell phones in general (Monk, Fellas, and

Ley (2004, p.301). Under the heading of differing conversations, the authors suggest that one factor might be that an individual having a conversation is more likely to talk louder when using a cell phone.

Monk *et al* (2004) found evidence they claim indicates that loudness cannot explain the whole effect. Two researchers staged a conversation while either waiting at a bus station or riding on a train. Half of the conversations used cell phones and half were co-present face-to-face conversations. During the cell phone only condition, observers could only see one researcher, and thus could only hear one side of the conversation. The volume of the conversations was controlled at one of two-levels: the researcher's usual speech level, and exaggeratedly loud. After being exposed to the conversation, the previously unaware participants were approached and asked to give ratings about the conversation. They found that cell phone conversations were significantly more noticeable and annoying than face-to-face conversations even though the volume and content were equal.

While controlling for the volume of the actors' voices makes sense in this experimental context, it does not provide insight into the volume of real life cell phone users. Are people in public space who are listening to either a cell phone conversation or a co-present face-to-face conversation exposed to similar levels of loudness? Put another way, do cell phone users talk louder than people in a co-present conversation? This study will answer three central questions. First, do cell phone users talk louder than participants engaged in a two-person co-present conversation? Second, are cell phone conversations perceived as more rude even if you control for volume, and if so, is this because respondents can only hear one side of the conversation? Lastly, are people who

use cell phones more tolerant of cell phone usage? Thus far, research studies on perceptions of cell phone users have not controlled for volume in an experimental setting by using a dB meter. My study uses an experimental design that collects data in a public environment. If cell phone users speak at a louder volume than people in a co-present conversation, experimental designs that merely control for volume by controlling how loud research assistants or actors speak are not accurately replicating real world conditions. The research I present in this paper will not only answer these questions, but will also interpret them in light of previous work on social interaction in public space by Goffman (1959).

The Social Landscape of Cell Phones

Telephones are no longer linked to a particular space. Technological advances have allowed for the creation of situations in which users are no longer confined to a specific place when using a phone. A few researchers have taken ideas from this new reality a step further and explored the responses of cell phone users when receiving a call in a public space. Exploring this reality is something that most of us do on a day-to-day basis; however, it is unlikely that we fully understand or analyze the various processes involved in answering a cell phone call in a public space. Unlike using a phone in a workplace setting or in a household, the rules for when and where to answer a cell phone call (or to make one) are based on the conditions of a constantly transforming social landscape. This lack of linkage to a particular space has the potential to cause a wide range of social reactions depending upon the particular context of a situation.

The process of using a phone has become 'democratized' and 'individualized' (Garcia-Monteset *et al*, 2006). The process of individualization can promote certain changes in behavior. For instance, by answering a call while occupying a public space, a person creates tension between what he or she is doing at the moment and the attention needed for the incoming call. By accepting the call, the user commits his or her attention to being in two different places at once, both the physical situation the user was in before the call and the mental situation generated by the cell phone conversation. This process causes the distinction between the "public" self and the "private" self to become blurred. Behaviors or conversation topics best reserved for non-public space may be presented to the surrounding observers, leading to perceptions of greater rudeness. No longer is a

person operating in just the context of his or her public situation or thinking in just the context of his or her private call, but rather in a juxtaposition of both.

Despite this conflict, there are still a number of different responses available to individuals when receiving a call while occupying a public space. Receiving a call while occupying a public space tends to be met by one of three responses (Plant, 2002). One response is flight, in which users immediately remove themselves from their physical social situation. Another is suspension. In using the suspension response, call recipients stop whatever they are doing, remain in the same location, and for the duration of the call focus on the private self involved in the cell phone conversation while cutting themselves off from their public social setting. Last is persistence, in which users stay engaged with whatever physical social situation they were in prior to the call and at the same time also attempt to manage the conversation on the mobile phone.

A Framework for Cell Phone Research

The previous section gives a very brief description of ways in which cell phone users interact within their social landscape when using a cell phone. This brief analysis, while setting the stage for further study, does not constitute a framework for thinking about the perception of rude behavior on the part of cell phone users. A sociological perspective from which social life can be studied can be found in the work of Erving Goffman. Applying a dramaturgical analysis to the question of perceived cell phone rudeness opens the door to new ways of thinking about acceptable social behavior in the context of cell phone use.

Goffman uses concepts, such as "team" and "participant" (1959) in order to study the various processes taking place in a social situation. The definition of a situation "projected" (1959, p.77-78) by one individual is an integral part of the definition of the situation created in conjunction with other members sharing the same space. Participants do not necessarily have to be part of a "team" in order to contribute to defining a situation. The process of defining and shaping a situation is shared among individuals in that situation, irrespective of their roles. Individuals present in a social situation share a goal, even if the goal is temporary and not necessarily contemplated in a conscious manner. That goal is defining a situation.

