

**THE DIMENSIONS OF CELL PHONE USE DEPENDENCE:  
A GROUNDED THEORY APPROACH TO UNDERSTANDING DEPENDENCE**

by

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## **Abstract**

The technological advancements of cellular phones in recent years have changed the living norms of billions of people around the globe. The research reveals that, aside from the conveniences, many unanticipated problems are emerging and for a great many people, the incorporation of cell phone use has moved from convenience to addiction. Employing the grounded theory methodology developed by Glaser and Strauss in 1967, the dimensions and properties of cell phone use dependence were explored in order to gain detailed and vivid indications of the phenomenon as experienced by ten self-reported cell phone use dependent individuals. Based on the experiences enunciated by the study participants, many noted dimensions were consistent with findings reported in recent quantitative studies. Moreover, from these same experiences, a theory was developed concerning this modern, technological addiction. The convenience of cell phone use directly helps people fulfill their basic and more advanced human needs as outlined in Maslow's hierarchy of needs theory. While the cravings and associated feelings of losing access to the use of a cell phone are congruent with several indications of other addictions, the dependence is unique in the sense that it is thought of as healthy and is not limited to a singular or primary objective. The social problems associated with excessive cell phone use are widely recognized, but they are thought of as unanticipated problems that simply need to be worked around.

## **Dedication**

I would like to dedicate this to my wife, Regina, who has spent many evenings alone over the last ten+ years while I spent seemingly endless hours on ‘that damned computer’ finishing my education. Thank you for your patience.

PREVIEW

## **Acknowledgments**

I would like to acknowledge my sister, Sharyn. More than anyone, she fully supported my efforts to finish my graduate studies. Every time we have spoken over the last ten years, she asked what classes I was taking, what I liked and didn't, and even asked to read a couple of academic papers I had written. More than anyone, it is as though she completed this journey with me from a thousand miles away.

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## **Table of Contents**

Acknowledgments	iv
List of Tables	viii
CHAPTER 1. INTRODUCTION	1
Background of the Problem (Introduction)	1
Statement of the Problem	7
Purpose of the Study	7
Significance of the Study	9
Research Design	10
Research Questions and Hypotheses	13
Assumptions and Limitations	14
Definition of Terms	16
Expected Findings	20
Organization of the Remainder of the Study	21
CHAPTER 2. LITERATURE REVIEW	22
Introduction to the Literature Review	22
Theoretical Orientation for the Study	25
Review of Research Literature and Methodological Literature Specific to the Topic or Research Question	26
Critique of the Previous Research	67
Summary and Synthesis of the Research Findings	72
CHAPTER 3. METHODOLOGY	74
Purpose of the Study	74
Research Design	75

Target Population and Participant Selection	76
Procedures	77
Instruments	79
Research Questions and Hypotheses	82
Data Analysis	83
Ethical Considerations	85
Expected Findings	86
CHAPTER 4. RESULTS	87
Introduction: The Study and the Researcher	87
Description of the Sample (Participants)	89
Research Methodology Applied to the Data Analysis	91
Presentation of the Data and Results of the Analysis	93
Summary	154
CHAPTER 5. RESULTS, CONCLUSIONS, AND RECOMMENDATIONS	157
Introduction	157
Summary of the Results	158
Discussion of the Results	161
Conclusions Based on the Results	164
Limitations	181
Implications of the Study	183
Recommendations for Future Research or Interventions	186
Conclusion	187
REFERENCES	190

PREVIEW

## **List of Tables**

Table 1. Demographic Characteristics of the Sample	91
Table 2. Open Coding Examples	95
Table 3. Emergent Axial Codes	119
Table 4. Selective Codes	146

PREVIEW

## **CHAPTER 1. INTRODUCTION**

The topic of this study is the modern addiction regarding the excessive and often obsessive use of cellular phones. As they become omnipresent and deeply imbedded into everyday use, along with the benefits, unanticipated problems such as habitual dependence are becoming increasingly apparent (Scott, Ferestad & Ellestad, 2005). This chapter will discuss the background of the associated problems with cell phone usage, the unforeseen complications that have arisen, and the justification for conducting the study. Additionally, descriptive information will be discussed with regard to the methodologies employed within the study and why the specific approach was deemed scientifically appropriate.

