Accessing information and social capital on Facebook: A theoretical and empirical investigation of an accelerated knowledge gap model

Emily A. Sidnam
Purdue University

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By Emily Sidnam

Entitled
ACCESSING INFORMATION AND SOCIAL CAPITAL ON FACEBOOK: A THEORETICAL AND EMPIRICAL INVESTIGATION OF AN ACCELERATED KNOWLEDGE GAP MODEL

For the degree of Master of Arts

Is approved by the final examining committee:

Sorin Matei  
Chair

Seungyoon Lee

Glenn Sparks

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Approved by Major Professor(s): Sorin Matei

Approved by: Marifran Mattson 4/14/2015

Head of the Departmental Graduate Program Date
ACCESSING INFORMATION AND SOCIAL CAPITAL ON FACEBOOK: A THEORETICAL AND EMPIRICAL INVESTIGATION OF AN ACCELERATED KNOWLEDGE GAP MODEL

A Thesis
Submitted to the Faculty of Purdue University by Emily A Sidnam

In Partial Fulfillment of the Requirements for the Degree of Master of Arts

May 2015
Purdue University West Lafayette, Indiana
For my parents, who always encourage me, support me and believe in me
ACKNOWLEDGEMENTS

To my committee, Sorin, Seungyoon and Glenn, thank you for your valuable feedback and guidance on this thesis. I am privileged to have my work vetted by such accomplished scholars, and I am thankful for the opportunities I have had to learn from you all throughout my time at Purdue.

To BLSC’s resident statistics guru, Steve, thank you for equipping me for this research with your helpful instruction in COM682 and for providing guidance on the research methodology for this thesis.

To Roger, Sarah, Matt and Justin, thank you for your help developing and launching the survey. I could not have conducted this research without your partnership.

To my colleagues and friends, Virginia and Elisabeth, thank you for your support and encouragement and for being my sounding board as I developed my ideas for this project.

Psalm 115:1
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ABSTRACT


The goal of this thesis is to develop and begin to test a modified knowledge gap model that builds upon the assumptions of the knowledge gap hypothesis, incorporates findings of recent digital divide research and accounts for the unique affordances of new media. This thesis draws upon information behavior and social capital theory and builds off past findings on knowledge and usage gaps in order to develop and explain a knowledge gap model for a new media setting. The traditional knowledge gap hypothesis explains that people of a high socioeconomic status (SES) gain more knowledge from exposure to media messages than people of a low SES, resulting in increasing “gaps” in knowledge after media exposure. This paper argues that differences in the types of ways people use new media (usage) and differences in the connections available to them through new media (social capital) mediate SES’s effect on knowledge formation, and that the features of new media like social networking sites (SNSs) can maintain or even facilitate these differences. Thus, usage and social capital variables must be added to the traditional knowledge gap model to make it useful for a new media setting. Particularly, if SES also predicts a usage gap in the use of SNSs to accrue information and social capital, it might
predict an accelerated knowledge gap phenomenon in a SNS setting. This thesis tests the accelerated knowledge gap model in a Facebook setting, using multiple regression and mediation analyses to test its hypotheses. The results support a potential causal connection between SES, usage, social capital and knowledge gain. Interestingly, while SES marginally predicted knowledge gain in one model, its effect on knowledge gain was suppressed, because people of a higher SES were less likely to use Facebook for informational purposes. Also, the data revealed a surprising finding that one of the most significant usage gaps may be explained by sex instead of SES, as women are more likely to use Facebook for interaction purposes. This could also inform potential social capital gaps, since interaction usage motivations were significant predictors of both bridging and bonding social capital.
CHAPTER 1. INTRODUCTION

1.1 Introduction

Social media are meant to bring people together, but what if they actually deepen differences between them? Researchers have long been interested in media’s role in potentially facilitating societal inequalities. For example, past research found people of a higher socioeconomic status (SES) benefit more from exposure to mass media, creating “knowledge gaps” between high SES and low SES groups after equal media exposure. With the advent of digital media, the concern about knowledge gaps expanded into a larger discussion about a worrisome “digital divide” that could widen existing inequities related to social status through gaps in access to or usage of new media (Donohue, Tichenor, & Olien, 1975; Helsper & Galacz, 2009; Robinson, DiMaggio, & Hargittai, 2003; Van Deursen & Van Dijk, 2010; Wei & Hindman, 2011; Zillien & Hargittai, 2009). The knowledge gap hypothesis provides an explanation of how media can provide unequal benefits to different social groups and digital divide research builds upon its assumption, but this hypothesis needs to be reexamined to maximize its explanatory value in a new media setting. The goal of this paper is to develop and begin to test a modified knowledge gap model that builds upon the assumptions of the knowledge gap hypothesis, incorporates findings of recent digital divide research and accounts for the unique affordances of new media. The findings from the proposed research on knowledge
gaps in a SNS setting could fill holes in the literature and spark future research to further understandings of the digital divide and knowledge gaps related to new media.

This paper has two main sections, the development of the model and the proposed research. First, I will draw upon information behavior and social capital theory and build upon past findings on knowledge and usage gaps in order to develop and explain a knowledge gap model for a new media setting. I argue that differences in usage and social capital mediate SES’s effect on knowledge formation, and that the features of new media like social networking sites (SNSs) can maintain or even facilitate these differences. While selective exposure/usage and relevant social contacts are addressed as contributory factors in the traditional knowledge gap hypothesis; they have not been modeled as important mediator variables. Since new media allow more types of usage than traditional media and since new media can extend users’ access to social connections, there are more opportunities for “gaps” in usage and social capital to influence subsequent knowledge formation. Thus, I argue that usage and social capital variables must be added to the traditional knowledge gap model to make it useful for a new media setting. Particularly, if there is a usage gap in the use of SNSs to accrue information and social capital, it might predict an accelerated knowledge gap phenomenon.

Second, in order to test the accelerated knowledge gap model, I conducted research to explore potential knowledge gaps on Facebook. This research examined how high and low SES individuals use Facebook and how this relates to their social capital and their knowledge gain on both organizational information and local news events. The setting of the study is a religious community, adding a new contribution to knowledge
gap research. This study used multiple regression, including mediation analyses, to answer its research questions and test its hypotheses. The results supported a potential causal connection between SES, usage, social capital and knowledge gain. Interestingly, while SES marginally predicted knowledge gain in one model, its effect on knowledge gain was suppressed, because people of a higher SES were less likely to use Facebook for informational purposes. Also, the data revealed a surprising finding that one of the most significant usage gaps may be explained by sex instead of SES, as women are more likely to use Facebook for interaction purposes. This could also inform potential social capital gaps, since interaction usage motivations were significant predictors of both bridging and bonding social capital. This paper ends with a discussion of the limitations of the results, the implications of the findings and applications for future research.
CHAPTER 2. LITERATURE REVIEW

2.1 Development and Explanation of an Accelerated Knowledge Gap Model

In the following sections, I develop a model to explain how knowledge gaps may form in new media contexts; I outline the mechanisms that explain knowledge gap formation, using information behavior research and related theories to ground my observations. First, I outline the core mechanisms uncovered by traditional knowledge gap research in order to create a foundation for the model. Then, I build off the initial model by applying the original mechanisms to a new media setting; I also propose new mechanisms that must be addressed in light of new media affordances. I begin by addressing the “cascade effect” brought about by a usage gap in ICT media in general. Then, I apply the knowledge gap hypothesis to specific ICT media: social networking sites (SNSs). I explain how SNSs add another dimension to the cascade and propose a model to explain how there may be an accelerated knowledge gap phenomenon facilitated by SNSs. In a new media setting, socioeconomic status may inform usage and social capital gaps that result in greater knowledge gaps subsequent to new media exposure than were possible in a traditional mass media setting.
2.1.1 Information Behavior and Knowledge Gaps

A large body of research and theory has developed around information behavior (Case, 2007; Fisher, 2006). Information behavior (IB) encompasses all activities related to an individual’s interactions with information, whether active or passive. For instance, an individual may engage in active information seeking; this is a conscious or intentional effort to acquire information, based on a perceived gap in knowledge, or an information need. Information behavior also includes “unintentional” or passive behavior regarding information. For example, unintentional information behavior includes “accidentally” encountering specific information one was not searching out, and passive information behavior includes browsing through information with no specific information-seeking goals. Lastly, IB can also include avoiding information (Case, 2007).

One topic IB research examines is how different groups vary in their information behavior patterns based on certain variables and how information seeking may have divergent outcomes for dissimilar groups. In his review of IB research and theories, Case (2007) notes that taste, personal contacts, and affluence and education are three common “anomalies” that can affect information behavior (pp. 21-22). O’Reilly (1983) identifies both contextual and individual variables that can affect information seeking. These include communication networks, roles, information availability, and individual processing variables. There are also several theories that look at socioeconomic status as an important variable when it comes to differences in information seeking and its outcomes (Fischer, 2006). In this vein, one particular topic of interest to IB research is knowledge gaps. Generally, knowledge gaps are defined as the phenomenon “when one
human group (whether defined by income, education, location or other variables)
persistently differs from another human group in what they know” (Case, 2007, p. 101).

In Gaziano’s (1997) review of knowledge gap studies, she found media use and
media exposure explain the largest effects on knowledge gaps. One interesting finding of
knowledge gap research is that “disparities in knowledge may actually be created among
groups by a program intended to reduce them” (Case, 2007). This happens when
information is dispensed indiscriminately to all target groups. Those who are better
prepared to incorporate it, due to superior economic and educational status, will truly
benefit from the information. Others will trail even further behind even if they absorb a
small amount of information, because they cannot interpret or incorporate the information
as effectively. In other words, information absorption at varying rates might increase
knowledge discrepancies, even if everybody benefits at some level. Donohue, Tichenor,
and Olien’s (1975) knowledge gap hypothesis outlines the mechanisms that explain how
media exposure can actually increase differences instead of equalizing knowledge.

2.1.2 Knowledge Gap Formation in a Traditional Media Context

In a 1975 study, Donohue, Tichenor, and Olien report findings that people of high
and low socioeconomic status (SES) benefit from
mass media exposure unequally. Media exposure
can lead to greater knowledge disparities than the
ones existing pre-exposure. They propose the
knowledge gap hypothesis, which argues people
of high SES gain more benefits from traditional

Figure 1 Knowledge Gap Formation
media than people of low SES. When media coverage of an event increases, the
knowledge gap between people of high and low SES increases (as shown in Figure 1).
This knowledge gap formation is explained by both the nature of the medium and certain
personal factors that affect knowledge absorption subsequent to media exposure
(Tichenor, Donohue, & Olien, 1970; Donohue, Tichenor, & Olien, 1975).

2.1.2.1 Mechanism: Features of the Medium

The knowledge gap hypothesis is predominantly interested in how exposure to
and use of specific media facilitates the formation of knowledge gaps (Gaziano, 1997).
Thus, all sources of information exposure and mechanisms of information assimilation
should be considered. Of course, particular, dominantly-utilized mediums must be
examined to understand how knowledge gaps start to form at the early stages of
exposure. As I will argue later, this is an important aspect of knowledge gap studies that
needs further refinement in light of unique affordances of new media. However, starting
with the traditional model, initial knowledge gap research examined print media,
particularly newspapers, and explained how features of this medium facilitated
knowledge gap formation.

One of the main features of newspapers that promoted knowledge gap formation
was that the content favored the educated (Donohue, Tichenor, & Olien, 1975). The
articles were written with an erudite audience in mind (complex vocabulary, assumed
background knowledge, etc.), so less educated individuals had to work harder to
understand the information to begin with. I would also like to posit there are two
additional features of print media that may focus the formation of knowledge gaps: they **contain a discrete amount of information** and there is a **limited number of usages for the medium**. For example, in regard to newspapers, knowledge gaps can only form on the particular subjects being covered in the paper. Also, the design of the medium dictates a limited number of uses; a newspaper can be used for information purposes or for entertainment within the context of reading the printed content available.

### 2.1.2.2 Mechanism: Personal factors.

While Donohue, Tichenor, and Olien (1970; 1975) frame differences in **socioeconomic status** as the main determinant of differences in knowledge gain, SES is a complex construct with several dimensions. While SES is often operationalized by income, **education** is the key aspect of SES that contributes to the formation of knowledge gaps related to media exposure. Tichenor, Donohue, and Olien (1975) propose that education encompasses four contributory factors relevant to knowledge gain: communication skills; amount of stored knowledge; relevant social contact; and selective exposure, acceptance, and retention of information. These factors are consistent with IB research and theory about factors affecting IB and its outcomes (O’Reilly, 1983; Johnson, 1997; Case, 2005; Fisher, 2006).

The first two factors explain why people of a high SES benefit more from the information they are exposed to in any setting. **Communication skills** and **stored knowledge** are related to important topics like business or politics and are often accumulated through one’s education. These skills allow an individual to readily
understand media messages and use those messages to build upon existing knowledge. So, highly educated people consume media from an advantaged knowledge level, which invites faster, richer knowledge accumulation. The other two factors, **relevant social contact** and **selective exposure, acceptance, and retention of information** are particularly helpful for explaining how knowledge gaps form in regard to media exposure and use. Tichenor, Donohue, and Olien (1970) explain that education could be associated with the acquisition of social contacts who help aid in knowledge accumulation. For example, a college graduate may have a diverse group of friends from her alumnus university. She can access their advice and expertise to help her understand and interpret the messages she consumes. These contacts may contribute to her selective exposure to media messages, as well. Selective exposure refers to consuming certain media or messages over others. A high SES individual may pick up a newspaper and choose to read a business article relevant to her educational background. Or, she may choose to read up on the latest political issue, because her friends often discuss it. On the other hand, a low SES individual may pick up that same newspaper and flip to the gossip columns, because she finds the business concepts hard to grasp and the topic of politics never comes up in her social circle; she would rather use her reading time for entertainment. The above scenarios are an example of how differences in social connections and related dissimilarities in selective exposure or usage lead to different knowledge outcomes for these individuals.
2.1.2.3 Traditional Knowledge Gap Model

The original knowledge gap hypothesis is simple in itself; it predicts high SES individuals will gain exponentially more knowledge from media exposure than low SES individuals. The variables highlighted by the knowledge gap perspective dig deeper and explain why differences in knowledge gain continue to deepen due to inequalities in the social and educational resources available based on SES. While other factors are discussed in different knowledge gap works, the conceptual model for the original knowledge gap hypothesis is depicted in Figure 2.