In the past, some of Goffman's work has been focused on face-to-face interactions between individuals. His work provides a starting point from which to study the effects of cell phones on perceptions and attitudes in a public space. Analyzing the effects of cell phones through the lens of defining the situation provides a sociological explanation for the perception of rude cell phone behavior that advances Goffman's work

on interpersonal interaction into the wireless era. By using a cell phone in public space and by speaking at a greater volume, individuals may disrupt the definition of the situation others have created. In essence they are no longer playing their role and are in fact disrupting the role-playing of others. This would explain why using a cell phone is considered rude in some situations, while in the same situation a discussion between two co-present individuals is not considered rude. However, the question still remains of what mechanism causes the disruption of the social situation. The analysis of cell phone user's volume in the sections that follow will provide this mechanism.

Study One

Overview

When measuring two co-present participants engaged in a conversation, the average dB level is likely to be higher because both sides of the conversation are heard. In contrast, even if cell phone users indeed speak at a greater volume, they do not speak the entire time because they must also listen to the person on the other end of the phone. In order to correct this it was necessary to determine how many dBs are added to the average dB level when both sides of the conversation are heard. The first study was designed to answer this question.

Method

Sixty trials were run. The variables in each trial were: (i) the background dB level (coded as background noise) (three conditions - 54 dBs, 64 dBs, 73 dBs), (ii) the conversation level (coded as conversation noise) (two conditions – average or loud), (iii) number of speakers (one or two). Background noise was varied through the use of music. For instance, a song played for one minute with an average dB level of 54 dBs would be used to simulate an environment where the background dB level was 54. The same method was used for the trials with an average background dB level of 64 and 73.

The trials with only one speaker simulated cell phone conversations and the trials with two speakers simulated a two-person co-present conversation. The same conversation was used for each of the one and two person conditions. For the two-person condition the speakers each spoke for 30 seconds and for the one-person condition the speaker spoke for 30 seconds. The instrument was tested and it was determined that

speaking continuously for 30 straight seconds and then being silent for 30 seconds recorded the same average dB level as speaking for 10 seconds and then pausing for 10 seconds and repeating this pattern for a total of one minute (other variations were also tried).

During each trial the average sound level was recorded for one-minute. For the first 20 trials the average background sound level was experimentally held to a one-minute average of 54. Five of the trials had one speaker speaking at an average volume, five trials had two speakers speaking at an average volume, five trials had one speaker speaking at a loud volume, and five trials had two speakers speaking at a loud volume. Another 20 trials were run with a background dB level of 64 dBs and then a final 20 were run with a background sound level of 73 dBs.

In the trials with one speaker speaking, the speaker spoke for 30 seconds and then stopped for the remaining 30 seconds. In the two person trials, the speakers each spoke for 30 seconds. The purpose was to ascertain how many dBs needed to be added to a conversation when an additional speaker was present. These results are shown in table 1.

Results

Table 1. Recorded Volume in dB Meter as a Function of Background Noise, Conversation Volume, and Number of Speakers

	Unstandardized. Coefficients	Unstdzed Coeff.	Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Constant	26.027	1.820		14.302	.000
Background Noise (dB)	.536	.025	.842	21.223	.000
Conversation Volume (dB)	3.267	.392	.331	8.338	.000
A Second Speaker	3.000	.392	.304	7.658	.000

Dependent Variable--Average dB level for one minute recorded by dB meter

Table 1 shows the results of a regression analysis with the dependent variable being the average dB level for one minute. The results show that the addition of a second speaker adds 3.000 dBs to the total recorded dB average.

Study 1 Discussion

Accurately comparing the volume of a cell phone conversation with a two-person co-present conversation is difficult because measuring the cell phone conversation means that the measurement is only including the volume of one speaker, and not recording the volume of the speaker on the other end of the phone. The results show that the addition of a speaker adds 3.000 dBs to the average dB level of the conversation. This means 3.000 dBs should be added to the average dB level recorded in cell phone conversations. In study two, this information will be used to correct for only hearing one side of a cell phone conversation.

Study Two

Overview

The second study was designed to test whether or not participants using a cell phone spoke louder than two participants engaged in a co-present conversation. Monk *et al* (2004) controlled for volume by having the researchers speak at a normal or loud volume. However, it is unclear whether this accurately represents real world conditions. It is important to determine if observers in a public space regularly hear cell phone conversations that are louder than other conversations taking place because loudness may play a role in affecting an observer's perception of rude behavior. The average dB of participants in a public setting level was covertly recorded using a decibel meter. Individual cell phone users as well as co-present face-to-face participants were both studied.

Participants

The participants in this experiment were 90 people (30 cell phone users and 60 people having face-to-face conversations) found on the campus of a large mid-western state university.