### **Background of the Problem**

Typically, dependencies are associated with self-destructive behavior (Deci & Ryan, 2000), and although the surface indications of cell phone usage are more commonly associated with convenience, White (2003) points out that when any behavior gets to the point of dependence; when desire is trumped by forces beyond rational choice and one's life is dramatically impacted in a negative way from the inability to exercise that choice, it is worth considering the nature of that dependence and the associated implications. Because individual dependencies are notably different from each other, and not really well understood (Etter, 2008), this study was conducted to help mental health professionals understand the unique dimensions of cell phone use dependence as expressed by people experiencing the condition.

There are numerous models of addiction and not every dependency can be pigeonholed into a one-size-fits-all definition (Margolis & Zweben, 2011). For example, the American Society of Addiction Medicine (ASAM, 2017) defines addiction (dependence) as a chronic disease that involves a progressive development of reward systems in the brain that affects motivation and memory. This commonly includes relapse and can potentially be fatal if not treated (Smith, 2012). While ASAM is primarily concerned with substance addictions, Sadock and Sadock (2007) noted that there is an identifiable neurochemical activity visible with modern neuro-imaging techniques behind any form of dependence. Ultimately there is no consensual, all-encompassing definition of dependence among mental health professionals (Etter, 2008) and while there are popular quantitative measurements used to evaluate levels of dependence for specific substances, such as the Fagerström test for nicotine dependence, behavioral science professionals are always looking to improve the process and find more accurate means of assessment (Fidler, Shahab, & West, 2011). Harris (2016) suggested that establishing measures of addiction is easy; the difficulty is developing ones that are valid, easily interpreted, and useful in terms of developing effective treatment. As a relatively new phenomenon, it is difficult to specifically categorize the dependence on cell phone use with other commonly addictive behaviors.

Many addiction and mental health professionals may question if the dependence to cell phone use could actually be categorized within the chronic disease model of dependence that encompasses the possibility of fatalities if not treated. The answer may be more apparent when considering the indirect or secondary complications involved

with the addiction. The problems are not always concerned directly with the object of the dependency so much as the behaviors that accompany that dependency (White, 2003). As Margolis and Zweben (2011) pointed out, addiction is not normally the result of psychological or emotional problems; conversely, psychological impairments are often caused by addiction.

Cell phone use has become so common in society that it is not largely thought of in terms of addiction. Many people carry their cell phones on their person just as recurrently as they carry a wallet or set of keys. However, Weil (2013) notes that many cell phone users have moved well into a compulsive *need* condition where not having their cell phone can significantly disrupt their emotional state of mind. Many people have become clearly dependent on their cell phones to maintain everyday emotional balance, and deprived of this device, they could behave in socially unacceptable manners that could be considered dangerous. Aside from the potential for concerning behavior from being stripped of the source of this dependency, there are at least three very tangible problems that commonly appear in the existing literature which represent potential dangers or threats associated with the dependence to the use of cell phones.

The first and probably most apparent of these problems is that of distracted driving. Despite efforts to make it a safer practice by introducing things like hands-free technology, driving while using a cell phone is responsible for thousands of U.S. automobile accidents and deaths annually (U.S. DOT, 2013). Reaction times are calculated to be 18 percent slower for cell phone-distracted drivers (Strayer, Siegel, & Drews, 2006) and this doesn't even consider the greatly heightened dangers of texting or

checking e-mail while operating a motor vehicle. Strayer et al. (2006) found that driving while using a cell phone was just as dangerous as driving intoxicated at the 0.08 level, the blood-alcohol level most states cite as the legal limit. Despite the statistical indications, very few states in this country have serious driving restrictions concerning cell phones (Cruz, & Oloffson, 2009). Predictably, as long as the practice is considered socially acceptable and legal, individuals will have no foreseeable reason to modify their behavior.