![Figure 2 Conceptual Model for the Traditional Knowledge Gap Hypothesis](image)

2.1.3 Knowledge Gap and Usage Gap Formation in ICTs

The initial knowledge gap research was conducted in the context of traditional media, mostly newspaper and print. As new information computer technologies (ICTs) like Internet-enabled devices became available, knowledge gap research explored this new media context. Researchers found that access to new media versus old media may result in more knowledge gain, resulting in greater knowledge gaps related to access (Wei, & Hindman, 2011). Knowledge gap research expanded its scope beyond print media to explore how differences in SES relate to access to new media, resulting in
findings on a possible “digital divide” in access to and usage of information computer technologies (Helsper & Galacz, 2009; Van Deursen & Van Dijk, 2010; Zillien & Hargittai, 2009).

Originally, researchers and policy makers were concerned that gaps in physical access to digital media would increase knowledge gaps. They believed if all people could access these technologies, then knowledge gaps would diminish as people received access to information through these media. Recent research shows this is may not be true; physical access to computers and the Internet does not necessarily bridge existing inequities (Van Deursen & Van Dijk, 2013). In fact, various studies have found that advantaged people—particularly wealthy, well-educated males—are most likely to benefit from access to the Internet when access is equally available to disadvantaged groups (Li & Ranieri, 2013; Van Deursen & Van Dijk, 2010, 2013). When access to the Internet is equal across SESs, knowledge gaps may continue to increase instead of shrink.

As of 2013, the majority of American adults report using the Internet; 15% of adults report they do not use the Internet at all, but only 7% of these nonusers report a lack of physical access as the reason for not using the Internet (Zickuhr, 2014). This means only about 1% of American adults reported a lack of physical access to the Internet. Thus, as the “gap” in physical access to ICTs becomes less prominent in societies like the United States, a “usage gap” may become more apparent. An important aspect of this research includes investigating if and how these usage gaps contribute to knowledge gaps.

The usage gap theory assumes that some Internet uses are more advantageous than others; thus, users can derive different benefits based on how they use the Internet
(Van Deursen & Van Dijk, 2013, p. 3). Using the Internet as a resource for information is considered especially advantageous, because this usage results in increased knowledge. Current research refers to the usage gap as the divide between those who use the Internet for informational purposes and those who do not. Wei and Hindman (2011) discovered individuals of a high SES were more likely to use the Internet for informational purposes than those of a low SES. Van Deursen and Van Dijk (2013) found that individuals of low SES actually use the Internet for longer periods of time than people of a high SES, but they utilize it for entertainment. Also, Helsper and Galacz (2009) disclose that individuals with low education are least likely to use the Internet for educational or economic purposes. SES variables (particularly education) inform this usage gap in a manner consistent with the original knowledge gap hypothesis. Since access to and time spent on the Internet do not necessarily result in the use of new media for informational purposes, knowledge gaps resulting from new media consumption must be understood as mediated by a usage gap.

Zillien and Hargittai (2009) explain that both the “knowledge-gap theory and digital divide research provide a theoretical basis that points to a relationship between social status and patterns of media use.” Thus, it is appropriate that knowledge gap research in a new media setting should take into account research on the digital divide, particularly as it applies to differences in usage. These new findings on the digital divide as a “usage gap” demand a reexamination of the original knowledge gap hypothesis for two reasons. First, features of the new medium may lead to greater opportunities for the formation of knowledge gaps (Wei & Hindman, 2011). Second, with ICTs, there may be discrepancies in knowledge gained for high and low SES individuals, not only because of
the different ways in which the information is identified or processed post-exposure, but also due to the manner in which ICTs are used. I propose that in a new media setting, the knowledge gap hypothesis should address a cascade effect, where differences in usage across SES lead to differences in information consumption, resulting in knowledge gaps. An ICT usage gap may lead to accelerated knowledge gaps, compared to those formed in a traditional media context. To develop a knowledge gap model for this new media context, I will apply the factors of the original knowledge gap hypothesis to a new media setting and propose a new usage variable.

2.1.3.1 Mechanisms: Features of ICT

Since the specific nature of a medium can influence knowledge gap formation, the knowledge gap hypothesis must be conceptualized for a new media context by addressing the unique aspects of ICTs, like computers, smart phones and the Internet. First, while the content of traditional media favored the educated, for new media, the format favors the ICT literate. Resources are made available to everyone online, but it is the technology-literate who gain the most benefits from access to ICT. It takes time, experience and education to know how to use a computer, smart phone or search engine well. This has implications for knowledge gap formation, because it opens up different options for information exposure based on willingness and ability to use ICTs strategically.

Second, while the nature of print media demands mainly two specific uses (reading for information or reading for pleasure), ICTs are like meta-media that provide access to many types of mediums. ICTs allow a large number of uses and their design
does not necessarily dictate which uses must be chosen. The **large number of uses** of new technologies open up more opportunities for disparities in information gain. For example, 20 minutes of exposure to a newspaper would most likely result in reading and information intake on some relevant matter, but 20 minutes of exposure to new media does not dictate relevant information acquisition; it could simply mean 20 minutes of online game play. Because ICTs can be used for much more than information purposes—entertainment, escape, connecting, shopping and more—it follows that exposure to these media can facilitate a knowledge gap as SES’ effect on knowledge gain is mediated by differences in usage for informational purposes.

Lastly, in the original knowledge gap hypothesis, high SES individuals encountered knowledge from an advantaged position and thus gained more knowledge from the information to which they were exposed. But, the information they could be exposed to was limited by the nature of the medium; print media covered a specific set of topics and were limited to a finite page count. In contrast, ICTs provide access to a **nearly boundless amount of information**. For those who use ICTs to seek information, exposure to these technologies could result in more knowledge acquisition than was possible when print was the dominant medium.

### 2.1.3.2 Mechanisms: Personal Factors

Now that we understand the key features of ICT that may influence knowledge gaps, we must revisit the personal factors, as well. Again, SES is the key personal factor, but it must be understood as encompassing a number of contributory variables. The
variable of education remains highly relevant, but the contributory factors must be reconceptualized to align with new media. Communication skills and stored knowledge must be extended to include ICT skills and stored knowledge about ICT usage. While gaps in overall access to the Internet seem to be closing in the U.S., people with a higher SES and education level may have access to better or more efficient ICTs (i.e. faster internet, the latest smart phone, etc.) and more training on how to use ICTs for informational purposes (i.e. media literacy classes). These skills and knowledge result in a better understanding of how to use ICTs to find relevant messages and how to build upon existing knowledge about ICT usage as new technologies develop. Extending these two contributory factors places high SES people at an even more advantaged starting point than in the original knowledge gap setting.

Also, in a new media setting the relevant social contact variable must recognize that through ICTs, people can now access and maintain more social ties than before (Lin, 1999). If highly educated people are likely to gain valuable types of contacts, new media may help them sustain and access more of these connections. For example, even if a person moves locations, she can still sustain her conversations on politics and health care with her school friends through email, chat, apps, and more. Lastly, selective exposure must be extended to include selective usage. ICTs do not dictate one main use, like print media; instead a user must choose from many possible uses with differing benefits. A person’s education and upbringing can affect not only her selective exposure to and acceptance of messages, but also her selective usage of ICT. This usage can determine the types of messages to which she is exposed. Based on usage gap research,
usage should be distinguished as an important variable that mediates SES’s effect on knowledge gain, informing the formation of knowledge gaps.

2.1.3.3 Distinguishing Usage as a Mediator

Incorporating usage types or usage motivations as a mediator variable is a useful addition for the knowledge gap model, especially in a new media setting. In the original knowledge gap hypothesis, selective usage was included as a contributory factor but was not modeled as a key mediator variable. Most knowledge gap studies focus on moderation models, but a mediation model could bring a deeper understanding of how and why knowledge gaps form. Moderation refers to an interaction effect where different levels of a certain variable have differing relationships to an outcome variable (Warner, 2012). Moderation models show *when* a certain outcome will occur. For example, traditional studies on the knowledge gap hypothesis focus on moderation models and note the conditions *when* knowledge gaps form across SES groups—namely, when exposure to information in mass media increases for everyone, higher SES individuals accrue knowledge at faster rates than people of a lower SES. But, while it is important that moderation shows when knowledge gaps appear, it is important to understand *how* these knowledge gaps form. To model *how* this happens, knowledge gap models need to make clear the mechanisms that explain why people of a higher SES gain more knowledge from that exposure. This is where mediation becomes relevant. Mediation involves a set of causal hypotheses where the effect of one variable on another is partly or entirely transmitted by a third mediator variable; these three variables are related by causal
hypotheses, and each causal hypothesis corresponds to a plausible theoretical causal mechanism (Warner, 2012). In the case of knowledge gaps, usage might mediate SES’s effect on knowledge gain. In other words, SES may predict more strategic usage of ICTs and that strategic usage could cause the individual to gain more knowledge. Distinguishing usage as a mediator variable would let the researcher examine if knowledge gain is explained mostly by SES itself or by SES’s relationship to specific types of media usage. Based on past findings, differences in usage related to SES could explain the differences in knowledge gain subsequent to exposure to new media, and the features and affordances of new media could explain accelerated knowledge gap formation in these new media settings.

Past findings on the usage gap hypothesis support a causal connection between SES and usage and point to a connection between usage and information-acquisition. The usage gap hypothesis assumes that some Internet uses are more advantageous than others; thus, users can derive different benefits based on how they use the Internet (Van Deursen & Van Dijk, 2013). As mentioned before, past studies found that individuals of a high SES (measured by income and education) are more likely to use the Internet for informational and educational purposes, and they use the Internet for lower amounts of time than low SES individuals (Wei & Hindman, 2011; Helsper & Galacz, 2009; Zillien & Hargittai, 2009; Van Deursen & Van Dijk, 2013). Collectively, these findings suggest that usage gaps are informed by SES, just like some knowledge gaps. Also, these usage gaps may lead to greater information gain for people of high SES when exposed to new media. ICTs allow a wide range of uses and provide access to richer information resources than traditional media; therefore, it could be they encourage deeper knowledge
gaps to form at a quicker rate, starting from an earlier point in time when people are exposed to ICTs. These accelerated knowledge gaps would form as people with high SES use ICTs more strategically and gain more knowledge from their interaction with the information they encounter. Thus, an ICT usage variable should be distinct from the traditional SES variables and should mediate the effect on knowledge gain. In other words, differences in knowledge gain should be understood as developing through differences in how people of different SES use new media.

Since ICTs provide many different possible uses and some uses may be more beneficial than others, it is important to develop a usage measure that captures all possible usage types in an exhaustive, but parsimonious typology. Studies like Van Deursen and Van Dijk (2013) and Kwon, D’Angelo & McLeod (2013) developed their usage classifications through a Uses and Gratifications approach (Katz, Blumler & Gurevitch, 1974); they identified a list of different types of new media usages and then categorized these usages based upon the types of benefits (gratifications) they provide. Then, usage was measured by an individual’s motivation to use the media for those usages. One weakness of the resultant categories of these two studies is that, while they are exhaustive, they are not parsimonious. For example, Van Deursen and Van Dijk’s (2013) usage classification for Internet usages includes: Personal Development, Leisure, Commercial Transaction, Social Interaction, Information, News and Gaming. One problem with these categories is that “Information” and “News” purposes both seem to meet the same need for understanding the world or provide the same gratification for information. Also, “Gaming” could be seen as a type of “Social Interaction.” While no typology of usage will be perfectly mutually exclusive, as one usage may meet multiple
needs or provide several gratifications, I believe there is a more parsimonious way to establish usage categories for ICT media. I propose the individual media-system dependency typology may be a more useful way to identify usage types pertinent to knowledge gap and digital divide studies.

Media System Dependency Theory considers the interrelationship between the individual, social systems, and mass media in order to explain media effects (Ball-Rokeach & DeFleur, 1976; Ball-Rokeach, 1985; Ball-Rokeach, Rokeach, & Grube, 1984). Ball-Rokeach (1985) explains that media-system dependency describes “a relationship in which the capacity of individuals to attain their goals is contingent upon the information resources of the media system” (p. 487). This means that individuals depend on media as means to accomplish core goals. (This theory conceptualizes individual’s media usage as driven by “goals” as opposed to “needs,” because needs can be rational or irrational, conscious or unconscious, while goals connote a purposeful, problem-solving motive; but, these goals can be understood as related to core human needs.) At the individual levels, media-system dependency can be explained as “a relation between the individual goals and the extent to which these goals are contingent upon the resources of the media system” (p. 495). An individual’s dependencies on a certain medium can change as the individual’s goals change, media resources change, or perceptions of the utility of the media change. The individual goals that inform media system dependencies are based on the assumption (informed by Katz, 1979) that the three major dimensions of human motivations that drive media behavior are: understanding, orientation, and play.
Each of the three main usage motivations are divided into social and personal components (Ball-Rokeach et al., 1984). The “understanding” motivation refers to an individual’s goal (or need) to have an awareness and comprehension of the world she lives in, and it includes “social” and “self” understanding. Social understanding refers to a need to monitor, comprehend and interpret people, events and society. The understanding of self refers to one’s need to understand her own beliefs, behaviors and values. The “understanding” motivation would encompass usage for information-seeking on many different topics, including science, news, religion, etc. The “orientation” motivation is related to the need to conduct personal actions and social interactions successfully and is split into “interaction” and “action” categories. The interaction category is concerned with the need to interact with people, like communicating with others or making friends or other social connections. The action category concerns the individual and is related to actions to purposively orient oneself or make decisions (i.e., voting, shopping, etc.). Lastly, the “play” motivation is related to an individual’s need for enjoyment, pleasure, and relaxation, and it is divided into both “social” and “solitary” categories. The social category refers to an individual’s goal to enjoy stimulating play with other people through media content, and the solitary category refers to an individual’s goal to enjoy media content alone. Because all ICT usages can fit under one of these three categories, and because the “understand” category distinctly captures information-seeking usages, I suggest the usage variables for usage gap and knowledge gap research utilize these three categories.