Method

Two locations were selected. The first was a food court, and the second was a lobby area outside of the food court. These locations were chosen because of specific seating arrangements in each that would allow me to get close to the participant(s) without arousing suspicions. In addition, the food court area was usually louder and the lobby area was usually quieter, thus allowing for some variance in the background levels

of noise. Armed with a Radioshack Sound Level Meter (50-126dB range), I would wait until either a person on a cell phone or two people having a face-to-face conversation sat in either of these areas. I would approach the seating areas and sit within two to three feet of the participant(s). I would then discreetly record the average dB level of the conversation for one minute. Cases in which the conversation ended and the participants left before one minute of the average dB level was recorded were not included in the final results.

In order to control for the level of background noise, a one-minute record of the average background noise dB level was made either immediately before or after the conversation average dB level was recorded. The gender of the participants was also recorded based on observations made by me. Thirty cell phone conversations and thirty co-present conversations were recorded. This procedure was conducted with the approval of Michigan State University's IRB.

Results

Table 2. Descriptives of Corrected dB Level (after a 3.000 dB correction to cell phone condition)

	N	Mean	Std. Deviation	Std. Error of Mean
Cell phone	30	65.9667	2.35597	.43014
Co-Present	30	65.3000	2.45160	.44760

The mean dB level of cell phone users was .667 dBs higher than people speaking in a Co-Present conversation. An increase of 10 dBs means that the sound is 10 times as great. An increase of one dB means the sound is the 10th root of 10 (1.258) times as great. An increase of .667 dBs means the sound is 1.166 times as great. The final results show that in this experiment, the sound of cell phone users on average 1.166 times as

great as non-cell phone using participants. Next, the gender of the participants was controlled for because males may talk louder.

Table 3. Corrected dB Level of Males and Females

Gender	N	Mean (dB)	Std. Deviation	Std. Error of Mean
M (all)	12	66.9167	2.84312	.82074
F (all)	18	65.3333	1.78227	.42008
MF	12	64.9167	2.42930	.70128
MM	7	66.1429	1.95180	.73771
FF	11	65.1818	2.82199	.85086
Total	60	65.6333	2.40738	.31079

The results in table 3 show the average dB level based on the gender of those that had the conversation. The groups for the cell phone conditions were M and F (male and female). The co-present conversations consisted of three groups (MM, MF, FF) depending upon the gender of those in the conversation. Males with or without cell phones had the highest average corrected dB level. In addition, it should be noted that conversations with only females comprised a higher percentage of the cell phone sample. In the cell phone condition males made up 40% of the sample, and in the co-present condition a male was present in 19 of the 30 cases (63.3%). Because the average dB level was higher for males I recoded the data into two separate groups, a group composed entirely of males (M and MM) and groups not composed entirely of males (F, FF, MF) in order to control for gender in the linear regression analysis.

Table 4. Corrected Average conversation dB level regressed on having a cell phone, the presence of a male, and background noise

	Unstandardized Coefficients	Unstandardized Coefficients	Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Constant	26.878	6.982		3.849	.000

Table 4 (cont'd)

Cell Phone (dB)	1.899	.567	.398	-3.349	.001
Male Present (dB)	1.014	.541	.197	1.872	.066
Background_Noise (dB)	.600	.110	.639	5.464	.000

Dependent Variable—Average corrected dB for a one-minute conversation

Using a linear regression model, the average conversation dB level was regressed on a number of factors. Even controlling for background noise and gender, using a cell phone still had a significant effect (alpha <. 05) on the average conversation dB level. Using a cell phone increases the average corrected dB level of the conversation. Before controlling for gender and background noise the average difference between a cell phone conversation and a co-present conversation was less than one dB. After controlling for those variables the results from table 4 show that using a cell phone adds 1.899 dBs to the conversation average. If, for example, the conversation average was 60 dBs, adding 1.899 dBs to the average is the equivalent of 155% of the volume at 60 dBs. Background noise also had a significant effect. Having a male present increased the average dB level, but did not have a significant effect at alpha <. 05.

Study Two Discussion

Cell phone conversations have been demonstrated to be louder on average than co-present face-to-face conversations. Also, controlling for whether or not the participant is a male causes an increase in the amount of dBs using a cell phone adds to the conversation. The earlier studies cited above controlled for volume by having the researchers talking on a cell phone talk at the same volume (normal or loud) as the researchers having co-present conversations. The results of the above study show that this is not an accurate reflection of reality. Cell phone users speak louder; so the question

becomes what effect does this have on the observer's perception of the speaker's rudeness? The third research study takes these findings into account and measures the actual volume of the researchers in order to determine the effect volume has the perception of rude behavior.

Study Three

Overview

The third study was designed to answer four central questions.

1) Are cell phone conversations perceived as ruder even if you control for conversation volume?
2) If so, is it because you can only hear one half of the conversation?
3) Is it possible that observers think cell phones are rude because they think they are loud- even when they are not?
4) Are people that talk on cell phones more tolerant of cell phone use in public space?

