SOCIAL CAPITAL VIA FACEBOOK: A WELLNESS CONNECTION?

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Chapter 1: INTRODUCTION

This study proposed the question of whether or not social capital via Facebook had any relationship to an individual’s physical and/or mental health and introduces a new measure of social capital via Facebook, the adapted resource generator. A significant correlation between social capital via Facebook and mental health was found.

By the questions proposed and the analysis that was undertaken, this study tested whether network theory of social capital can help us predict if what is understood about social capital and wellness in the offline space, holds true in the online space. Essentially, is there the same positive relationship between individual social capital and that individual’s wellness when the social capital is sourced online? The answers found weave together emergent Network Theory of Social Capital (Lin, 1999) which posits that the internet offers vast stores of social capital, with the work that has been done linking social capital with positive health outcomes (Ferlander, 2007; Kawachi et al., 2008; Putnam, 2000). Doing so offers support to the provocative proposition that individuals can use Facebook as a way to accrue social capital for wellness returns, meaning that billions of people already have at their disposal a tool that might act as a “vitamin” to protect their health. With general health in the United States on the decline since 1998 (Centers for Disease Control and Prevention, n.d.) and obesity on the rise, many in the public health sphere and beyond are looking to understand the phenomena responsible for these trends. Add to this the ever increasing costs of healthcare (Health, United States, 2013: With special feature on prescription drugs, 2014) and Facebook as a vitamin is a provocative proposition indeed. This appears to be one of the first studies to explore social capital accrual via Facebook and physical and mental health. Earlier studies exploring social capital via Facebook have been hampered by controversial techniques of measurement (Appel et al., 2014).
The online space creates emergent venues that offer researchers the opportunity to test some traditional communication theory and partake in the development of cross disciplinary approaches to the understanding of both the technological and humanistic affordances and influences of what have become nearly ubiquitous tools of the 21st century inhabitants of planet earth. The number of active users on social media platform Facebook was clocked at 1.39 billion in 2014 (“Company Info | Facebook Newsroom,” n.d.). If Facebook were a country it would rival China and India in population. Explorations of an online space such as Facebook and of its users appear rooted in the mathematical certainties of network science while paradoxically employing the seemingly less discrete theories of human behavior to explain uses and effects. Examination of a space such as this from such a socio-technical perspective falls under the umbrella of Social Informatics. This paper hopes to contribute to the dialogue.

Using a web-only survey of 250 respondents, this study found that indeed, there is a relationship between social capital via Facebook and mental health. Under the right circumstances there could be a relationship with physical health as well.
Chapter 2: LITERATURE REVIEW

“Technologies are not foreign to “human nature” but inseparable from it.”

The sociotechnical perspective begets Social Informatics

The field that exists in the spectrum between technological determinism and the social construction of technology is referred to as “socio-technical”. The sociotechnical perspective considers technology to be co-existing in a symbiotic relationship with the humans who imagine, create, and use said technology, i.e. both the users and the technology have agency (Nye, 2006). The two can be said to have some mediating power in the relationship with the other. By contrast, technological determinism from the dystopian angle considers users to be merely tangential to the ever-stronger grip of technology over our lives and the inexorable march towards a “Terminator-esque” future. From the utopian angle, determinism parades technology about as a panacea to societies woes in a manner approaching snake oil salesmanship (Kling, 1994). At the far opposite end from determinism, social construction of technology (SCOT) scholars imagine that technology is entirely shaped by human actors (Bijker, Hughes, Pinch, & Douglas, 1999).

The scholarship of technology occupies a vast and varied landscape insofar as the intersection with its human counterparts is concerned. The popular media are replete with examples of the deterministic point of view, some even citing the scholarship to support the assertion that technology will either save or destroy us (Kling, 1994). Nye (2006) makes a strong case for the sociotechnical perspective by tracing the evolution of our species back 1.6 million years as having been intertwined with technology all along. “Technologies are not foreign to

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1 The sci-fi franchise “Terminator” (“Terminator (franchise),” n.d.) starring Arnold Schwarzenegger wove a dystopian tale where in the future, the machines have taken over and seek to obliterate or subjugate all of human kind.
‘human nature’ but inseparable from it” (p. 2). Evidence from the animal kingdom notwithstanding, some have even claimed the human use of tools (technology) as a defining and unique feature of our species. Our use of technology may be partly responsible for making us human.