All in all, for a new media context, gaps in knowledge formation may start at an earlier point in the media consumption process, because exposure to ICT mediums is
more likely to result in information exposure for high SES individuals. This can be explained by a mediation model where SES predicts information-related usage, which in turn leads to knowledge gain. A knowledge gap might start developing as soon as people start using ICT tools for identifying information and would accelerate as they encounter that information. A “cascade effect” occurs for high SES individuals as strategic ICT usage opens wider exposure to valuable information, accelerating the formation of knowledge gaps across SES. In its simplest form, this “cascading” knowledge gap hypothesis can be modeled as shown in Figure 3.

![Figure 3. Conceptual Knowledge Gap Model for an ICT Context](image)

2.1.4 Knowledge Gap Formation in a Social Networking Sites

As discussed above, knowledge gap formation may be accelerated in new media settings and usage gaps are an important variable for understanding this phenomenon. While usage gaps have been explored in ICTs in general, there has been little or no research pertaining to usage gaps in the context of one of the most prevalent new media: social networking sites (SNSs). Most scholars rely on the boyd and Ellison (2007) definition of Social Network Sites as “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of
other users with whom they share a connection, and (3) view and traverse their list of
connections and those made by others within the system.” SNSs, like Facebook and
Twitter, are one of the most universally used ICT media, with 72% of online adults using
SNSs (Duggan & Smith, 2013). Thus, they are an important research context. While they
allow multiple uses, SNSs provide a more focused context for research than ICT as a
whole. I argue that not only are SNSs a valuable research context for knowledge gap
research, but these sites may actually create an amplified version of the cascade model
due to their unique features and their ability foster social capital gain and maintenance.
Thus, in this next section I explore how SNSs fit into the cascade model and I propose a
new social capital variable be added to explain an accelerated knowledge gap
phenomenon in the context of social networking sites.

2.1.4.1 Mechanism: Features of SNSs

Many of the features of SNSs mirror those of ICT in general. For SNSs, the
format favors the ICT literate, and more specifically, the format favors the SNS literate.
If an individual is familiar with how to use a mobile device, how SNSs generally
function, and how to use SNSs strategically, she is more likely to quickly navigate and
gain benefits from SNSs. Also, like ICT in general, SNSs provide access to a much
larger, more diverse pool of information than print media. SNSs are different than a
traditional website or search engine, because they provide users with unequal access to
information with social metadata. SNSs are distinctive media, because each individual
user has a unique stream of information in her newsfeed when she accesses the site. This
information comes from the connections made on the site. The newsfeed is populated by the content that these connections create, share and engage. Complex algorithms choose what information comes through the newsfeed based on the activity of a user and her specific network of connections. SNS users have access to the information explicit on the site’s feeds, and they can also solicit information from any of their connections. Thus, the site is designed to allow inequality when it comes to the diversity, amount and quality of information available.

In addition to this unequal access to information, this information is unique in that it includes social metadata. I use the term “social metadata” to refer to visualizations on SNSs that associate particular pieces of information with one’s social contacts. For example, when a person sees a news article shared on Facebook, she also receives metadata about that article when she sees who shared the article and which contacts “like” the article. This feature is particularly salient to information exposure/acceptance and subsequent knowledge gain. According to IB theory, this social metadata can influence how the user interacts with the information available. For example, cognitive authority is an important IB concept that refers to people or organizations that are perceived to be authorities on a subject; cognitive authorities act as a quality control component of information behavior (Fischer, 2006, p. 83). While the link to a specific article a user saw on Twitter or Facebook is also available via a Google search, that article may hold more meaning on the SNS because it associates that article with a particular person in the user’s network; that affiliation may affect the user’s selective acceptance or exposure to the article.
While SNS design promotes inequality in access to information in the newsfeed, SNSs also provide a large number of usages that may allow gaps in usage types. SNSs can be used for information purposes, but also for entertainment and escape. People who choose to explore the articles posted by friends on Facebook or ask questions of their connections may gain more knowledge from their exposure to the site than those who simply spend time taking Facebook quizzes. More importantly, one unique aspect of SNSs that presents an opportunity for inequalities to develop is that their large number of uses includes networking, or making and maintaining connections to strengthen one’s network; usage for networking has the potential to increase the amount and type of contacts and thus the amount and quality of information available.

2.1.4.2 Mechanism: Personal Factors

The personal factors that may inform knowledge gaps in new media can be specified to address phenomena relevant to SNSs. First, the communication skills and stored knowledge variables should be extended to include SNS skills and stored knowledge about SNS usage. These factors likely will vary according to an individual’s education level (and perhaps field). In SNSs, the relevant social contact variable should also include relevant online contacts. The fact that SNSs can be used to passively or actively access information from one’s contacts has significant implications for information behavior research. In his model of information seeking, Johnson (1997) argues that “in almost any information seeking context, there is a strong preference for information that comes directly from other people. Use of other channels tends to be
predicted by the social presence they offer; that is, how much they are perceived as being like a face-to-face conversation” (p. 92). Thus, SNSs may be more likely to be used as sources of information, and thus are a particularly valuable medium for exploring information behavior and its outcomes in a new media setting. Lastly, selective exposure to media should include **selective usage of SNS functions**.

Just as usage gaps exist in the context of overall ICT usage, it may be this SES-influenced **usage gap** is mirrored for SNS use; so, the knowledge gap model should account for the fact that differences in usage of SNSs for information purposes would intensify resulting knowledge gaps. Plus, I argue the usage gap in SNSs may produce a unique phenomenon due potential differences in usage of the site to make, maintain and access connections. Adding connections in general increases the amount and type of information available to individuals; but more importantly, certain types of networking usages on SNSs can contribute to an individual’s social capital. In general, social capital refers to resources amassed and accessed through relationships among people (Coleman, 1988), and it has been found that SNS usage can predict certain types of social capital (Ellison, Steinfield, & Lampe, 2007; Lampe, Ellison, & Steinfeld 2006; Hofer & Aubert, 2013; Valenzuela, Park, & Kee, 2009). A gap in SNS usage for networking or social interaction purposes could inform gaps in social capital, just as gaps in informational usages can facilitate gaps in knowledge. Disparities in the social capital one possesses online and offline can also influence knowledge gap formation. Thus, I posit measures of social capital should be included in a knowledge gap model for a SNS context.
2.1.4.3 Distinguishing Social Capital as a Mediator

Information behavior theorists have found social capital theories to be helpful in explicating information behavior and outcomes (Case, 2005; Fisher, 2006). Lin (1999) defines social capital as “resources embedded in a social structure which are accessed and/or mobilized in purposive actions” (p. 35), and one of these resources is information. Coleman (1988) explains that “one means by which information can be acquired is by the use of social relations that are maintained for other purposes,” and these social relations “constitute a form of social capital that provides information that facilitates action” (Coleman, 1988, p. 104). While social capital can be an information resource, not all connections provide the same types of benefits.

The two main types of social capital are bonding and bridging social capital (Putnam, 2006). Bonding social capital refers to connections to strong ties, usually close friends and family. The individual returns of bonding capital generally include social support and life satisfaction, but these strong ties also have implications for information behavior because “the speed of [information] flow, credibility, and especially influence are all greater through strong ties” (Granovetter referring to Weimann, 1980, p. 12). On the other hand, bridging capital is usually available through one’s weak ties or acquaintances, and usually yields individual returns in the form of unique information. Bridging networks “are better for linkage to external assets and for information diffusion” (Putnam, 2006, p. 22). Usually close-knit circles of connections possess similar information; connections outside of one’s close circle are more likely to possess non-redundant information. This unique information available through bridging or weak ties can result in important benefits, such as employment opportunities (Granovetter, 1973,
Both forms of social capital have implications for information gain, but bridging capital often provides access to more valuable information assets. Because social capital has significant implications for information acquisition, it is important to include social capital variables in the knowledge gap model. A quick review of current research on social capital in new media settings shows that social capital is particularly relevant to the SNS context.

Various studies have explored how internet usage affects a user’s social capital (Boase, Horrigan, Wellman, & Rainie, 2006; Quan-Haase & Wellman, 2004; Wellman, Haase, Witte, & Hampton, 2001). Many researchers are enthusiastic about new media’s implications for social capital. For example, Lin (1999) states that new media’s ability to provide “access to free sources of information, data, and other individuals create social capital at unprecedented pace and ever-extending networks” (p. 46). In a 2007 study, researchers found that “general Internet use was not a significant predictor of bridging social capital, suggesting that only certain kinds of uses of the Internet support the generation and maintenance of bridging social capital” (Ellison et al., 2007, p. 1157). Moreover, “Internet use alone did not predict social capital accumulation, but intensive use of Facebook did” (Ellison et al., 2007, p. 1164). These findings show that only certain uses of new media have been shown to predict social capital, and that usage of SNS may uniquely contribute to the accumulation of social capital. Subsequent studies found positive associations between SNS usage and both bonding and bridging social capital (Ellison, Steinfeld, & Lampe, 2007; Lampe, Ellison, & Steinfeld 2006; Hofer & Aubert, 2013; Valenzuela, Park, & Kee, 2009). These studies show more significant results for bridging social capital than bonding social capital. In fact, Ellison et al. (2007)
argue that “bridging social capital might be augmented by [SNSs], which support loose social ties, allowing users to create and maintain larger, diffuse networks of relationships from which they could potentially draw resources.” If bridging social capital can be augmented by SNSs, it could have significant implication for knowledge gain, because not only do these sites increase one’s number of connections, but they make the information available through these connections more readily accessible and allow for less costly information requests than traditional media.

Social capital is a key factor in information seeking, because an individual’s social capital determines both the type and value of the information available through her connections, and it can even contribute to honing relevant communication skills (Coleman, 1988, Granovetter, 1973; Putnam, 2006). Social capital has been linked to SES and can help explain information seeking processes and their outcomes; thus it is an important variable to include in the knowledge gap model. At this point, I would like to argue that, in the model for knowledge gap formation in a SNS setting, social capital (particularly bridging social capital) should be included as a variable that serially mediates SES’s effect on knowledge gain, along with SNS usage. Serial mediation refers to a mediation model where two or more mediators are linked in causal order themselves (Hayes, 2013). In other words, serial mediation explains a phenomenon where one mediator depends on another to transmit an effect. In the case of knowledge gap formation, I propose that the usage mediator variable is causally related to the social capital mediator variable, and both variables mediate SES’ effect on knowledge gain. Since certain usages can predict social capital, it may be that SES predicts more strategic SNS usage, which leads to increased social capital. In particular, bridging social capital
can provide valuable information resources, so increases in bridging social capital could result in increased knowledge gain for high SES individuals versus low SES individuals. The knowledge gap hypothesis for SNSs could be modeled as shown in Figure 4.

![Conceptual Knowledge Gap Model for a SNS Context](image)

**Figure 4 Conceptual Knowledge Gap Model for a SNS Context**

Both usage and knowledge gaps may be amplified by disparities made possible in the design of SNSs. As people engage SNSs, usage is enhanced by the extent of the social media connections one has accrued and maintained. Due the standard SNS design, the more connections one has, the more these connections act as information providers and filters. Each new connection becomes a potential information source, and the more connections available, the more the newsfeed algorithms capitalize on the “wisdom of crowds,” reducing the amount of effort needed to identify and evaluate important or popular information. Thus, the information gap appears earlier as a consequence of the fact that those who cultivate broader information networks have more information resources available through their connections and spend less time and effort identifying the information they need. In line with the original knowledge gap hypothesis, even if
people of a low SES used a SNS for the same amount of time as a person with a high SES status and they were exposed to the same information in the newsfeed, they would still benefit less from the information available. But, it may be a person with a low SES is not exposed to the same amount and quality of information that a person of a high SES may have access to through their contacts. Thus, they are falling even further behind in what they know than in the traditional knowledge gap model.

Table 1 Knowledge Gap Mechanisms for Different Media Settings

<table>
<thead>
<tr>
<th></th>
<th>Print Media</th>
<th>ICTs</th>
<th>Social Networking Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Factors (SES &amp; Education)</strong></td>
<td>- Communication skills</td>
<td>- ICT skills</td>
<td>- SNS skills</td>
</tr>
<tr>
<td></td>
<td>- Stored knowledge</td>
<td>- Stored knowledge</td>
<td>- Stored knowledge</td>
</tr>
<tr>
<td></td>
<td>- Relevant social contact</td>
<td>- Relevant social contact</td>
<td>- Relevant online contacts</td>
</tr>
<tr>
<td></td>
<td>- Selective exposure</td>
<td>- Selective exposure/usage</td>
<td>- Selective exposure/usage</td>
</tr>
<tr>
<td><strong>Medium Factors</strong></td>
<td>- Content favors educated</td>
<td>- Format favors ICT literate</td>
<td>- Format favors SNS literate</td>
</tr>
<tr>
<td></td>
<td>- Discrete information</td>
<td>- Abundant information</td>
<td>- Unequal access to info. with social metadata</td>
</tr>
<tr>
<td></td>
<td>- Limited uses of medium</td>
<td>- Large number of uses</td>
<td>- Large number of uses, including networking</td>
</tr>
</tbody>
</table>

In sum, there may be an accelerated, cascading knowledge gap phenomenon in regard to SNSs. A person’s SES (particularly education), selective exposure or usage motivations, and available online social capital may influence both her usage of SNSs and her knowledge formation when exposed to information on the sites. The SNS cascading knowledge gap model explains that high SES predicts higher instances of SNS usage for information and interaction/networking purposes. Higher instances of these strategic SNS usages predict higher amounts of social capital. In particular, higher instances of SNS usage for information purposes and higher instances of bridging social capital result in faster accumulation of knowledge. Ultimately, this model predicts that exposure to new media, particularly social networking sites, will result in accelerated
knowledge gap formation across SES extremes compared to the knowledge gap formation observed in a traditional media setting. (The three settings discussed are compared and contrasted in Table 1.)
CHAPTER 3. EMPIRICAL INVESTIGATION OF THE ACCELERATED KNOWLEDGE GAP MODEL

3.1 Testing the Accelerated Knowledge Gap Model in an SNS Setting

In this next section, I outline research to further develop the accelerated knowledge gap model by testing it within a specific context. In order to test the model, this paper proposes several research questions to be explored in the context of the social networking site, Facebook. In order to measure specific knowledge and test the model in a more bounded context, this research will focus on Facebook users who are affiliated with a particular megachurch. This next section provides the rationale behind the research context, reviews past research, and presents the main research questions to test the accelerated knowledge gap model.