The study design called for two research assistants (actors) to act out a scenario on a bus. Certain variables were manipulated in order to answer the questions listed above. The manipulated variables were whether or not a cell phone was present and whether or not the observer could hear both sides of the conversation. By manipulating whether or not a cell phone was used in the conversation I could see if there was an independent effect of cell phones on the rudeness rating given by the participants. I also manipulated whether or not observers could only hear one side of the conversation. Obviously observers could only hear one side of the conversation when a cell phone was used, but I also included a condition with two co-present face-to-face actors having a conversation. One of the actors was instructed to speak at a normal volume, and the other was instructed to speak at a whisper (inaudibly). These different conditions allowed me to

conduct tests of the questions listed above. A full list of the variables measured and manipulated during study 3 can be found at the end of the methods section.

In addition, I was interested not only in the actual volume (as recorded by the decibel meter), but also in *perceived volume*. In the previous study I showed that cell phone users on average speak louder. In measuring perceived volume I am considering the possibility that cell phone conversations are perceived to be louder than a co-present conversation of the same volume.

Participants

Participants for the second round of data collection were 160 people found riding the bus on an on-campus route at a large mid-western university. Participants that sat within five seats of the actors carrying on a conversation were approached and asked, "Excuse me, but did you notice that girl(s)?" If the participant answered yes than he or she was asked if they would like to fill out a short questionnaire. Those that consented were given a consent form and the questionnaire. Observers that were seen listening to music via a personal music device were not approached. After turning in the filled out questionnaire participants were handed a piece of paper that told them the conversation they heard was staged and that the bus patrons they were rating were actually research assistants.

Research Assistants (actors)

This study required the help of two research assistants (actors). Two female freshman students that attended the university were employed. Both were acquainted with me beforehand and were compensated for their time. The actors were required to memorize both sides of a short two-person conversation. This same conversation was

used in all five conditions of the study and the roles the actors played were alternated so that in each condition the actor(s) would play role one half of the time and role two half of the time.

Method

Five different conditions were used in this part of the study. Each condition had a total of 32 completed surveys. Two conditions were cell phone only conditions. This means that only one actor was used and she would only speak on a cell phone during this time. One condition was composed entirely of actor one and the other condition was composed entirely of actor 2. Two other conditions were co-present conversations in which one actor would speak normally and the other would speak using a whisper, but would otherwise act normally. The final condition was a co-present conversation with both actors speaking normally.

I, and either one or two actors (depending upon the condition), would board a bus driving an on-campus route. I would record the dB level of the background noise on the bus for one minute prior to the actor beginning her conversation. After recording the background noise dB level, I would discreetly signal the actor(s) to begin. The seating arrangement on the bus allowed me to sit directly next to the actors and still discreetly record the dB level. The conversation would last approximately one minute, during which I was covertly recording the combined dB level of the actor and the background. After the conversation was finished the actor(s) would get up and go to another area of the bus as if they were going to exit the bus at the next stop. It was during this time I would ask the surrounding observers (bus patrons) if they had noticed the conversation and would like to fill out the questionnaire. The roles and conditions were alternated so

that in any given research session multiple conditions were employed, not just the same condition repeated over and over until the proper amount of questionnaires were completed.

In order to test the effects of the different conditions used in the study (cell phone, co-present hear both sides of conversation, co-present hear one side of the conversation) it was necessary to dummy code the variables. The cell phone group and the co-present hear two sides of the conversation group were the tested groups and the co-present hear one side of the conversation group was the reference group. This means that the results shown in table 7 show the comparisons between the cell phone group and the excluded group, as well as the co-present hear two sides of the conversation group and the excluded group.

Independent and Dependent Variables

Table 5 lists the items that I have chosen to operationalize the various concepts in my analysis framework. I now describe exactly how the various concepts I used in my research were measured. Of the survey questions described here, the questions were changed to a plural form in conditions in which two actors were present (co-present conditions) and kept in a singular form when respondents were asked to rate one actor (cell phone conditions).

It is important to understand not only *how*, but also *why* these variables were either manipulated or asked about in the survey. The variable that was manipulated was the condition. An actor using a cell phone, two actors speaking co-presently (one inaudibly), and two actors speaking co-presently with both being audible were the different conditions that were used. The results of these manipulations allowed me to test

independently for the effects of using a cell phone in the conversation as well as for the effects of hearing only one side of the conversation.

Various measures of volume were also recorded using a decibel meter. The dB level of the conversation was measured in order to test for the effects of volume on the respondent's rating and the background dB level (of the bus) was measured in order to control for background noise. The participant was also asked to rate the volume of the actor(s) in order to see if perceived volume had an independent effect on perceived rudeness. Furthermore, participants rated the rudeness of the actors. This measure was an important dependent variable and was needed in order to assess the perceived rudeness of the actor's behavior. And finally, demographic variables and variables associated with the participant's own cell phone behavior were gathered. Information about the personal habits of the participant's cell phone use was needed to assess whether it made in a difference in perceiving rudeness. Demographic variables were gathered to see if they had any independent effects.