The second substantial problem of excessive cell phone usage is concerned with social insolence or rudeness. Scott, Ferestad and Ellestad (2005) noted that the shared social norms of public spaces are infringed upon when we use a cell phone in a public place. In essence, this practice claims this public space as our own and thereby makes others in the proximity of the cell phone user feel unimportant, disregarded and spatially violated. More and more, what was formally considered common courtesy is now a matter requiring constant public instruction. Establishments like movie theaters, libraries, schools, and restaurants frequently have to post signs asking people to turn off their cell phones (Scott, Ferestad, & Ellestad, 2005). From a national survey conducted in 2005 by Swanbrow (as cited by Forma & Kaplowitz, 2012) consisting of 752 Americans, 60% of the participants stated that the public use of cell phones was disturbing and irritating while 42% went so far as to suggest that laws should be put in place making it illegal to talk on a cell phone in public spaces.

The third primary concern is with regard to social maladjustment and transgressive behavior associated with excessive cell phone use. Modern adolescents live

in a media-saturated world with instant and/or constant contact via electronic devices. Some estimates reflect that the average teenager absorbs multi-media exposure in excess of ten hours per day and are often immersed in violent video games which have been found to be strongly correlated to aggressive behavior (Brown & Bobkowski, 2011).

Other common concerns within the area of social maladjustment and transgressive behaviors include lonely or depressed teenagers who frequently use these devices to contact and “friend” strangers who may potentially represent harm (Gross, 2011). Serious integrity issues having to do with honesty and privacy exist in schools, churches and government buildings as camera phone features, internet access and text messaging have become quite problematic (Lipscom, Totten, Cook, & Lesch, 2007). Additionally, a very large and growing area of social concern is the problem of *sexting*. This is the practice of using cell phones to transmit explicit sexual images or content. Weiss and Samenow (2010) stress the need for empirical studies on sexting because simple access to online sexual content through smart phones is escalating the number of people who view it and send it on to others who may find it offensive and/or repulsive. The potential for serious ethical problems is huge and counselors struggle with compulsive, dependent clients that are constantly confronted with access to this content via their cell phones (Weiss & Samenow, 2010).

All in all, several problematic areas are immersing in the social spectrum of excessive cell phone use and while statistical indications can identify frequencies and various amounts of numerically-based data, it is exceedingly hard to grasp a holistic understanding or quantify the feelings that affected individuals harbor within this social

arena. For this reason, this study was constructed as a qualitative inquiry in order to capture the deep textures behind the thoughts and feelings associated with the obsessive need to use a cell phone. Incorporating the specific process of grounded theory, the objective extended to the development of a descriptive theory about the phenomenon that could be used to further the general understanding of this phenomenon.

The theoretical framework of a qualitative study is not always easily defined or developed (Corbin & Strauss, 2008). While existing studies have provided statistical data about cell phone related dynamics, and studies of addiction are certainly extensive, the objective of this study is to combine what is known about addiction and how that relates to the direct experience of those self-reporting as being cell phone use dependent. Margolis and Zweben (2011) illustrated that habitual dependencies are not ubiquitous in nature and as such, the specific dimensions and properties of cell phone use dependence were examined and grounded strictly in the data provided by the study participants. Existing problems are identified and noted but the objective was not rooted in the problems associated with this dependence; it was to gain a better understanding of the very nature of this specific phenomenon. While theories often evolve from an examination of a specific and identified problem, the theory generated by this study emerged strictly from the experiences of the participants. Further studies may be able to expand upon the relationship between the direct experience of dependent individuals and the specific problem areas identified with excessive cell phone use.