3.1.1 Facebook as a Setting for Knowledge Gap and Digital Divide Research

The accelerated knowledge gap model will be best tested in the context of a particular SNS. Recent studies have expanded knowledge gap research into a larger discussion of a digital divide that could encompass gaps in access, usage, knowledge, etc. Since current digital divide research is concerned with Internet usage, it is fitting this research context embrace the second most popular site in the world, Facebook (“Alexa Top 500,” 2015). While other social media are growing in popularity, Facebook is still
the strong front-runner with 71% of online adults using the site; its closest competitor can only claim 28% of online adults. Also, 70% of Facebook users engage with the site at least once a day, and nearly half engage multiple times a day; this consistent, daily usage outpaces the usage of competing sites like Twitter (Duggan, Ellison, Lampe, Lenhart, & Madden, 2014). Since a majority of online adults use the site frequently, Facebook has significant implications for regular information exposure and is an important context for information behavior research. This SNS has been a popular medium of study, but there is still much to be discovered in regard to uses of the site and effects of Facebook exposure (Caers, et al., 2013).

Since the knowledge gap hypothesis examines relationships between high SES and low SES individuals, it is important the medium of study offers a wide range of users. Facebook is not only the most popular SNS, but it encompasses the most diverse demographic of users compared to other SNSs (Duggen & Brenner, 2013). Facebook also offers a wider range of usages compared to SNSs like Twitter or Pinterest, which provide a comparatively limited set of functions. Because there are many Facebook functions (status updates, private or group messaging, sharing, applications, etc.), there are more opportunities for differing usages of the site. Facebook features like the newsfeed, search engine, and link-sharing functions provide opportunities to use the site for informational purposes. Recent Facebook research also identifies that certain Facebook uses are predictors of social capital (Ellison, Steinfeld, & Lampe, 2011; Ellison, Gray, Lampe, & Fiore, 2014). So, Facebook’s prominence, popularity, and diverse functions make it a meet site for research on usage gaps related to information and social capital gain and the knowledge gaps that may result from exposure to the site.
3.1.2 Religious Communities, Social Media Usage and Knowledge Gaps

In order to test the accelerated knowledge gap model, the sample and research context must possess several specific features. First, the study should examine a group of users that displays a wide socio-demographic range, since knowledge gap research is concerned with looking at both high and low SES. Also, in order to test social capital’s relationship to SES and knowledge gaps, having a wide range of ages and SESs in the sample is particularly important to addressing gaps in research. While there have been studies on social capital and Facebook, the majority of these studies have been limited to a college population and can only be applied to that particular demographic. Second, in order to develop a useful knowledge variable, the group of users must be specific enough that it can be tied to a particular set information available on Facebook. Third, the knowledge measured should have implications for the well-being of the users, since knowledge gap and digital divide research is traditionally interested with how media exposure and usage relates to creating or sustaining inequalities in society. For example, in the past, knowledge gap studies have focused on knowledge gaps on topics like nanotechnology (Su, Cacciatore, Scheufele, Brossard, & Xenos, 2014) or local news topics (Donohue, Tichenor, & Olien, 1975), because it is assumed that knowledge on topics like science, politics or important news events are beneficial and gaps in knowledge on these topics would be particularly detrimental. One user group and context that would meet all three of these requirements is a group of users that is affiliated with a church that uses Facebook. These users will display a more diverse range of SES than other sample groups collected through a common job or university, and this group can be asked specific questions about knowledge pertaining to church and community events.
that would be available to them on Facebook. Religion is a significant part of many people’s lives and the internet is a significant source of religious content and a site for potential knowledge gain (or disparities). Not only would this context be an appropriate one to test the model, but it would also provide a unique contribution to research on knowledge gaps, new media usage and social capital.

Before social networking sites became popular, Pew Research reported that over 28 million Americans were going online to find information about religion and to connect with other people about their faith. Many of these “Religion Surfers” used the internet to find information about their own faith and used online tools to enrich their knowledge of their offline faith. Over half of these “Religion Surfers” reported that the internet “provides easier access to religious study and educational materials than they can otherwise find offline” and “provides easier access to prayer and other devotional materials than they can otherwise find offline” (Larsen, 2001). More recently, a 2014 Pew Research study found that, in an average week, 20% of Americans share their own faith on social networking websites or apps (such as Facebook and Twitter) and 46% of Americans see religion shared online. These activities often complement offline faith practices. “Americans who said they frequently attend religious services were more likely to engage in these electronic religious activities than those who said they attend religious services less often” (“Religion and electronic media,” 2014). People use new media to seek information about religion and connect with others about their faith and more and more churches are becoming active on SNSs, but there has been little research that explores the religious dimension of new media usage. To my knowledge, there has been no knowledge gap research conducted on differences in knowledge gain pertinent to a
religious context and religious usages have not been included in past usage gap research. Virtual communities are becoming important expansions of people’s offline lives; since religion is an important component of many individual’s lives and a significant aspect of society, it is important that research on media usage and effects be conducted in this context.

3.1.3 Research Questions to Test the Model

Now that the usefulness of the research context has been discussed, this section will outline the core research questions that will be used to test the model (see Figure 5). It will also overview past findings that can be applied to the study to inform specific hypotheses related to the research questions. This study will explore the relationship between socio-demographic variables and knowledge gain and look at possible causal connections between SES, usage and social capital by asking the following research questions:

**RQ1:** Is there a “usage gap” or “social capital gap” between SNS users?

**RQ2:** Does SNS usage predict social capital?

**RQ3:** Does SNS usage mediate SES’s effect on knowledge gain?

**RQ4:** Does social capital mediate SES’s effect on knowledge gain?

**RQ5:** Do SNS usage and social capital serially mediate SES’s effect on knowledge gain?
3.1.4 Building upon Past Findings and Presenting Hypotheses

Past findings provide a starting point for understanding and examining potential gaps in Facebook usage, gaps in social capital, and subsequent knowledge gain. While exploring the abovementioned research questions, this study will test several hypotheses that examine specific relationships between components of the overarching variables. These hypotheses will bring a more nuanced understanding of the relationships between the variables and test the value of particular measures for future research.

3.1.4.1 SNS Usage Gaps and Social Capital Gaps

The first research question examines whether certain user demographics, particularly SES, will predict gaps in usage or social capital. To my knowledge, there are no studies that examine how SES variables relate to Facebook social capital to inform specific hypotheses, but there is research on how SES variables relate to new media usage. As mentioned in the literature review, past research found that, in the context of Internet usage, high SES individuals were more likely to use the Internet for
informational purposes. Also, people of a low SES were more likely to use the Internet for longer amounts of time, but for entertainment (Wei & Hindman, 2011; Helsper & Galac, 2009; Van Deursen and Van Dijk, 2013). Based on these past findings, I present the following hypotheses:

H1a: SES will predict higher reports of usage “to understand” (informational).

H1b: SES will predict lower reports of usage “to play” (entertainment & escape).

H1c: SES will predict lower reports of time spent on Facebook.

3.1.4.2 Facebook Usage and Social Capital

The second research question examines how usage may or may not predict social capital. Several past studies have uncovered relationships between social capital and particular communication practices on Facebook. The first study examined three distinct modes of interaction (initiating, maintaining, and social information seeking) and their relationship to general measures of bonding and bridging social capital (Ellison, et al., 2011). The study found that the “maintaining behavior” was related to increases in general measures of bonding social capital, and that “social information-seeking behavior” predicted general bridging social capital. These behaviors encompassed actions like seeking information about social contacts (browsing their profiles) and interacting with social contacts (commenting or sending messages to keep in touch). In a subsequent study, the researchers examined behavioral data consisting of resource mobilization requests and how they related to Facebook-specific social capital (Ellison, et al., 2014). Variables like number of Facebook Friends and number of mobilization requests
predicted Facebook-specific bridging social capital, but no usage measure was a significant predictor of Facebook-specific bonding social capital.

In a study of college-aged Facebook users, Kwon, D’Angelo, and McLeod (2013) looked at overall Facebook usage and identified six main types of Facebook usage motivations. These include information-seeking, entertainment, communication, social relations, escape and Facebook applications. Kwon, et al. (2013) also compared type of usage and amount of usage to resulting measures of general social capital. They found “the extent to which students devoted themselves to Facebook significantly predicted the amount of bridging social capital” (p.39). Reports of Facebook usage motivations for social relations were positively related to bridging social capital, while the communication motive was only a marginally significant predictor of bridging social capital. Bonding social capital was negatively related to Facebook use for escape. Similar to the Van Deursen and Van Dijk (2013) measures, one possible limit of the measures of usage in the Kwon, et al (2013) study is that uses like “information-seeking,” “communication” and “social relations” can overlap, because several different needs could explain the resultant motivations to engage in those uses. A more parsimonious grouping of usages may result in a more useful measure, so this study will utilize Ball-Rokeach’s (1985) categories of media-system dependency. As mentioned previously, this theory argues that all media usage can be understood and individual’s attempt to meet three core goals to understand (information usage), to play (social play and entertainment/escape usage) and to orient (usage for social interaction and usage to actively shape individual standing).
The abovementioned Facebook studies show a connection between Facebook usage types and motivations and resultant social capital, supporting the idea that a SNS usage gap might result in a social capital gap. Only the study that examined behavioral data looked at Facebook-specific social capital, though (Ellison, et al., 2014); the others examined general measures of social capital not tied to Facebook connections. When examining how Facebook usage relates to social capital, it will be useful to focus on measures of social capital that are specific to Facebook and can be more closely tied to the usage measures. Thus, this study will compare usage motivations with Ellison, et al.’s (2014) measure of Facebook-Specific Social capital. This paper will use the recent findings on Facebook usage and social capital to develop its measures and make the following hypotheses:

H2a: Facebook usage motivations will significantly predict Facebook-specific social capital.

Since bridging capital is associated with diverse networks of weak ties which provide access to valuable information resources, I also hypothesize that:

H2b: The Facebook usage motivation “To Understand” will predict Facebook-specific bridging social capital.

H2c: The Facebook usage motivation to “Orient: Action” will predict Facebook-specific bridging social capital.

Lastly, since bonding social capital is associated with close ties that one would be more likely to regularly interact with, I hypothesize that:

H2b: Facebook usage motivations “To Orient: Interaction” will predict Facebook-specific bonding social capital.
3.1.4.3 SES, SNS Usage and Knowledge Gain

The third research question explores whether measures of SNS usage will mediate SES’ effect on knowledge gain. A recent Pew Research survey found that 87% of online adults report that the Internet and Internet-enabled devices like cell phones have improved their ability to learn new things. A majority of respondents reported that the Internet and digital tech helped them feel more informed on topics like products and services (81%), national news (75%), local news (67%) and friends (67%). In particular, people with higher income and education are more likely to report that the Internet and cell phones help them “a lot” when it comes to learning new things (Purcell, & Rainie, 2014). Also, as mentioned above, the Internet and social media are also reported to be information sources for religious content (Larsen, 2001; “Religion and electronic media,” 2014), but how SES variables relate to this information context has not been explored.

While there is evidence that people believe online tools are beneficial for knowledge gain, this has not been explored in detail within the context of Facebook, and neither has a study examined whether SES and SNS usages work together to predict knowledge gain. Since past studies provide evidence that both knowledge gaps and usage gaps can be predicted by SES variables, the next step is to examine whether there is a potential causal connection between SES, usage and knowledge gain.

To understand the context better, this study will explore what types of knowledge gain Facebook users report, particularly as it applies to religious information and local news information. Past knowledge gap research has found that perceived knowledge does not always correlate to actual knowledge, though (Su et al., 2014). Thus, to examine how SES and usage relate to actual knowledge gain, this study will also collect measures of
factual knowledge of church information and local news information. In general, I expect SES will be positively correlated with knowledge gain. While I will examine multiple usage motivations, I predict the information-related usage motivation “To Understand” will mediate SES’ effect on knowledge gain. Thus, I hypothesize:

\[ H3a: \text{SES will be positively correlated with measures of factual knowledge.} \]

\[ H3b: \text{The Facebook usage motivation “To Understand” will positively mediate SES’s effect on factual knowledge.} \]

3.1.4.4 SES, Social Capital and Knowledge Gain

As mentioned in the review of the literature, social capital has important implications for information behavior, and Facebook in particular has been found to augment an individual’s bridging and bonding social capital under certain circumstances. The connection between SES, social capital on Facebook, and knowledge gain has not been explored, yet; so, this study will examine a possible causal sequence between these variables. Since people of a high SES tend to use the Internet for informational purposes and since bridging social capital can be a source of information capital, I predict that bridging capital will be a significant mediating variable:

\[ H4: \text{Facebook-specific bridging capital will positively mediate SES’ effect on factual knowledge.} \]
3.1.4.5 Testing the Full SNS Knowledge Gap Model

The fifth and last research question builds off of the previous research questions and hypotheses to test the overall accelerated knowledge gap model. While this study examines several usage motivations and both bonding and bridging social capital, I predict that usage “To Understand” and bridging social capital in particular will serially mediate SES’s effect on knowledge gain:

*H5: The Facebook usage motivation “To Understand” and Facebook-specific bridging social capital will serially mediate SES’ effect on factual knowledge.*

Although this study is mostly exploratory in nature, I have outlined several specific hypotheses that fall under my main research questions. Until now, I have discussed the variables at a conceptual level. The next chapter explains the research context, outlines the operationalization of the variables, and details how I will test the abovementioned hypotheses.
CHAPTER 4. METHODOLOGY

4.1 Methodology

This study examines differences in how high and low SES individuals utilize Facebook and accrue both social capital and knowledge. The research sample includes Facebook users who are affiliated with a megachurch located in California. This megachurch is a nondenominational church with about 10,000 members that visit its main campus weekly. The church posts on Facebook daily and uses its main Page to connect with its members and give information and resources to those who attend the main campus, who attend one of the four satellite campuses or who access its resources remotely. The Facebook Page currently has over 19 thousand Fans, or Facebook users who follow the Page’s information.