Condition- The condition (1-3) refers to what situation was being studied. Condition one was the condition in which one actor speaking on a cell phone was studied. Condition two refers to the condition where multiple actors were used, one speaking at a normal volume and one speaking quietly. In the third condition two actors would speak at a normal volume.

Background dB Level- The combined dB level of the bus one minute prior to the experiment beginning.

Conv. dB Level- The dB level of the bus and actor while the experiment was taking place.

Rudeness Rating- Respondents were asked to rate the behavior of the actor(s) on a scale from one to ten with one being labeled extremely polite and ten being labeled extremely rude.

Volume Rating- Respondents were asked to rate the volume of the actor(s) on a scale from one to ten with one being labeled extremely quiet and ten being labeled extremely loud.

Noticeable Rating- Respondents were asked to rate how noticeable the actor(s) was on a scale from one to ten with one being labeled "not noticeable" and ten being labeled "very noticeable".

Age- Self-reported by respondents

Gender- Self-reported by respondents. Females were coded as zero and males were coded as one.

Minutes from plan- Participants were asked to write down the amount of basic weekday minutes their cell phone plan provided them with each month. If the respondent did not answer this question or wrote that he or she did not know, the response was coded as missing. In addition, some respondents replied with the answer "unlimited'. These responses were recoded into the highest amount of minutes given as a response. The responses were recoded as 2000 minutes.

Minutes Used- Respondents were asked, "Yesterday during the entire day and night, you used how many minutes." The respondents were than asked to circle one of five choices that were ranges of minutes. The choices were: (1)0-15 min, (2)16-45 min, (3)46 min- 1 ½ hours, (4)1 ½ -3 hours, and (5)over 3 hours. These ranges were subsequently recoded using the midpoint of the various ranges in order to more clearly interpret the results.

The midpoints of each option were: (1) 7.5 min, (2) 30 min, (3) 67.5 min, (4) 135 min, and (5) 205 min. Since the fifth option did not have an upper limit in terms of the number of minutes used, I assigned a value of 230 minutes (3.8 hours) as an upper limit.

Table 5. Descriptions of Independent and Dependent Variables

	N	Minimum	Maximum	Mean	Std. Dev
Condition	160	1	3	1.8	.7506
Background dB Level	160	70	79	74.62	1.990
Conv. dB Level	160	69	81	75.43	2.124
Rudeness Rating	160	1	8	3.93	1.821
Volume Rating	160	2	10	5.22	1.578
Noticeable Rating	160	1	10	5.06	1.904
Age	160	18	22	19.01	1.022
Gender (0=F) (1=M)	160	0	1	.3062	.46238
Minutes on Plan	117	100	2000	741.6	625.05
Minutes Used	160	7.5	205	50.3437	51.389

Results

Table 6. Perceived volume regressed on demographic variables, background dB level and conversation dB level, and how many sides of the conversation were heard

	Unstandardized Coefficients	Unstandardized Coefficients	Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Constant	7.210	5.592		1.289	.199
Age	-.010	.126	-.007	-.081	.936
Male	.397	.285	.116	1.393	.166

Table 6 (cont'd)

Minutes Used the Previous Day	.001	.003	.045	.531	.596
Bus Background dB Level	-.087	.105	-.110	-.831	.408
Conversation dB Level	.060	.097	.080	.615	.540
Heard Cell Phone	.136	.295	.042	.462	.645
Heard Two Sides	-.160	.352	-.041	-.456	.649

a. Dependent Variable: Perceived Volume
b. R-Squared = .020

Demographic variables, background dB level, conversation dB level, and hearing one or two sides of the conversation did not have any significant effects on the perceived volume ratings. Perhaps the most interesting finding is that the actual conversation volume did not have a significant effect on perceived volume. This means that the actual loudness of the actor did not have an effect on the rating of the actor's volume.

Once again some variables needed to be dummy coded in order to properly analyze the results. The cell phone group and the co-present hear two sides of the conversation group were the tested groups and the co-present hear one side of the conversation group was the excluded group. As you can see from table 6, there was no significant difference between both groups and the excluded group. Hearing one side of the conversation did not have an effect on the volume rating.

The initial question was whether or not cell phone users are perceived as being louder than two people having a co-present face-to-face conversation even when the volume is the same. Because perceived volume is not significantly affected by the experimental condition (or for that matter any other variables) I have chosen to not

include it as an independent variable in the subsequent analysis. Using the actual volume of the conversation (recorded by the dB meter) is sufficient.