## **Statement of the Problem**

The existing literature illustrates several problematic aspects of cell phone use dependence such as distracted driving (Strayer et al., 2006), social insulence (Scott, Ferestad, & Ellestad, 2005), and social maladjustment behavior (Brown & Bobkowski, 2011), but the actual condition defined by the people dependent on their use remains largely unconsidered. In almost all areas of dependence, just knowing the inherent dangers does very little to discourage the behavior (Carr, 2004; Pederson, Baskerville, & Lefcoe, 1981). However, understanding the specific dimensions and properties of a dependence helps to identify and address some of the more salient and relevant problems (Elliott, Bohart, Watson, & Greenberg, 2011). The current literature lacks a representation of the direct experience of cell phone use dependent individuals and as such, this study provides specific knowledge pertaining to this phenomenon that may increase the general understanding and may be helpful for professionals in the mental health field that support this population. Additionally, further studies are encouraged to expand upon the knowledge base and increase the overall understanding of cell phone use dependence as well as dependence in general.

## **Purpose of the Study**

Dependency is a highly researched topic and addressed from many approaches in the medical and social/behavioral sciences. There are still a lot of unanswered questions surrounding addiction and several potentially relevant aspects of the condition continue to be heavily researched (Margolis & Zweben, 2011). Skewes and Gonzalez (2013) stated that there are several biological markers for addiction within the medical field such as,

genetic propensity, shortfalls in the dopaminergic reward pathways, as well as localized serotonin deficits, but biology alone does not account for all the elements involved with addiction. The *Diagnostic and Statistical Manual of Mental Disorders* (DSM) cites specific parameters for diagnosing substance addictive disorders on an individual basis. Components such as, quantities and frequency of substance consumption, the effort required to access the substance or behavior, other common activities that may be ignored due to the craving of a substance or behavior, etc. are all taken into consideration (APA, 2013). The 12-step programs such as Alcoholic Anonymous suggests that people are responsible for developing their addictions but are powerless to get past them on their own. They must develop a relationship with a higher power and trust that power to cure them of their addiction (Skewes & Gonzalez, 2013). Notably, the definitions of addiction vary among specific sources and remain heavily debated among addiction professionals (Grant, Potenza, Weinstein, & Gorelick, 2010; Hasin et al., 2013). The operative purpose behind this study was to increase the understanding of the specific dimensions and properties of cell phone use dependence so general awareness is increased, interventions may be developed, and to encourage further research. Professionals in the field may also benefit in terms of increasing their understanding of the phenomenon as it relates to their clients.

From the existing literature, similarities have been identified in specific regions of the brain regarding a large number of addictive substances and behaviors but there are no actual biochemical markers visible that explain the variances in susceptibility or stages of addiction (Koob, 2006). As such, the distinctions pertaining to common sources of

dependency, and how they are experienced on an individual basis, should be considered with specificity in order to be relevant to a given situation. While existing and projected consequences of cell phone use dependence have been fairly well identified from a peripheral perspective (Lipscom et al., 2007; Scott, Ferestad, & Ellestad, 2005; Weil, 2013), and several recent quantitative studies have illustrated such things as, frequency of cell phone use, worldwide prevalence, behavioral problems associated with excessive cell phone use and even scales for assessing levels of dependence (Davey & Davey, 2014), there remains a gap in the literature based on the internalized experience of those dependent on the use of cell phones. The data generated from this study will hopefully advance the overall understanding such that problematic areas are more easily defined and steps can be taken to minimize the potential for negative outcomes. It is worth noting that the objective of this study was not to find a convenient place to place this phenomenon within the existing theories of dependence, it was simply an examination of the dimensions and properties of cell phone use dependence such as it is.