4.1.1 Sample

This study utilized data from an online survey conducted from March 23, 2015 to March 27, 2015. Participants were recruited through a Facebook post from the church’s main Facebook Page and through an email sent out to the church’s email list. This Facebook post and email linked to an anonymous Qualtrics survey. In order to make adjustments for clarity, the survey was tested on a small group of users before being
distributed. (The survey measures can be found in Appendix A). The survey had a completion rate of 59% with a total of 715 complete responses. Since this study is concerned with Facebook use, the responses of non-Facebook users were removed, leaving a final sample size of 560 completed surveys. The mean age of the respondents was 44.6 years (SD = 12.9) with a minimum age of 18 years and a maximum age of 77 years. There are more females (69%) than males (30%) in the sample, but this is consistent with the demographics of the larger population of the church’s Facebook following. According to an analytics report for the Facebook Page, generated by Sprout Social on March 17, 2015, the majority of the Facebook users who engage the Page are over age 30 and 63% of the following is female. The gender demographics of the Page are also consistent with Pew Research’s findings that women are more likely to be Facebook users than men (Duggan, 2014). Additional demographic information for the total sample is listed in Table 2.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>172</td>
<td>30.8</td>
</tr>
<tr>
<td>Female</td>
<td>386</td>
<td>69.2</td>
</tr>
<tr>
<td><strong>Age</strong></td>
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<td></td>
</tr>
<tr>
<td>18 – 29</td>
<td>46</td>
<td>7.7</td>
</tr>
<tr>
<td>30 – 49</td>
<td>172</td>
<td>27.8</td>
</tr>
<tr>
<td>50 – 64</td>
<td>259</td>
<td>44.4</td>
</tr>
<tr>
<td>65+</td>
<td>81</td>
<td>14.5</td>
</tr>
<tr>
<td><strong>Education</strong></td>
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<td></td>
</tr>
<tr>
<td>High School</td>
<td>24</td>
<td>4.3</td>
</tr>
<tr>
<td>Some college</td>
<td>155</td>
<td>27.7</td>
</tr>
<tr>
<td>Associate’s Degree</td>
<td>70</td>
<td>12.5</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>206</td>
<td>36.8</td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>91</td>
<td>16.3</td>
</tr>
<tr>
<td>PhD, JD, MD, DDS</td>
<td>14</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Employment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>348</td>
<td>62.2</td>
</tr>
<tr>
<td>Employed Part Time</td>
<td>67</td>
<td>12.0</td>
</tr>
<tr>
<td>Employed Full Time</td>
<td>281</td>
<td>50.2</td>
</tr>
<tr>
<td>Unemployed</td>
<td>184</td>
<td>33.5</td>
</tr>
<tr>
<td>Student</td>
<td>13</td>
<td>2.0</td>
</tr>
<tr>
<td>Unemployed</td>
<td>11</td>
<td>2.3</td>
</tr>
<tr>
<td>Disabled</td>
<td>8</td>
<td>2.0</td>
</tr>
<tr>
<td>Retired</td>
<td>94</td>
<td>16.8</td>
</tr>
<tr>
<td>Stay-at-Home Parent</td>
<td>58</td>
<td>10.4</td>
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<tr>
<td>Other</td>
<td>23</td>
<td>4.1</td>
</tr>
<tr>
<td><strong>Household Annual Income</strong></td>
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<td></td>
</tr>
<tr>
<td>Low</td>
<td>77</td>
<td>13.7</td>
</tr>
<tr>
<td>$0 to $9K</td>
<td>12</td>
<td>2.1</td>
</tr>
<tr>
<td>$10 K to $36K</td>
<td>65</td>
<td>11.6</td>
</tr>
<tr>
<td>Middle</td>
<td>367</td>
<td>65.5</td>
</tr>
<tr>
<td>$37K to $89K</td>
<td>180</td>
<td>32.1</td>
</tr>
<tr>
<td>$90K to $188K</td>
<td>187</td>
<td>33.4</td>
</tr>
<tr>
<td>High</td>
<td>75</td>
<td>13.4</td>
</tr>
<tr>
<td>$189K to $410K</td>
<td>66</td>
<td>11.8</td>
</tr>
<tr>
<td>$411K to $412K</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>Over $413K</td>
<td>8</td>
<td>1.4</td>
</tr>
<tr>
<td>Prefer Not to Answer</td>
<td>41</td>
<td>7.3</td>
</tr>
</tbody>
</table>
4.1.2 Predictor, Mediator and Control Variables

The survey for this research study uses new, modified and existing measures to operationalize its variables. The main independent variables for this study include SES, usage and social capital. Each of these variables will be captured through several different measures in the survey. The survey will also include various control variables.

4.1.2.1 Demographics

The SES measures are modeled after Van Deursen and Van Djik’s (2013) measures, which were used to identify Internet usage gaps. SES encompasses measures of Education, Employment, and Income level. Education was measured by degree level (see Table 2) and ranged from 1 = High School to 7 = PhD, JD, MD, DDS or similar (M = 4.40, SD = 1.25). Employment status was coded as a dummy variable where 1 = employed and 0 = unemployed. Income was measured as total household income in the last year and was coded on a scale of 1 = 0 to $9K to 7 = Over $413K (N = 519, M = 3.51, SD = 1.05). These seven income categories reflect the 2015 U.S. income tax brackets, and Table 2 displays which categories are considered to be in low, middle and high SES brackets (Phillips-Erb, 2014). Some participants selected the “Prefer Not to Answer” option for Income and these answers were coded as missing values. Some previous studies operationalize SES as a standardized product of education and income (Su, et al., 2014), but the correlation between these two variables was low for this sample (r = .2). So, for the mediation analyses, SES was operationalized as education. Education is an appropriate way to operationalize SES for this study, because in both knowledge
gap and usage gap studies, education has been found to be the most important predictor variable when it comes to explaining knowledge gain or strategic usage (Donohue, Tichenor & Olien, 1975; Robinson et al., 2003; Howard, Rainie & Jones, 2001; Helsper & Galacz, 2009; Van Duersen & Van Dijk, 2013). Age and sex have been found to affect usage, so these were included as a control variables (Li & Ranieri, 2013; Van Deursen & Van Dijk, 2013). Age was measured as a continuous variable (M = 44.54, SD = 12.94), and Sex was coded as a dummy variable where 1 = female and 0 = male.

4.1.2.2 Facebook Usage

To examine whether potential usage gaps on Facebook reflect those found in Internet usage, this study included Average Hours on Facebook as a measure of usage (M = 1.40, SD = 1.42). This variable was computed by first asking respondents to identify how many hours they spent on Facebook on a normal weekday and on a normal weekend day; then, the weekday hours were multiplied by five, the weekend day hours were multiplied by two, and the sum of the two products was divided by seven to get an average measure of hours spent on Facebook. This was done in order to account for the fact that people may use Facebook for different amounts of time on weekdays versus weekends. (While this variable does not measure the objective amount of hours spent on Facebook, self-reports of media usage have been used in media effects studies dating back to seminal works like that of Gerbner, Gross, Morgan, and Signorielli (1980), and these self-reports have been found valuable for capturing differences in usage.)
The final Average Hours on Facebook variable for the sample had a kurtosis measure of 5.63, so a square root transformation was applied to compute the final Sqrt Average Hours on Facebook variable (M = 1.05, SD = .54).

The main Facebook usage measures include usage motivations, which have been found useful for capturing different types of media usage (Van Deursen & Van Dijk, 2013; Kwon, et al., 2014). The Facebook Usage Motivations block contains 20 items grouped into four factors and is measured on a 5-point Likert scale where -2 = Strongly Disagree and 2 = Strongly Agree. The four clusters of Facebook usage motivation were informed by Ball-Rokeach’s (1985) individual media-system dependency goals and include To Understand, To Play, To Orient: Interaction, and To Orient: Action. The items used to create the scales for each of these usage motivations can be found in Table 4, and the computation of these measures will be discussed in the analysis section.

Table 3. Facebook Usage Motivations Scales

<table>
<thead>
<tr>
<th>Factor</th>
<th>Items</th>
<th>Factor Loadings</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I use Facebook because it helps me…</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>To learn new things/seek knowledge for myself</td>
<td>.797</td>
<td>α = .842</td>
</tr>
<tr>
<td></td>
<td>To discover things I like</td>
<td>.738</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To get information on what is happening in the world</td>
<td>.729</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To find spiritual or moral meaning for my life</td>
<td>.703</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To learn other people’s opinions on important issues</td>
<td>.557</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To get information I need to know from others about daily life</td>
<td>.487</td>
<td></td>
</tr>
<tr>
<td>Understand: Self &amp; Social</td>
<td>To get time alone</td>
<td>.803</td>
<td>α = .871</td>
</tr>
<tr>
<td></td>
<td>To find my own space online</td>
<td>.745</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To relieve stress</td>
<td>.740</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To entertain myself</td>
<td>.735</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To be silly and lighthearted with others</td>
<td>.650</td>
<td></td>
</tr>
<tr>
<td>Play: Social &amp; Solitary</td>
<td>To keep in touch with people I rarely see</td>
<td>.800</td>
<td>α = .810</td>
</tr>
<tr>
<td></td>
<td>To communicate with friends and family</td>
<td>.759</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To feel more connected to certain people or causes</td>
<td>.711</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To connect with people who share my faith</td>
<td>.572</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To be involved in my community</td>
<td>.456</td>
<td></td>
</tr>
<tr>
<td>Orient: Interaction</td>
<td>To further my career</td>
<td>.806</td>
<td>α = .721</td>
</tr>
<tr>
<td></td>
<td>To make new contacts</td>
<td>.584</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To express myself creatively</td>
<td>.569</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To share my views or knowledge with other people</td>
<td>.498</td>
<td></td>
</tr>
</tbody>
</table>
4.1.2.3 Facebook Social Capital

According to the Ellison et al. (2007) study, a user’s number of “actual” Facebook Friends can be a predictor of social capital, so measures of users’ Facebook Friends were recorded as control variables. Total Facebook Friends was measured by asking respondents “How many total Facebook Friends do you have?” and responses were recorded on a scale of 0 to 2,000 (M = 310.49, SD = 357.36). In line with, Ellison et al. (2007), the Actual Facebook Friends variable was measured by asking “How many of your Facebook Friends would you consider ‘actual’ friends?” and responses were recorded on a scale of 0 to 2,000 (M = 135.85, SD = 177.77). In the final sample, both measures were positively skewed, so a Log10 transformation was applied to correct for this, and the Log10 Total Facebook Friends (M = 2.27, SD = .47) and Log10 Actual Facebook Friends (M = 1.87, SD = .49) variables were used in the analyses.

To measure social capital, this study utilized the Ellison et al. (2014) Facebook-Specific Bridging Social Capital and Facebook-Specific Bonding Social Capital scales, with a few adaptations to fit the research context. (Items are listed in Table 5). Each item was measured on a 5-point Likert scale ranging from -2 = Strongly Disagree and 2 = Strongly Agree. The Facebook-Specific Bonding Social Capital (8 items, α = .868, M = .37, SD = .86) measures users’ perceptions of the degree to which they are able “to get meaningful support and help” from their Facebook connections (p. 10).

4.1.3 Dependent Variables

The main dependent variable for this study is Factual Knowledge, which will be broken down into measures of two different types of knowledge: Church Knowledge and
News Knowledge. Several measures of *Perceived Knowledge* will also be recorded for an exploratory analysis of Facebook as an information resource for religious information and news information.

### Table 4 Bridging and Bonding Social Capital

<table>
<thead>
<tr>
<th>Bridging Social Capital</th>
<th>Bonding Social Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interacting with people in my Facebook network makes me interested in things that happen outside of my town.</td>
<td>There are several people in my Facebook network I trust to solve my problems.</td>
</tr>
<tr>
<td>Interacting with people in my Facebook network makes me want to try new things.</td>
<td>There is someone in my Facebook network I can turn to for advice about making very important decisions.</td>
</tr>
<tr>
<td>Interacting with people in my Facebook network makes me interested in what people unlike me are thinking.</td>
<td>There is no one in my Facebook network that I feel comfortable talking to about intimate personal problems. (reversed)</td>
</tr>
<tr>
<td>Talking with people in my Facebook network makes me curious about other places in the world.</td>
<td>When I feel lonely, there are several people in my Facebook network I can talk to.</td>
</tr>
<tr>
<td>Interacting with people on Facebook makes me feel like a part of a larger community.</td>
<td>The people I interact with on my Facebook network would put their reputation on the line for me.</td>
</tr>
<tr>
<td>Interacting with people in my Facebook network makes me feel connected to the bigger picture.</td>
<td>If I needed an emergency loan of $100, I know I could turn to one of the people I am Friends with on Facebook.</td>
</tr>
<tr>
<td>Interacting with people in my Facebook network reminds me that everyone in the world is connected.</td>
<td>The people I interact with in my Facebook network would be good job references for me.</td>
</tr>
<tr>
<td>Interacting with people in my Facebook network gives me new people to talk to.</td>
<td>I do not know people in my Facebook network well enough to get them to do anything important. (reversed)</td>
</tr>
<tr>
<td>Through my Facebook network, I come in contact with new people all the time.</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>I am happy to support church and community activities, and Facebook helps me do this.</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
4.1.3.1 Factual Knowledge: Church and News

*Church Knowledge* was measured by summing the number of correct answers to five true-false questions about content posted on the church’s Facebook page, resulting in a factual knowledge scale ranging from 0 to 5. Only respondents who reported “Liking” the church’s Facebook Page were included in analyses using this measure (N = 383, M = 1.74, SD = 1.20). In order to ensure that this knowledge gain was the result of Facebook and not alternative sources, I worked with the church’s media team to create five Facebook posts with information related to the church and its pastors; these posts contained information that had not previously been made available through any other source. These posts were sent out on the church’s Facebook Page one-per-day during the five days leading up to the survey launch. Each church-information post was one of the two to three posts sent out on a given day; the time of posting was varied for each day.