Table 7. The effects of actual volume, whether or not you can hear only one side of the conversation, how much a participant uses a cell phone, and experimental conditions on the rudeness rating

Mo-del		Unstandardized Coefficients	Unstandardized Coefficients	Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	Constant	12.317	6.221		1.980	.049
	Minutes Used the Previous Day	.000	.003	-.017	-.209	.835
	Male	-.235	.325	-.060	-.722	.471
	Age	-.128	.143	-.072	-.893	.373
	Bus Background dB Lev	.021	.119	.023	.176	.861
	Conversation dB Lev	-.098	.111	-.115	-.888	.376
2	Constant	9.434	5.867		1.608	.060
	Minutes Used the Previous Day	.034	.127	.020	.265	.792
	Male	-.285	.298	.072	.958	.340
	Age	-.029	.132	-.016	-.217	.828
	Bus Background dB Level	-.031	.110	-.034	-.281	.779
	Conversation dB Level	-.031	.102	-.037	-.309	.758
	Heard Cell Phone	-1.083	.309	-.292	-.350	.001
	Heard Two Sides	-.2065	.368	-.455	-5.61	.000
3	Constant	8.970	5.844		1.535	.127
	Minutes Used the Previous Day	.007	.004	.200	1.636	.104
	Male	-.302	.297	-.077	-1.01	.311
	Age	-.020	.131	-.011	-.151	.880
	Bus Background dB Level	-.036	.109	-.039	-.327	.744
	Conversation dB Level	-.018	.102	-.021	-.177	.860
	Heard Cell Phone	.085	.690	.023	.123	.902
	Heard Two Sides	-1.432	.812	-.316	-1.76	.080
	Minutes Used * Heard Cell Phone	-.525	.277	-.399	-1.89	.060

Table 7 (cont'd)

	Minutes Used * Heard Two Sides	-.302	.319	-.180	-.949	.344

a. Dependent Variable: Rudeness Rating
b. R-Squared: Model 1 = .018, Model 2 = .019, Model 3 = .214

The results from model 2 (table 7) show that the cell phone condition is not perceived significantly (alpha=.001) less rude than the co-present hear one side of the conversation condition. Also, the co-present hear both sides of the conversation condition is significantly (alpha=.000) less rude than the co-present hear two sides of the conversation condition. This means that the co-present hear both sides of the conversation condition was the least rude, the cell phone condition was rated the second rudest, and the co-present hear only one side of the conversation condition was rated the rudest condition. The cell phone seemingly makes it less rude to only hear one side of the conversation.

Alone, the independent variable for minutes used is not significant, however, the interaction term of minutes used and the cell phone condition is very close to being significant at alpha<.05 (sig=.060). This implies that the amount of time participants use a cell phone affects their perceived rudeness of other cell phone users. In addition, controlling for the interaction of "minutes used" and "heard cell phone" caused the significance of the "heard cell phone" dummy variable to go from sig=.001 (model 2) to sig=.902. The direction of the relationship is negative, meaning that the use of more minutes leads to lower ratings of rudeness.

Study Three Discussion

What is there about a cell phone conversation that makes observers think the cell phone user is being rude? It is not due to something unique about a cell phone. The

reason the user is perceived as rude is because observers can only hear one side of the conversation. The results (table 7) show that the co-present conversation condition, where only one side of the conversation was heard, received the highest rudeness ratings, followed by the cell phone condition, and finally the co-present hear both sides of the conversation condition. Cell phone conversations elicited higher rudeness ratings than two people talking, but ratings that were significantly lower than two people talking with observers only being able to hear one side of the conversation. This implies that adding a cell phone to the conversation somehow mitigates the rudeness associated with only hearing one side of the conversation.

One explanation that fits with Goffman's (1959) earlier work is that when individuals define a situation in a public setting, an observer already has an expectation of only being able to hear one side of a cell phone conversation. In contrast, it is *un*expected to be able to hear only one side of the conversation when observing two individuals talking face-to-face. The "need to listen" is involved in eliciting higher rudeness rating levels because it is something unexpected when listening to a two-person conversation. Because the expectations of hearing a cell phone conversation include only hearing one side of the conversation, the rudeness rating is not as high. Accordingly, another reason why cell phone conversations are thought to be rude that expands upon this knowledge needs to be developed.

The results from study two give a possible explanation as it was found that cell phone users talk louder on average than co-present individuals. However, the results from study three show that actual volume did not have a significant effect on the rudeness rating given by participants. One explanation that was also explored had to do with the

perceived volume of the cell phone user. The analysis shown in table 6 showed that perceived volume was not significantly affected by the experimental conditions and was also not significantly affected by any other independent variable. The effect of perceived volume on rudeness ratings does not provide an adequate explanation for why cell phone users are thought to be ruder.