As “technology” became a term used quite often as a stand-in for computers and computing, and communicative technologies became digitized during the 20th century, a great many researchers began to consider information and communication technologies (ICTs) from a sociotechnical perspective. As Sawyer and Rosenbaum (Sawyer & Rosenbaum, 2000) noted, “researchers in fields as varied as computer science, information science, communications, sociology, anthropology, information systems, management science, education, and library science (to name a few) [were] investigating the ways in which ICTs and the people who design, manage, and use them shape and influence each other in different social contexts” (p. 90). Not only was the research spread across many disciplines, but also the research was not finding its way easily into the public discourse of ICTs and society. To meet these challenges, a movement pioneered by Rob Kling was undertaken to name this body of knowledge so that it would be more easily accessible and recognizable by all. Sharing his memories about the early discussions about what this body of knowledge should be known as, Kling had this to say:

Several of us felt that it was time to help make this body of ongoing research much more accessible by finding one name that could serve as an efficient pointer, and a banner. Instead of being skeptical of new nomenclature, we should be willing to find a field name that we could use. A number of us discussed alternatives such as “social analysis of computing,” “interpretive informatics,” “socio-technical systems”—and the term “social
informatics” came up as the least offensive alternative of the group. For some people it inspired curiosity; for others, it simply was not a turn-off… (Kling, 2007).

In 1997 the National Science Foundation sponsored a workshop, Advances in Organizational and Social Informatics, to further develop Social Informatics as a discipline in its own right (Kling, 2007). The workshop participants developed a conception of social informatics as “the interdisciplinary study of the design, uses and consequences of information and communication technologies that takes into account their interaction with institutional and cultural contexts” (p. 217). They also characterized the research in the field as analytical, critical and normative. The analytical orientation includes empirical studies and the theory building that results. The critical orientation refers to that research that analyzes the power forces at work when challenging the unexamined privilege and assumptions pertaining to ICTs in culture and organizations. The normative orientation seeks to provide empirically supported guidance to ICT professionals and policymakers. In essence, the normative orientation seeks to make the research relevant to the full cadre of those affected by, influenced by, and the influencers of, ICTs. Phil Agre, one of the early participants in the discussions, addressed this key aspect as espoused by all involved in the dialogue, that the work of Social Informatics be relevant. “SI studies aim to ensure that technical research agendas and system designs are relevant to people’s lives. The key word is relevance, ensuring that technical work is socially-driven rather than technology-driven” (“Rob Kling Center for Social Informatics,” n.d.). The lament of all involved was that many technical professionals considered cultural and social concerns as tangential at best and at worst nonexistent. The goal of the social informatics movement was to bring social concerns up front and center and to define how this might be done. In the wake of the workshop, a book was published to memorialize the consensus of the
participants and offer some pedagogical direction to the field. What was once just a webpage for social informatics morphed into the Center for Social Informatics at the University of Indiana. It was renamed the Rob Kling Center for Social Informatics on his unexpected passing in 2003 (Lamb & Sawyer, 2005).

Social informatics spawned a thorough review of the cross disciplinary literature that would fall under this new umbrella. Gleaned from this review were the common findings regarding the social, technical and institutional nature of ICTs (Kling, Rosenbaum, & Sawyer, 2005). These findings have held fast and have been bolstered in the face of the technological developments since 2005. They offer effective lenses with which to analyze ICTs. The findings are:

**Regarding the Social Nature of ICTs**

- ICTs are interpreted and used in different ways by different people
- ICTs enable and constrain social actions and social relationships
- **ICTs provide a means to alter existing control structures**
- ICTs can lead to negative consequences for some stakeholders

**Regarding the Technical Nature of ICTs**

- ICTs have both communicative and computational roles
- ICTs have temporal and spatial consequences
- ICTs rarely cause social transformations
- **ICTs are not magic bullets: they do not solve things by themselves.**

**Regarding the Institutional Nature of ICTs**

- ICTs social and technical consequences are embedded in institutional contexts
- ICTs often have important political consequences.

(Kling et al., 2005)
Examples of social capital processes illustrating the social informatics findings are quite easy to argue and those bolded above will be briefly discussed in the analysis of results of the research described in this paper. The concept of social capital online is elegantly suited to contribute to the cannon of social informatics. In fact, the term “sociotechnical capital” (Resnick cited in Ellison, Lampe, Steinfield, & Vitak, 2010) has even been suggested to refer to social capital in the online space in order to highlight the unique interplay of the social and the technical factors that influence human interaction facilitated by ICTs. ICT research using social capital as an organizing construct to drive methodology and analysis is at the same time contributing to, and drawing from, a rich sociotechnical tapestry. Having established this, what then is social capital?

What is social capital?

Generally speaking, social capital refers to the resources available throughout a social network mediated by the quality of those connections. As a concept, it has deep roots in the social sciences. Portes (1998) argued that to truly find the sources of the idea of social capital would be “revisiting sociology’s major nineteenth century sources” (pg. 3). Community, family and the benefits offered by association with those structures were concepts that sociologists have been examining for centuries.