Respondents were asked a series of true/false questions based on the information in these posts, and answers were recorded on a 5-point Likert scale where -2 = Definitely False, -1 = Most Likely False, 0 = I Don’t Know, 1 = Most Likely True, and 2 = Definitely True. Similar to the Su, et al. (2014) study, the answers were then recoded into dummy variables where 1 = Correct Answer and 0 = Incorrect Answer/Don’t Know; then, the sum of each person’s answers were used for the final measure. *News Knowledge* was also measured on a scale of 0 to 5, and consisted of the total number of correct answers to a series of questions about local news events (N = 553, M = 1.83, SD = 1.23). The content for the five true/false questions was chosen by picking five news stories posted on the Facebook Pages of several local news sources that covered events relevant to the specific region where the church was located. These posts were made available on the news sites
two weeks before the survey launch. (The two week delay between the news posts and the survey launch was due to obtaining necessary Institutional Review Board approval for the survey question content. As soon as IRB approval was obtained, the five church information posts were sent, and the survey was launched to promote the timeliest content possible.)

4.1.3.2 Perceived Knowledge

This study also did an exploratory analysis of perceived knowledge by asking respondents to report how much they agreed or disagreed with statements about the knowledge they gained through Facebook. (These variables were included to provide a more nuanced understanding of the results; they were not included in the analyses, but were used to inform the final discussion of the results). These were measured on a 7-point Likert scale ranging from -3 = Strongly Disagree and 3 = Strongly Agree. The statement “I know more about the Bible and Christianity because I am on Facebook” was used to measure

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SES Variables</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>519</td>
<td>3.51</td>
<td>1.05</td>
</tr>
<tr>
<td>Education</td>
<td>560</td>
<td>4.40</td>
<td>1.25</td>
</tr>
<tr>
<td>SES Combined</td>
<td>519</td>
<td>.216</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Usage Variables</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Average Hours on FB</td>
<td>560</td>
<td>1.40</td>
<td>1.42</td>
</tr>
<tr>
<td>Sqrt Average Hours on FB</td>
<td>560</td>
<td>1.05</td>
<td>.54</td>
</tr>
<tr>
<td>Usage Motivations:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To Understand</td>
<td>560</td>
<td>.00</td>
<td>3.04</td>
</tr>
<tr>
<td>To Play</td>
<td>560</td>
<td>.00</td>
<td>2.99</td>
</tr>
<tr>
<td>To Orient – Interaction</td>
<td>560</td>
<td>.00</td>
<td>2.52</td>
</tr>
<tr>
<td>To Orient – Action</td>
<td>560</td>
<td>.00</td>
<td>1.82</td>
</tr>
<tr>
<td><strong>Social Capital Variables</strong></td>
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<tr>
<td>Bridging Social Capital</td>
<td>560</td>
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<td>.89</td>
</tr>
<tr>
<td>Bonding Social Capital</td>
<td>560</td>
<td>.37</td>
<td>.86</td>
</tr>
<tr>
<td>Total FB Friends</td>
<td>560</td>
<td>310.49</td>
<td>357.36</td>
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<tr>
<td>Actual Friends</td>
<td>560</td>
<td>135.85</td>
<td>177.77</td>
</tr>
<tr>
<td>Log10 of Total FB Friends</td>
<td>560</td>
<td>2.27</td>
<td>.47</td>
</tr>
<tr>
<td>Log10 of Actual Friends</td>
<td>558</td>
<td>1.87</td>
<td>.49</td>
</tr>
<tr>
<td><strong>Knowledge Variables</strong></td>
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<td></td>
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<tr>
<td>Church Knowledge</td>
<td>560</td>
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<td>1.22</td>
</tr>
<tr>
<td>News Knowledge</td>
<td>553</td>
<td>1.83</td>
<td>1.23</td>
</tr>
<tr>
<td>Perceived Knowledge:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Church</td>
<td>560</td>
<td>.04</td>
<td>2.086</td>
</tr>
<tr>
<td>Local Community</td>
<td>560</td>
<td>-.01</td>
<td>1.931</td>
</tr>
<tr>
<td>Bible and Christianity</td>
<td>560</td>
<td>-.33</td>
<td>1.728</td>
</tr>
<tr>
<td>News</td>
<td>560</td>
<td>.02</td>
<td>1.98</td>
</tr>
</tbody>
</table>
Perceived Religious Knowledge (N = 560, M = -1.33, SD = 1.728). The statement “I know more about what goes on in my local community because…” was used to measure Perceived Community Knowledge (N = 560, M = -.01, SD = 1.931). The statement “I know more about news events…” was used to measure Perceived News Knowledge (N = 560, M = .02, SD = 1.98). Lastly, the statement “I know more about the church and the church events because I am on Facebook…” was used to measure Perceived Church Knowledge for respondents who reported “Liking” the church’s Facebook Page (N = 383, M = .72, SD = 1.86).

4.1.4 Analysis Tools

I used SPSS and the PROCESS add-on for SPSS in order to conduct the analyses for this study. PROCESS is a tool for SPSS that is specifically designed to test statistical mediation and moderation models. It was particularly useful for this study, because it allows the researcher to test models with multiple mediators, including serial mediation models. One particular advantage of PROCESS is that it provides tests of statistical significance that are not available through SPSS, including bias-corrected bootstrapped confidence intervals for the indirect effects (mediation pathways). Bootstrapped confidence intervals are confidence intervals that are constructed by running a large number of random “bootstrapped” samples to determine if the effect in question is different than what would be expected by chance. One particular benefit of bias-corrected bootstrapped confidence intervals is that no assumptions are made about the shape of the sampling distribution; so, even if the sample displays some skew, the confidence intervals account for this “bias” and the researcher can be confident that the effect truly is
statistically significant (Hayes, 2013). The following section outlines which analyses were conducted in order to answer the research questions and test the related hypotheses.

4.1.4.1 Analyses for RQ1 and Related Hypotheses

In order to identify potential usage gaps, I created a validated classification of Facebook usage motivations. First, I created a list of 21 usage motivations which were informed by the list of Facebook-use motives identified by Kwon, et al. (2013) and adapted from the list of Internet-use motives by Van Deursen and Van Dijk (2013). Since the sample consisted of Facebook users affiliated with a church, this study has also added specific religious motivations to the list. Then, these motivations were grouped according to Ball-Rokeach’s (1985) individual media-system dependencies: to understand, to orient and to play (as shown in Table 4). Each category contains motivations related to goals or needs that are both social and solitary/personal. To validate these usage motivations, I used principal component analysis with a varimax rotation to identify different factors within the list. The factor analysis extracted four factors with factor loadings above .40 for all items. One item did not load onto any of the factors, so it was dropped from the list, and I ran the factor analysis again. The final factor analysis explained 64.15% of the variance, extracting four factors with eigenvalues above 1 and Cronbach’s α coefficients between .721 and .842 (see Table 4). These factors were consistent with the three categories of to understand, to play and to orient, except the social (interaction) and solitary (action) components of the “to orient” category each loaded onto its own factor. To create the final variables *(To Understand, To Play, To Orient: Interaction* and *(To
the standardized scores for each item were multiplied by their loading factors and the sum of those products constituted the final measure.

These usage motivation clusters were used to investigate whether there is a potential “usage gap” related to SES. This research question asks if differences in usage or social capital are predicted by SES or other demographic variables. To examine usage and social capital differences, linear regression analyses were performed with the usage clusters, the average hours spent on Facebook, and the social capital measures as dependent variables. The regression models included independent variables related to SES (education, income and employment) as well as two control variables (age and sex).

4.1.4.2 Analyses for RQ2 and Related Hypotheses

Hierarchical regression analyses were used to determine what Facebook usage motivations may predict social capital. I used hierarchical regression, because this allowed me to examine how well the set of usage motivations predicted social capital above and beyond the control variables. In the first step of the regressions, the control variables were entered (number of Facebook friends, number of “actual” friends, sex and age). In the second step of the regressions, the usage clusters were entered as the independent variables. The bridging and bonding social capital variables were the dependent variables for these analyses.
4.1.4.3 Analyses for RQs 3 – 5 and Related Hypotheses

To test the mediation models, I used the PROCESS add-on to run several statistical mediation analyses using multiple regression. To answer research questions 3 and 4, I used Model 4 to test multiple mediation models with SES (operationalized as education) as the predictor variable and church and news knowledge as the dependent variables; the usage and social capital variables were entered as mediators. To test the final model (RQ5), I used Model 6 to test a serial multiple mediator model with SES as the independent variable and church and news knowledge as the dependent variables. To reflect their hypothesized causal order, the usage mediator variable “To Understand” was entered first, followed by the social capital mediator variable “Facebook-Specific Bridging Capital.” Control variables were added, as well; the sex and age variables were included as covariates in every model. To test the significance of each mediated pathway in the models, bias-corrected bootstrapped confidence intervals were obtained for each model, with 5,000 bootstrap samples (which is the number of samples recommended by Hayes (2013) to ensure an accurate confidence interval).
CHAPTER 5. RESULTS

5.1 Results Overview

The following section presents the results of the abovementioned analyses, including additional findings from further analyses prompted by preliminary results.

5.2 Results for RQ1 and Related Hypotheses

This research question examined usage and social capital gaps on Facebook. First, Table 6 outlines the results of the analyses exploring usage gaps in the sample. Overall, the regression models for the demographic variables were significant, explaining small to medium effects on the dependent variables (Warner, 2012, p. 208). In line with H1a, the SES variable education was the only significant predictor of usage “To Understand,” but not in the expected direction; higher educated people reported lower motivation to use Facebook for understanding/informational purposes. H1b was not supported by the data; only the control variables were significant predictors of usage “To Play.” Older individuals and women were more likely to report higher Facebook usage for social and solitary play. H1c was supported by the data, and the findings are consistent with usage gaps in Internet use reported by Van Deursen and Van Dijk (2013); higher educated and employed individuals report spending less time on Facebook. SES variables also
significantly predicted the “To Orient: Action” usage; people with higher income and higher education were less likely to report motivations to use Facebook to further their career, make new contacts or share their own knowledge or expertise. Younger people were less likely to report using Facebook in this way, as well.

For the “To Orient: Interaction” usage, sex was the only significant predictor, but it had the largest effect out of all the regression models for usage. Sex uniquely explained 6% of the variance in reports of interaction usage (sr² = .06, p < .001), which is a medium effect (Warner, 2012). (The “sr²” value refers to the squared semi-partial or part correlation, and I will report it in several analyses. According the Warner (2012) this value is important for understanding the effect of a particular variable in multiple regression, because it identifies the amount of variance in the dependent variable that is only explained by that particular independent variable; any “shared” effect with other predictor variables is partialled out.) The data show that women are more likely to report motivations to use Facebook for activities like keeping in touch with people, communicating with friends and family and being involved in their community. When

<table>
<thead>
<tr>
<th>N = 510</th>
<th>To Understand</th>
<th>F (5, 509) = 4.09***</th>
<th>R² = .04</th>
<th>To Play</th>
<th>F(5, 509) = 6.75***</th>
<th>R² = .06</th>
<th>To Orient: Interaction</th>
<th>F(5, 509) = 6.66***</th>
<th>R² = .07</th>
<th>To Orient: Action</th>
<th>F(5, 509) = 3.37**</th>
<th>R² = .02</th>
<th>Hours spent on Facebook</th>
<th>F(5, 509) = 4.41***</th>
<th>R² = .04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.07</td>
<td>.21***</td>
<td>.04</td>
<td>.10*</td>
<td>.21***</td>
<td>-.02</td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>.06</td>
<td></td>
<td>.04</td>
<td>.10*</td>
<td></td>
<td>.05</td>
<td>.10*</td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>.04</td>
<td></td>
<td>.05</td>
<td>.21***</td>
<td>.05</td>
<td>-.09*</td>
<td>.01</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>-.14**</td>
<td></td>
<td>-.04</td>
<td>-.04</td>
<td>-.04</td>
<td>-.09*</td>
<td>-.13**</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>-.08</td>
<td></td>
<td>-.03</td>
<td>-.08</td>
<td>-.08</td>
<td>-.03</td>
<td>-.12*</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Cells list the standardized β coefficients. *p< .05, **p< .01, ***p <.001
testing the assumptions for this regression model, I discovered the regression residuals displayed distinct heteroscedasticity, as shown in Figure 6. This split in the data could be explained by different sexes reporting different scores; to confirm this, I removed the sex variable from the original regression model and ran the analysis again with the file split by sex. Removing sex from the regression resulted in a non-significant regression, but it uncovered that the upper half of the scatterplot (Figure 6) represents the residuals for female respondents and the lower half represents those of the male respondents, suggesting that, as a group, women reported higher scores than men. To determine whether the difference in men and women’s reports of usage for “To Orient: Interaction” were significantly different, I ran a one-way ANOVA ($F(1, 557) = 30.15, p < .001$) with planned contrasts ($t(556) = 5.49, p < .001$) and found that women reported higher “To Orient: Interaction” usage motivation than men. In fact, on average men reported they were not motivated to use Facebook for these purposes (as evidenced by the negative
mean shown in Figure 7), while women reported they were motivated to use Facebook for interaction.