The results from the third study also show that the interaction effect of the amount of time the participants spent on a cell phone the previous day and the "heard cell phone dummy condition is very close to being significant at alpha<. 05 and is significant at alpha<.10. It seems as though the participant's use of a cell phone does affect the perception of other cell phone users. This might also explain why the actors in the cell phone condition were rated significantly less rude than in the co-present hear one side of the conversation condition. The observers own cell phone habits seem to affect perceptions about other cell phone users. Using participants of college age probably enhanced this effect. An interesting way to further test this explanation in the future would be to see whether this relationship exists in age groups that are less likely to use cell phones.

Finally, the results of the regression model with perceived volume as a dependent variable not only showed that the *actual* volume of the conversation did not have a significant effect on the *perceived* volume measure given by participants, but that no independent variable had an effect on perceived volume. There is also one explanation for these results that has to do with the methods employed in this study. One possible problem with this study was that the measurements of the actual volume of the conversations taking place on the bus were potentially not as accurate as they needed to

be. The bus was (sometimes) a rather noisy environment and it is possible that the measurements were not always accurate. Although care was taken to control for the general background dB level on the bus, it is possible that this was not enough and the background noise had a greater influence than expected. Also, small variance in the conversation dB levels could have lowered the correlation. In the future, I suggest taking a measurement of the background noise for *both* the minute prior to the actors speaking and for the minute after the actors have finished speaking. Having a separate recording of the background dB level *while* the research assistants are playing their parts might also be a good measurement (although care should be taken to make sure the research assistants voices are not measured at the same time).

General Discussion

These studies were done in order to answer the question of why cell phone use in public space is considered rude. The framework used to consider these results has been crafted from some of Goffman's (1959) earlier work on social interactions in public space. When individuals gather in a public setting they (knowingly or otherwise) engage in actively defining the situation that they are in. An individual who disrupts this process or engages in activities contrary to the situation that is being defined may be perceived as behaving rudely.

The results from study two show that cell phone users speak on average at a slightly louder dB level than two participants in a co-present face-to-face conversation. As far as I know, until this study there was no evidence, outside of anecdotal, that cell phone users actually talk louder. If these results are analyzed using the aforementioned framework the explanation of why cell phone use in public space is considered rude would have something to do with the cell phone user's loudness disrupting the process of defining a situation by perhaps drawing more attention. Even when not using the framework derived from Goffman's work, we would probably expect that individuals being louder than average in a public setting would get ruder ratings than those talking at a more average dB level. However, the results of study three show that this explanation is not telling the whole story.

One way to think of this in the context of defining a social situation is that the expectations of participants were that cell phone users would talk louder. These expectations could have been built up over time as the participants had more and more experiences with cell phone users who, as evidenced by study two, talk on average at a

louder volume. The definition of the situation already included "loudness" as somehow attached with cell phone users.

This explanation is perhaps further justified by the finding that the "heard cell phone condition" elicited less rude ratings than the co-present hear only one side of the conversation condition. In defining a social situation participants *expected* to hear only one side of the conversation from cell phone users, but *expected* to be able to hear both sides of the conversation when two co-present individuals were having a conversation. Cell phone users therefore fit the social definition of the situation expected by participants more closely than two individuals talking with only one side of the conversation being heard.

The social setting used for study three might also have been crucial in determining the results. Defining a social situation hinges on the expectations associated with that situation. Different public settings most likely will elicit different ratings of rudeness. Conducting this study in a restaurant, for example, might have altered the ratings given by participants.

The results of my study also closely resemble those found in Monk, Fellas, and Ley (2004). In their research, Monk and colleagues found that ratings for a cell phone conversation were very similar to ratings of a co-present one-person audible conversation. Specifically, participants were asked to respond on a scale of 1 to 5 where 1 = strongly disagree and 5 = strongly agree to the statement, "The conversation was annoying." The mean and standard deviation of answers for the cell phone condition were 2.65 (1.42) and for the co-present one-person audible were 3.10 (1.37). Similarly,

the results for my experiment showed the same trend, that is, co-present hear one side of the conversation groups were rated as ruder than the cell phone group.

These results support the same general trend that Monk and colleagues reported. Conditions in which participants could only hear one side of the conversation were rated as more rude and annoying than conversations where participants could hear both sides of the conversation. Monk and his colleagues explain these results in terms of a 'need to listen'. The 'need to listen' explanation is basically that participants have a desire to hear both sides of the conversation, and that frustration at only being able to hear one side of the conversation produces higher rudeness ratings for the groups where only one side of the conversation is heard. The 'need to listen' may play a part in the rudeness rating; however, the results of both studies (this study and Monk *et al*) showed that two persons having a co-present conversation were rated as ruder than those using a cell phone. The 'need to listen' explanation does not fully explain this trend.

Another explanation might also account for these results. Results from the third study showed an interaction effect between the amount of minutes used by participants and the "heard cell phone" condition. The cell phone use habits of observers in a public environment affect the way observers perceive the behavior of other cell phone users. The results imply that the more time an observer spends using a cell phone, the lower the perceived rudeness of other cell phone users.