### **Significance of the Study**

According to the Pew Research Center (2013), 91% of all adults in the United States currently own cell phones and 97% of adults under the age of 34 own them, making the cell phone the most thoroughly and quickly adopted piece of technology in world history (Pew Research Center, 2013). While these numbers do not suggest that every owner of a cell phone is dependent or even likely to become dependent on its use, they do provide a picture of the vast percentage of people being directly exposed to what can arguably be described as a very addictive device (Weil, 2013). Since there are noted

negative outcomes associated with these devices and, according to a U.N. study reported by Wang (2013), six out of the world's estimated seven billion people have access to cell phones, and Davey and Davey (2014) claimed that 84% of the Earth's population is already addicted to their cell phones, it seems reasonable that scientists should acquire as much knowledge about the relative indications as possible.

As the technology of cell phones is still relatively new, the mental health community is only starting to learn about the ill effects of becoming cell phone use dependent. It is the task of the behavioral science discipline to research and increase overall understanding about the nature and consequences of phenomena like this so that the information can be documented and made available, not only to the public, but to parents, caregivers, and teachers who may want to curtail or regulate the exposure of these devices to children. Because cell phones have been adopted so quickly and completely into society (Pew, 2013), the significance of studies like this applies directly or indirectly to nearly everyone.

### **Research Design**

The methodology for this study is the qualitative approach of grounded theory based on the foundation laid out by Corbin and Strauss (2008). In this process, data were collected, coded and categorized. The relationship between the codes and the categories were then explored and the dimensions and properties were filled out. This was completed through an integrative process of reassessing all the data from a variety of perspectives so that the associated concepts were identified, adequately defined, and the relationships between concepts were interpreted and presented by the researcher. The

objective of this study was to establish a theory about the dimensions of cell phone use dependence. Grounded theory was deemed to be the most appropriate methodology for the study because its primary function is to establish theory based on the direct experiences of the study participants (Glaser & Strauss, 1967). Creswell (2007) further emphasized that grounded theory is encouraged when there is no existing theory regarding a phenomenon, as was the case in this instance.

### **Recruitment**

Participants were recruited to take part in this study through the use of *purposeful and snowball sampling* so that respondents were capable of providing first-hand knowledge specific to this experience and referring other similar, information-rich cases. Advertisements with a brief description of the study were placed on social media websites and interested parties were asked to call a password protected phone number in order to learn more about the study. Those that maintained interest and left a contact phone number were contacted directly by the researcher. Based on a methodology suggested by DiFranza, Wellman, and Savageau (2012), respondents were asked to identify their qualitative level of dependence to cell phone use on a four point scale constructed as: 1 = *none*, 2 = *wanting*, 3 = *craving*, and 4 = *needing*. Participants were selected based on their self-report as being dependent at the third or fourth level with the one caveat being that their dependence was not based on a job requirement. It was further established that all participants were over 18 years of age and not currently institutionalized or suffering from a mental illness.

## **Data Collection**

Data collection consisted of obtaining written consent and conducting conversational interviews which were conducted in person or via Skype (online conversations conducted over computers). Interviews were initiated by pre-established open-ended questions about the experience of the dependence to cell phone use and followed with probing questions to get to the essence of the experience. Data were collected using a digital recorder in addition to taking manual field notes to highlight particular verbal responses and note any seemingly significant non-verbal communication or environmental anomalies. Participants were asked to document any additional thoughts they had on the matter following the live interview and sharing that with the researcher via standard mail or e-mail. A stamped, pre-addressed envelope was provided along with an e-mail address established specifically for this purpose.

## **Data Analysis**

In analyzing the data, a constant comparison approach was employed in order to capture the common and unique experiences of the participants. This process examines data for differences and similarities so that all data is compared to all other data and is considered a fundamental tenet of grounded theory (Corbin & Strauss, 2008).

The process of analyzing data for a grounded theory study consists of three forms of coding that were utilized in this study. Strauss and Corbin (1998) stress that words and interpretations are meaningless without common understandings and in the initial process of *open coding*, data were broken down to the core meanings and grouped into categories representing general concepts. In this regard, the words and meanings were coded such that the concepts were consistent in terms of conceptual definitions.