The results from the second set of regressions with social capital as the dependent variables, showed evidence for potential gaps in bridging and bonding social capital (see Table 7). The SES variable education was the only significant predictor of bridging capital; but more highly educated individuals were less likely to report Facebook-specific bridging capital. SES was not a predictor of bonding capital, but both age and gender were significant predictors and the overall regression explained a medium effect ($R^2 = .08$) on bonding capital. The data suggests that women and older people reported more bonding capital available through Facebook.

<table>
<thead>
<tr>
<th>N = 510</th>
<th>Bridging Social Capital</th>
<th>Bonding Social Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$F(5, 509) = 3.19^{**}$</td>
<td>$F(5, 509) = 8.90^{***}$</td>
</tr>
<tr>
<td></td>
<td>$R^2 = .03$</td>
<td>$R^2 = .08$</td>
</tr>
<tr>
<td>Age</td>
<td>.08</td>
<td>.26^{***}</td>
</tr>
<tr>
<td>Sex</td>
<td>.07</td>
<td>.09{*}</td>
</tr>
<tr>
<td>Income</td>
<td>.06</td>
<td>.07</td>
</tr>
<tr>
<td>Education</td>
<td>-.11{*}</td>
<td>-.04</td>
</tr>
<tr>
<td>Employment</td>
<td>-.06</td>
<td>-.03</td>
</tr>
</tbody>
</table>

Note: Cells list the standardized $\beta$ coefficients for the regressions. *p < .05, **p < .01, ***p < .001.
5.3 Results for RQ2 and Related Hypotheses

The next set of regressions supported H2a, with the Facebook-Usage Motivations variables significantly predicting social capital in each model (the results for the final step of the regressions are shown in Table 8). In fact, all four usage variables were significant predictors of bridging capital (supporting H2b and H2c). As a set, the Facebook Usage Motivations uniquely explained 53% of the variance in bridging capital ($R^2_{\text{change}} = .53, F_{\text{change}}(4, 547) = 195.33, p = .001$), which is an extremely large effect (Warner, 2012). In comparison, the set of control variables only explained 10% of the variance in bridging capital ($R^2 = .10, F(4, 555) = 15.42, p = .001$). This suggests that people who were highly motivated to use Facebook, particularly to understand self and others ($sr^2 = .05$), to play socially or solitarily ($sr^2 = .04$), or to interact with others ($sr^2 = .04$) reported increased perceptions that their Facebook connects them to people who provide a diverse range of ideas and a broader community.

Table 8 Results for Regressions with Social Capital as the DV

<table>
<thead>
<tr>
<th>N = 560</th>
<th>Bridging Social Capital</th>
<th>Bonding Social Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$F(8, 555) = 116.25^{***}$</td>
<td>$F(8, 555) = 29.15^{***}$</td>
</tr>
<tr>
<td></td>
<td>$R^2 = .63$</td>
<td>$R^2 = .30$</td>
</tr>
<tr>
<td>Age</td>
<td>-.06 ($sr^2 = .00$)</td>
<td>.21*** ($sr^2 = .04$)</td>
</tr>
<tr>
<td>Sex</td>
<td>-.01 ($sr^2 = .00$)</td>
<td>.03 ($sr^2 = .00$)</td>
</tr>
<tr>
<td>FB Friends</td>
<td>.07 ($sr^2 = .00$)</td>
<td>-.08 ($sr^2 = .00$)</td>
</tr>
<tr>
<td>FB Actual Friends</td>
<td>.01 ($sr^2 = .00$)</td>
<td>.21*** ($sr^2 = .04$)</td>
</tr>
<tr>
<td>Understand</td>
<td>.32*** ($sr^2 = .05$)</td>
<td>.05 ($sr^2 = .00$)</td>
</tr>
<tr>
<td>Play</td>
<td>.27*** ($sr^2 = .04$)</td>
<td>.01 ($sr^2 = .00$)</td>
</tr>
<tr>
<td>Orient: Interaction</td>
<td>.25*** ($sr^2 = .04$)</td>
<td>.29*** ($sr^2 = .08$)</td>
</tr>
<tr>
<td>Orient: Action</td>
<td>.11** ($sr^2 = .01$)</td>
<td>.12* ($sr^2 = .01$)</td>
</tr>
</tbody>
</table>

Note: Cells list the standardized $\beta$ and $sr^2$. *p < .05, **p < .01, ***p < .001
For bonding social capital, the age, number of “actual” Facebook Friends and the interaction and action usages were significant predictors (supporting H2d). The control variables explained 16% of the variance ($R^2 = .16$, $F(4, 555) = 25.96, p = .001$), and the usage motivations explained 14% of the variance in bonding capital above and beyond the control variables ($R^2_{\text{change}} = .14$, $F_{\text{change}}(4, 547) = 27.37, p = .001$). The “To Orient: Interaction” usage was the most important predictor, though, explaining between a medium and large effect on bonding capital ($sr^2 = .08$). In other words, individuals who reported being motivated to use Facebook to interact with others and be connected to their community were more likely to report that Facebook connected them to meaningful support and help.

5.4 Results for RQ3 and Related Hypotheses

The next set of regressions took a closer look at what usage motivations did or did not mediate SES’ effect on knowledge gain. The first multiple regression mediation analysis examined church knowledge as the dependent variable; only respondents that reported “Liking” the church Facebook Page were included in the model ($N = 383$). The overall regression was significant ($F(7, 374) = 2.10, p = .04$) and the direct effect of education on church knowledge was significant ($\beta = .10, SE = .05, p = .04$); the total effect of education and the usage variables on church knowledge approached conventional levels of significance ($\beta = .09, SE = .05, p = .06$). The indirect effects were not significant ($p > .05$). There was a significant effect for education on the “To Understand” motivation, though ($F(3, 378) = 4.37, p = .01, R^2 = .03$). A post hoc power analysis revealed the sample was not sufficiently powered to find small effects for four
mediator variables, so there is some risk of Type II error in the results. The unstandardized $\beta$ coefficients are displayed in Figure 8.

![Multiple Mediator Model with Facebook Usage Mediators](image)

**Note:** *p < .05, **p < .01, ***p < .001

The second mediation analysis examined local news knowledge as the dependent variable and utilized the full sample of Facebook users (N = 560). The overall regression was significant ($F(7, 541) = 5.47, p = .001$), but the direct effect ($\beta = .04, SE = .04, p = .35$) and the indirect effects ($p > .05$) were not statistically significant. There were several significant unstandardized $\beta$ coefficients, though, as shown in Figure 9. Though this regression used a larger sample, a post hoc power analysis revealed the model was not sufficiently powered to detect small mediated effects, if present. While the total effects (the effect of the predictor and mediators as a set) were not significant for either model, the $\beta$ coefficients reveal that SES predicts lower reports of Facebook usage “To Understand,” but that this motivation has a positive relationship to knowledge gain. Thus,
SES’s significant, negative relationship to the “To Understand” usage may be suppressing its effect on knowledge gain.

To examine this relationship more closely, I ran another mediation analysis with only one mediator, since I was statistically powered at .79 to find small effects for this model with N = 383. For this model, the overall regression was significant \( F(4, 377) = 3.02, p = .02 \), and education’s total effect on church knowledge approached conventional levels of significance \( \beta = .09, SE = .05, p = .06 \). The direct effect of education on church knowledge was significant at \( p = .03 \) with \( \beta = .10 \), and the indirect effect of education on church knowledge was significant at \( p < .05 \) \( (\beta = -.02, \text{BootLLCI: -.0417, BootULCI = -.0022}) \). The unstandardized \( \beta \) coefficients for each path are listed in Figure 10. Overall, H3a and H3b were supported in the last analysis at levels approaching conventional significance, but for negligible to small effects. In other words, there was
evidence that SES predicts knowledge, and usage “to understand” can mediate its effect on knowledge gain. In this model, SES’ effect on knowledge gain is suppressed by the mediated usage path, though. This is shown by the fact that SES’s direct relationship to church knowledge has a $\beta$ value of .10, but when the usage variable is considered, the total effect of SES on knowledge gain drops to $\beta = .09$. This is because the significant indirect effect of SES on knowledge through the usage variable is negative ($\beta = -.02$).

Figure 10. Simple Mediation Model for “To Understand” Mediator
Note: *$p<.05$, **$p<.01$, ***$p <.001$

5.5 Results for RQ4 and Related Hypotheses

This set of analyses examined whether measures of social capital mediated SES’s effect on knowledge gain through a multiple mediation analysis with bonding and bridging capital as the mediator variables and church and news knowledge as the dependent variables. As evidenced in Table 9, the regression models were significant, but the total effect for each model was not significant (so H4 was not supported); several of the unstandardized $\beta$ coefficients were significant, though. Similar to the mediation paths for the “To Understand” usage, SES is negatively correlated to bridging social capital, but bridging social capital is positively related to knowledge gain. Again, this may
evidence that SES’ effect on knowledge gain is suppressed by a negative relationship to bridging capital.

Table 9 Regressions with Social Capital Mediators

<table>
<thead>
<tr>
<th></th>
<th>Church Knowledge</th>
<th>News Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$F(5, 376) = 3.68$ $p = .01$</td>
<td>$F(5, 543) = 6.58$ $p = .001$</td>
</tr>
<tr>
<td>Bridging</td>
<td>Bonding</td>
<td>Bridging</td>
</tr>
<tr>
<td>a (.06 $p = .055$)</td>
<td>.00</td>
<td>-.07*</td>
</tr>
<tr>
<td>b .13</td>
<td>.18*</td>
<td>.05</td>
</tr>
<tr>
<td>a * b -.01</td>
<td>.00</td>
<td>-.00</td>
</tr>
<tr>
<td>c’ .10*</td>
<td></td>
<td>.05</td>
</tr>
<tr>
<td>c .09</td>
<td></td>
<td>.04</td>
</tr>
</tbody>
</table>

Key

- $a*b = \text{Indirect/Mediated Effect}$
- $c’ = \text{Direct Effect}$
- $c = \text{Total Effect}$

5.6 Results for RQ5 and Related Hypotheses

The last set of regressions tested the hypothesis that the Facebook Usage Motivation “To Understand” and the Facebook-Specific Bridging Social Capital variables serially mediate SES’ effect on factual knowledge (H5). As noted in Figures 11 and 12, the overall regressions were significant and several of the paths were significant, as indicated by the listed unstandardized $\beta$ coefficients. In the model with the church knowledge dependent variable, the total effect of education and the two mediators on knowledge approached conventional levels of significance at $p = .06$. The total effect for the news knowledge model was not significant ($p = .32$). The indirect path for the models
were not significant at \( p < .05 \). Now that I have reviewed the results of the analyses, the next section will discuss the limitations of the results, piece together the bigger story that is evident in the data, discuss implications and propose directions for future research.

Figure 11 Serial Multiple Mediation Model (Church)

Note: \( F(5, 376) = 2.87, p = .01 \)

*\( p < .05 \), **\( p < .01 \), ***\( p < .001 \)

Figure 12 Serial Multiple Mediation Model (News)

Note: \( F(5, 543) = 6.50, p = .001 \)

*\( p < .05 \), **\( p < .01 \), ***\( p < .001 \)
Before I discuss the implications of this research, I would first like to address some limitations related to the sample, measures and analyses. First, the sample for this research had some limitations that may qualify the results and limit the generalization of the findings. The sample was homogenous in the fact that it only drew from a population affiliated with a particular church and contained people that likely lived in the same region and may have similar interests, so the reader should use caution when making generalizations about a more diverse sample. Also, there were a substantial number of retired individuals in the sample (most likely recruited through the email list), and this potentially made the income variable less helpful for explaining socioeconomic status. Since this research examines gaps in knowledge and usage, though; one useful thing to note is that, since usage, social capital and knowledge gaps were evident in a comparatively homogeneous sample, it is possible those gaps are even more likely to be evident in a more diverse sample. A final note on the sample is that, while it was sufficiently powered to find small effects in the simultaneous regression models, there is a possibility that there were small effects in the multiple mediation models that the sample was not powered to detect.
Second, in regard to the measures, this study may have controlled the factual knowledge variables too zealously, as the average respondent was able to answer less than two of the five church and news questions correctly (M = 1.74 and M = 1.83, respectively). This may be due to the fact that the questions were too specific, or due to the fact that the Facebook users did not generally view Facebook as a helpful source for church-specific or local news knowledge. A closer look at the perceived knowledge variables shows that the average Facebook user reported she did not know more about the Bible or Christianity (M = -1.33) or about her local community through Facebook (M = -.01). Also, the average user was neutral or only somewhat agreed that she knew more about news events (M = .02) or about the church (M = .72), because she was on Facebook. (I would like to note that, while Facebook users from the church did not report knowing more about the Bible or Christianity because of Facebook, this knowledge context should still be explored in different samples. It may be this particular group of people did not feel more informed about the Bible and Christianity, because they felt well-informed through church attendance and did not see religious content on Facebook as new information. It is possible that people who do not go to church are more likely to report knowing more about Christianity or other religions, because they do not have as many alternative sources of information.) Also, the relationship between SES and knowledge may have been weakened due to the types of knowledge being examined in this study. Many knowledge gap studies examine knowledge on content that one would need a complex vocabulary or specific background knowledge to fully understand, like political or scientific topics where higher educated people are more likely to be equipped to understand and incorporate the information than lower educated individuals. In this
study, the information the respondents were tested on was fairly simple to understand; both high and low SES individuals would be likely to understand the information if they encountered it. Thus, future studies may benefit from utilizing more complicated topics when measuring knowledge gained through Facebook usage. Lastly, another limitation of this study’s measures was that the usage variables relied on self-report data. It is possible that users may not have an accurate understanding of how they actually use the site on a daily basis; future studies could incorporate behavioral data with the self-report scales to provide a clearer understanding of how people use the site.