This is an interesting finding that brings up a number of questions that unfortunately cannot be answered with the data collected in this study. Do different types of cell phone behavior lead to different effects on the perceptions of other cell phone users? Do other activities involving a cell phone (such as internet browsing) also alter

perceptions of other cell phone users? All of these questions should be explored in the future through the study of cohort effects as well as using surveys that ask more specifically about the types of cell phone behavior users engage in.

Despite these conclusions, there are weaknesses in this study that need to be addressed. I felt it was necessary in the second study to collect data in a public setting with the participant being unaware. This is because the data might be biased by social desirability if the participants were aware their volume was being recorded. Because collecting data in a public setting introduces many factors outside of my control, it is possible that the data is not as precise as it needs to be (as I noted with the results from the third study). Controlling for background noise was how I dealt with these random factors, however, when dealing with small differences in the dB level, precision is very important and the level of precision needed may not have been entirely achieved.

Another weakness of this study is that the two research assistants who acted out the scenarios on the bus were both young freshman women. The second study showed that controlling for male voices made a difference in the dB difference between cell phone conversations and co-present conversations. In the future, I would suggest having alternate groups of actors that either included one male, or were composed entirely of males. The rudeness ratings might be lessened or exacerbated by these changes.

Conclusion

In a world full of increasing amounts of technical advancement, social life in public space is going to be affected by the increasing array of personal devices and gadgets that are being developed. Social conflict about the use of such devices will certainly arise as personal preference and convenience of use is put up against the social judgment of surrounding bystanders. As new technology arises, such as cell phones capable of playing music at volumes audible to other bystanders (Wang, 2005), the use of dramaturgical analysis to study the impact on social norms will be helpful in combining thoughts about different issues into one overarching framework of analysis. Dramaturgical analysis will let researchers discuss the social impacts of new technology without having a separate framework for each individual device.

The expectations associated with defining a situation in a public setting leads to differing rudeness ratings of cell phone users and those talking co-presently. When listening to a cell phone conversation observers expect to only hear one side of the conversation. The expectation fits with reality and cell phone users are not rated as rudely as when only one side of the conversation is heard from co-present individuals having a face-to-face conversation. Cell phone habits may also affect the perceptions of other cell phone users, as increased cell phone use seems to lead to lower rudeness ratings. In addition, the increased loudness of cell phone users can be used to explain why cell phone users are still rated ruder than those talking co-presently where both sides of the conversation can be heard.

My research also brings up some further questions about the perception of cell phone use in public space that should be studied in the future. The experimental design

used in this study asked for the perceptions of a cell phone user's behavior, but did not ask the reasons behind the rating given. Now that there is evidence that people speak louder when using a cell phone, it would be interesting to see if this is a typical reason given when asked about the perception of a cell phone user. Cell phones are not going away and are at the forefront of technology that intrudes upon public space. This makes cell phones the appropriate vehicle for studying new technology and its impact on social life.

REFERENCES

Franklin, K. (2007). Judge Removed After Jailing Entire Courtroom. Retrieved November 29, 2007, from Telegraph Website: http://www.telegraph.co.uk/news/worldnews/1570804/Judge-removed-after-jailing-entire-courtroom.html

Garcia-Montes, J., Domingo, M., & Perez-Alvarez, M. (2006). Changes in the Self Resulting from the Use of Mobile Phones. *Media Culture Society*, 28, 67-82.

Goffman, E. (1959). The Presentation of Self in Everyday Life. New York: Doubleday Publishing.

Monk, A., Fellas, E., & Ley, E. (2004) Hearing only One Side of Normal and Mobile Phone Conversations. *Behaviour and Information Technology*, 23 (5), 301-305.

Monk, A., Jenni, C., Parker, S., & Blythe, M. (2004). Why are Mobile Phones Annoying? *Behaviour and Information Technology*, 23 (1), 33-41.

Plant, S. (2002). On the Mobile: The Effects of Mobile Telephones on Social and Individual Life. Retrieved March 2007, from Motorola Website: http://www.motorola.com/mot/doc/0/234_MotDoc.pdf

Richtel, Matt. (2007). Devices Enforce Cellular Silence, Sweet but Illegal. Retrieved November 4, 2007, from New York Times Website: http://www.nytimes.com/2007/11/04/technology/04jammer.html?_r=1&scp=1&sq=Devices%20Enforce%20Cellular%20Silence,%20Sweet%20but%20Illegal&st=cse

Swanbrow, D. (2005). Cell Phone Survey Shows Love Hate Relationship. Retrieved March 14, 2005, from University of Michigan Website: http://www.ur.umich.edu/0405/Mar21_05/06.shtml

Wang, J. (2005). Youth, Culture, Music, and Cell Phone Branding in China. *Global Media and Communications*, 1 (2), 185-201.