The second step, *axial coding*, was the process of finding, identifying and labeling connections between the categories and subcategories established by concepts identified during the open coding process (Strauss & Corbin, 1998). These axial connections were made related to specific conditions, contextual definitions, action/interactional strategies, and consequences of actions. The objective was to note if a series of related connections might appear within the data collected from the participants, thereby allowing for a better understanding of the mutually experienced phenomenon. Both coding processes continued simultaneously throughout the span of the study.

The final step of the coding process is referred to as *selective coding*, described by Strauss and Corbin (1998) as the integration of what has been directly learned and what can be deduced as a result of that knowledge. The specific goal was to establish the properties and dimensions that ultimately defined what this study is all about. Once these were established, the theory emerged from the experiences of the participants by trimming off excessive data, checking for gaps in the logic, and filling in areas that were not fully developed. A large part of developing the emerging theory was produced by the researcher thoughtfully, carefully and exhaustively examining the data for conceptual indications (Corbin & Strauss, 2008).

### **Research Questions and Hypotheses**

As a qualitative study using the grounded theory approach, the research question is strictly inquisitive in nature (Corbin & Strauss, 2008). While the research conducted in this study may generate any number of hypotheses suggesting and/or encouraging further examination, there were no predictive statements or theoretical testing procedures

involved within this study. The primary research question that guided this study was, “What are the dimensions of cell phone use dependence?”

### **Assumptions and Limitations**

#### **Assumptions**

General assumptions included the belief that respondents for this study were honest in their feelings and opinions. Because these electronic instruments are so ubiquitous and deeply imbedded into society (Pew Research Center, 2013), cell phone dependency does not carry a negative social stigma that might give participant volunteers a conceivable reason to fabricate their responses regarding their experiences. Indeed, all of the participants, as well as initial respondents to the advertisement, considered their own cell phone use dependency to be more humorous than threatening. Their admission of this dependence was similar to an admission of eating a nightly bowl of ice cream in the sense that they considered it to be a condition that invokes a little guilt but certainly not something that provokes shame or creates cause to be deceptive.

From the standpoint of ontology, this study was conducted from a constructivist perspective which holds that human beings seek meaning within their actions and that they are experts within their own experience of a phenomenon. It further suggests that reality is constructed by the perceptions and communicated narrative of the individuals experiencing the phenomenon (Northcut, 1999). Since every form of dependence has distinctive characteristics (Etter, 2008) and this particular dependency is so lacking in precedence, the researcher assumed accuracy within the eventual theory based on the specific reality as experienced and reported by the participants. More thoroughly stated;

the theory was *constructed* from the realities as experienced by the participants coupled with the existing knowledge of the researcher as an addiction therapist. It was also assumed that the epistemic value would be enhanced by the existing knowledge of the researcher regarding dependency as a general construct.

The theoretical assumptions included considerations from several theories of dependence. The surface indications seemed to closely simulate a chronic compulsive condition similar to a gambling addiction where individuals seek to cure boredom by constantly introducing new information or communications through the use of their cell phones (Coventry & Brown, 1993; Wareham & Potenza, 2010). A topic-specific assumption also included a degree of expectation that the modern anticipation of instant gratification and connectivity was an overriding dimension within this phenomenon.

In terms of measurement, the qualitative data analysis software of MAXQDA was employed as the only instrument involved with this study. As perhaps the most highly touted and accepted measurement instrument in qualitative circles, the study proceeded under the assumption that this tool helped clarify and illuminate the distinct categories within the coding process.

## **Limitations**

Qualitative studies often downplay the significance of generalizing studies to the population as a whole, and this research does not pretend to indicate precise transferability or direct generalization. Despite this limitation generally associated with qualitative studies, Patton (2002) posed that the underlying objective of purposeful sampling is specifically geared to establish that data is rich, broad in spectrum, and truly