Third, there are a few limitations that come with the types of analyses performed. While I made several causal hypotheses, regression analyses can only prove correlation, not causation. While correlation is a necessary condition for causation, it is not sufficient to confirm a causal relationship. Also, while this study examined potential gaps related to usage, a longitudinal study would need to be conducted to confirm that these gaps widen over time. These analyses are appropriate for this exploratory examination of the model, but future studies should incorporate experimental and longitudinal designs to further test the causal hypotheses and the gap formation phenomenon.

6.2 Implications of Findings and Future Directions

While, as with all research, there are several limitations to bear in mind, this study’s results do have significant implications for usage gap, social capital and knowledge gap research contexts. After reviewing particularly notable results, I will discuss implications for the accelerated knowledge gap model itself before presenting final comments on directions for future research.
The results of this research support that SES can be a significant predictor of usage and that there may indeed be usage gaps in Facebook usage. In line with past studies, higher SES individuals were less likely to spend longer amounts of time on Facebook. Interestingly, though, in contrast to past studies on SES and Internet usage, people of a high SES were less likely to use Facebook for purposes related to information seeking (To Understand) or to career and networking (To Orient: Action). This may reveal less about SES and more about Facebook. It may be that higher SES individuals are more motivated to pursue information-seeking or career goals, but they do not perceive Facebook as an efficient way to meet these goals; thus, they are less likely to use the site to meet these needs. But, if higher SES individuals are not using SNSs to seek information or to build and maintain their network, and if SNSs can provide unique access to information and social capital, it could be that people of a higher SES are not fully benefitting from their new media usage. Future studies could examine other social networking sites to see if SNSs like Twitter or LinkedIn are more likely to be used for information seeking or networking by high SES individuals.

Interestingly, one of the most significant usage gaps was predicted not by SES, but by gender. Not only were women more likely to be on Facebook, but they were more likely to be motivated to use Facebook to interact with their connections and be involved in their community (To Orient: Interaction). Men did not simply report lower interaction usage, but on average, they reported they were unlikely to use Facebook in these ways. This usage gap finding becomes weightier when viewed in light of the findings on the connection between usage and social capital.
Overall, the Facebook Usage Motivations were very helpful for predicting both bridging and bonding social capital, which builds upon past research’s evidence that there may be a causal connection between Facebook usage and subsequent social capital. In particular, there was a very strong connection between Facebook Usage Motivations and bridging social capital on Facebook. It would appear that almost any positive report of usage led to increased perceptions of bridging social capital. One caution to note here is that it might be hard to untangle the causal sequence. It could be that more usage leads to higher bridging capital, or that higher perceptions of bridging capital make individuals more motivated to use Facebook in general; or, the two may cyclically affect one another. For bonding social capital, it is clear that usage for interaction predicts significant increases in bonding capital, even more so than the reports of “actual” Friends on the site.

These abovementioned findings have important implications for usage and knowledge gaps. First, since people of high SES are less likely to use Facebook “To Understand” or “To Orient: Action,” this could lead to subsequent gaps in bridging social capital. Facebook might act as an “equalizing site” where people of high SES do not gain more knowledge than low SES individuals post-exposure, because they are less likely to engage in information-seeking on the site. Second, since women are more likely to report using Facebook for “To Orient: Interaction” purposes, they may also be more likely to gain both bridging and bonding social capital on the site, creating a usage and social capital gap predicted by gender. This might evidence that male Facebook users are less likely to gain unique information or social support benefits from their usage of the site.

Lastly, while not every pathway was statistically significant in the mediation analyses, there was evidence to support the connections outlined in the accelerated
knowledge gap model, and future research should explore the model in more detail. The findings uncovered a link between SES and usage and between usage and social capital. While the total effects for the separate mediation models for the usage mediator variables and social capital mediator variables were not significant overall, the coefficients for the paths indicated a positive relationship between the “To Understand” usage and knowledge and bridging capital and knowledge, as predicted. Also, in the test of the final model, there were significant pathways from SES to the “To Understand” usage and from the “To Understand” usage to bridging social capital; the pathway from bridging social capital to knowledge gain was not significant at conventional levels, but the path was positive, as predicted. In the model examining church knowledge, the direct path from SES to knowledge is significant, and the total effect approached conventional levels of significance. Also, in both models, the β for the direct path from SES to knowledge is larger than the β for the total effect, showing that SES’s effect on knowledge is suppressed by the two mediators. Though the indirect effect was not statistically significant for the set of regressions, the model was useful for uncovering how negative relationships to the usage and social capital variables may suppress SES’s effect on knowledge gain. In particular, this model shows that SES’s relationship to knowledge was weakened through the usage variables in the Facebook context. In this study, it appears that any preexisting advantage related to SES’ effect on knowledge gain was suppressed or lessened due to the lack of informational usage of the site.

To see if these relationships hold true in different contexts, future studies should test the accelerated knowledge gap model in different SNS and knowledge contexts. They should also utilize larger samples in order to detect small effects for multiple mediation
models. Also, while I was able to test the core variables of the model, future studies should test the contributory variables discussed in the literature review and listed in Table 1, to bring a more nuanced understanding of how the knowledge gap hypothesis can be extended in a new media setting. Lastly, future studies could utilize more diverse measures of usage and social capital by incorporating behavioral data.
CHAPTER 7. CONCLUSION

7.1 Conclusion

In conclusion, to develop a model of how knowledge gaps form in new media contexts, I explored the mechanisms that explain knowledge gap formation. I outlined the core mechanisms uncovered by traditional knowledge gap research, and showed how the original concepts must be extended to account for unique features of new media. Then, in light of usage gap research and relevant IB theories, I proposed new mechanisms that must be addressed in light of new media affordances. To understand knowledge gap formation in an ICT context, the model must account for usage gaps which may explain a “cascade” phenomenon in knowledge gain as a result of ICT usage. I also explained how SNSs add another dimension to the cascade and propose a model to explain how there may be an accelerated knowledge gap phenomena facilitated by SNSs. In a new media setting, socioeconomic status may inform usage and social capital gaps that result in greater knowledge gaps subsequent to new media exposure.

In this study, I began testing this model in the context of a religious community on Facebook. I posed research questions and hypotheses based on past research and outlined the methodology and measures. The results supported several of the hypotheses. Most interestingly, a strong connection between usage and social capital was uncovered, and usage gaps were predicted not only by SES, but by gender as well. Surprisingly, SES predicted lower reports of usage for strategic purposes and this correlation may in part
explain why SES was not a strong predictor of knowledge gain. Overall, there was initial support for the causal connection between SES, informational usages, bridging social capital and knowledge gain, but the accelerated knowledge gap model should be tested in different SNSs and knowledge contexts to further understand its usefulness.

Do social media bring people together or make it more difficult to bridge gaps between the haves and have-nots? In this study, the data show that social media might bring the “haves and have-nots” together, but not in the way expected. The knowledge-related advantages of the more highly educated were potentially suppressed by the way they use (or do not use) the site. Also, a new “gap” emerged, not related to SES, but to gender. It may be that women gain more benefits from their Facebook usage than men, especially in regard to gaining or maintaining social capital. Do social media bring people together or pull them apart? This study shows this question is complicated, but important, and it begs further investigation.
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APPENDICES
Online Consent Form

You're invited to take part in a research survey about social media use! This survey will be an interesting way for you to reflect on your social media usage, and it will also help us better understand patterns in social media usage and the different benefits social media may provide to individuals and the church. Your participation in this survey will require approximately 10 - 20 minutes of your time, and it will be completed entirely online. Taking part in this study is completely voluntary. And, don’t worry, there are no known risks or discomforts associated with taking this survey. If you choose to be in the study you can withdraw at any time simply by exiting the survey. You will not be asked to divulge any personally identifiable information, and your survey will be completely anonymous. Any report of this research that is made available to the public will not include your name or any other individual information by which you could be identified. If you have questions or want a copy or summary of this study’s results, you can contact the researcher at the following email address: esidnam@purdue.edu. If you have any questions about whether you have been treated in an illegal or unethical way, contact the Purdue University Institutional Research Board at (765) 495-45942 or irb@purdue.edu. Please feel free to print a copy of this consent page to keep for your records.

Sound OK? Let’s get started, then!

Clicking the “Next” button below indicates that you are 18 years of age or older, and indicates your consent to participate in this survey.

Block 1: Socio-demographic & Control Variables

First, please tell us a little bit about you by answering some general demographic questions, so we know how your responses fit into the larger population of people who use social media.

**Birth Year:**

*If under 18, the participant will not be allowed to complete the survey*

**Do you have a Facebook account that you use?** Yes/No

**Sex (control):** Male/ Female
Household Annual Income:
$0 to $9K
$10K to $36K
$37K to $89K
$90 to $188K
$189 to $410K
$411K to $412K
Over $413K

Highest Education Level:
Some Elementary School/Junior High
Some High School
High School Degree
Some College
Bachelor’s Degree
Master’s Degree
PhD
JD
MD, DDS, or similar

Employment Status:
Employed
Unemployed
Disabled
Retired
Stay-at-home dad/mom
Student
Prefer Not to Answer

How often do you attend the main service at church?
More than once a week
Once a week
Every couple weeks
Once a month
Several times a year
Only on holidays like Christmas and Easter

Select the statement that best describes your church attendance:
I attend church weekly, and I consider it an important part of my life.
I attend church weekly to support a friend or family member.
I attend church whenever I find the time, usually every couple weeks.
I usually only attend church on holidays
I do not attend physical church services, but I like watching sermons or getting other resources online.
I do not attend church at all.

**Block 2: Media Usage**

**Facebook Usage**
Think about the times you used Facebook in the past week.
On average, how many hours do you spend on Facebook per week day (Monday through Friday)?
[Time slider from 0 hours to 10 hours]

On average, how many hours do you spend on Facebook per weekend day (Saturday and Sunday)?
[Time slider from 0 hours to 10 hours]

**Motivations for Facebook Use**
[The statements with a * are informed by Van Deursen & Van Dijk’s (2013) motivations for Internet usage, and statements with a ** are informed by Kwon, Angelo & McLeod’s (2013) list of motivations.]

Think about the reasons why you like to use Facebook and why it is valuable to you.
Select how much you agree or disagree with the following statements:
[5-point Likert; 1=strongly disagree; 5=strongly agree]

For me, Facebook is a valuable way to:

To get information I need to know from others about daily life**
To get information on what is happening in the world**
To learn other people’s opinions on important issues**
To learn more about specific people
To discover things I like
To learn new things/seek new knowledge for myself
To find spiritual and moral meaning for my life
To express myself creatively
To further my career*
To share my views or knowledge with other people
To feel more connected to certain people or causes
To make new contacts*
To keep in touch with people I rarely see**
To communicate with my friends/family
To connect with my church or people who share my faith
To be involved in my community
To be silly and lighthearted with others
To entertain myself*
To relieve stress*
To get the time alone**
To find my own space online**

**Block 3: Social Capital**

**Facebook Social Contacts:**
How many total Facebook Friends do you have?
How many of your Facebook Friends would you consider “actual friends”?
[Slider from 0 to 2,000 or more]

**Facebook-specific bridging & bonding social capital (Measure adapted from Ellison et al., 2014)**

Select how much you disagree or agree with the following statements:
[5-point Likert scale where 1=strongly disagree and 5=strongly agree]

**Bridging Capital**
1. Interacting with people in my Facebook network makes me interested in things that happen outside of my town.
2. Interacting with people in my Facebook network makes me want to try new things.
3. Interacting with people in my Facebook network makes me interested in what people unlike me are thinking.
4. Talking with people in my Facebook network makes me curious about other places in the world.
5. Interacting with people on Facebook makes me feel like a part of a larger community.
6. Interacting with people in my Facebook network makes me feel connected to the bigger picture.
7. Interacting with people in my Facebook network reminds me that everyone in the world is connected.
8. Interacting with people in my Facebook network gives me new people to talk to.
9. Through my Facebook network, I come in contact with new people all the time.
10. I am happy to support church and community activities, and Facebook helps me do this.*

**Bonding**
1. There are several people in my Facebook network I trust to solve my problems.
2. There is someone in my Facebook network I can turn to for advice about making very important decisions.
3. There is no one in my Facebook network that I feel comfortable talking to about intimate personal problems. (reversed)
4. When I feel lonely, there are several people in my Facebook network I can talk to.
5. The people I interact with on my Facebook network would put their reputation on the line for me.
6. If I needed an emergency loan of $100, I know I could turn to one of the people I am Friends with on Facebook.
7. The people I interact with on Facebook would be good job references for me.
8. I do not know people in my Facebook network well enough to get them to do anything important. (reversed)

Block 4: Knowledge
[5-point Likert scale where -2=Definitely False to 2=Definitely True; Also, there are radio buttons for each statement with “I learned this on Facebook,” “I did not see this on Facebook,” “I don’t know where I learned this,” “I don’t know this information”]

- News Knowledge:
  - A new report says California faces a greater chance of being rocked by a strong earthquake in the next 30 years.
  - Sacramento City Council approved a plan to spend $8 million on an outside artist’s work for the new downtown arena.
  - California lawmakers are drafting legislation that would ban the sale of smart TVs that can send voice recordings without the user's knowledge.
  - As the drought worsens, L.A. water agencies are offering cash to Sacramento Valley farmers for their water supply.
  - The ACLU filed a lawsuit against the Sacramento County Sheriff’s Department charging that the agency refuses to produce documents related to their use of the “StingRay” surveillance technology.

- Church Facebook Page Knowledge:
  - 10% of the people at the last [church] preview service were between ages 7 and 10 years-old.
  - [Pastor] has an Art Degree and paints in his spare time.
  - [Church]’s verse of the year tradition was started in 1995, and the first-ever verse of the year was John 3:16.
  - Nehemiah 2:20 is one of [Pastor]’s favorite verses. In this verse, Nehemiah responds to adversity by stating that he is God’s servant and God is the one who gives success.
  - 600 volunteers serve every weekend on the [church] Campus.
## Appendix B  Covariance Matrix

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