As a term, “social capital” appeared in several different texts prior to its rapid diffusion across the social sciences in the past two decades. Some debate exists whether many of these just happened to be serendipitous, spontaneous and disconnected from any easily traceable provenance. For purposes of this review, the goal is to arrive at a robust understanding of the concept of social capital by way of a chronological tour of the term’s presence in the academic
literature. In this way it is expected that readers will find reasonable the evidence presented as justification for the choice to include the concept in this research.

The term appeared first in print in Marx and Engels’ treatise on capitalism in the context of identifying those resources made available by workers coming together. As a symptom of solidarity, social capital could function as a well-resourced fund to draw from negating the impediments to access to the means of production (Farr, 2004). Portes (1998) interprets Marx to be arguing that the human animal is not altruistic by nature but rather that is from the ‘class consciousness’ that this disposition arises. As the worker finds themselves as slaves to a seemingly inescapable system of extreme inequity, only a fellow worker understands the pain of this plight. It is in being bound by this common fate that the workers recognize that there is power (read: resources) to be found in their solidarity. However, Portes intimates that it was Marx’s contention that this cooperative bent was bounded by the limits of the community in question, i.e. not portable by each actor within, nor transferable outside the community. In general, current conceptualizations of social capital have broadened its availability from this narrow construal.

According to Farr (2004) the term was used a couple of times in the pop-culture literature of the Victorian era. One would hazard a guess that the artists’ class would have at least in passing heard of Marx’s work, so this isn’t surprising. Marx’s views were revolutionary and artists are often known to explore the outer reaches.

The term reappeared in the early 20th century, in works by Americans John Dewey and Lyda Hanifan. Dewey is often credited for contributing to ripe conditions for the adoption and diffusion of social capital as a term and as a concept throughout the social sciences. Situated within a commentary advocating for the well rounded education of children to include
socialization, Dewey states that this socialization “…represent(s) the keys which will unlock to the child the wealth of social capital which lies beyond the possible range of his limited individual experience” (p.104, Dewey, 1915). Hanifan, for whom Dewey was somewhat of a muse, proposed the school as an incubator of social relations and hub of social connections for economically depressed rural locations. In this manner, we see the more evidence of the expansion of the narrow social capital definition of Marx.

In 1961, Jane Jacobs released The death and life of great American cities in which she defined social capital as the sum of the trust, respect and sense of collective identity generated by random and planned social interactions plus the resources available during times of personal or neighborhood need. Putnam (2000) credits Jacobs as one of the inventors of the term while some literature leaves Jacobs out of the social capital story of origin all together. It will likely never be known whether these sorts of omissions are of the intentional variety conjured by egos demanding sole credit, sexism, or simply vestigial of what is no longer the monumental task of tracking down literature what with the likes of Google Scholar and similar digital tools.

Portes (1998) sourced the contemporary roots of the concept of social capital to Pierre Bourdieu. Bourdieu defined the term as “the aggregate of the actual or potential resources which are linked to a possession of more or less institutionalized relationships of mutual acquaintance or recognition” (p. 3, Bourdieu as cited in Portes, 1998).

Bourdieu’s work was slow to attract any widespread attention in the English-speaking world as it was first published within some brief notes in the Actes de la Recherche en Sciences Sociales, a French journal of sociology. Its English debut in 1985 was within the pages of a textbook on the sociology of education, which still kept his work only narrowly exposed. Evolving in parallel, Portes also traced the concept of social capital to Glen Loury, who was using the
term in his critical analysis of “neoclassical theories of racial income inequality and their policy implications” (p. 4). Portes argued that while Loury’s work still had the Marxian narrow focus on the critique of orthodox labor economics, it did pave the way for Coleman’s broader analysis of social capital in communities and families.

Coleman (1988) acknowledged that his own work sought to merge the intellectual streams of thought from economics and sociology that describe and explain social action, “I have argued for and engaged in the development of a theoretical orientation in sociology that includes components from both these intellectual streams. It accepts the principle of rational or purposive action…” i.e. from economic theory, “…and attempts to show how that principle, in conjunction with particular social contexts, can account not only for the actions of individuals in particular contexts but also for the development of social organization” (p. 96). Social capital could uniquely bridge these streams and to do so was an endeavor gaining momentum. He stated as his aim “to import the economists' principle of rational action for use in the analysis of social systems proper, including but not limited to economic systems, and to do so without discarding social organization in the process. The concept of social capital is a tool to aid in this” (p. 97). Early in his writings on the topic, Coleman claimed introduction of the concept of social capital into social theory (p. 118, 1988). Coleman’s recollection is disputed via Portes’ and others’ explorations but Portes does credit Coleman’s work for giving “visibility” (p. 6) to the concept in American sociology.

During the nineties as the concept diffused across the social sciences disaggregate themes within social capital began to emerge. Theorists argued social capital was either external or internal while some held simultaneous support for both camps without conceptual qualm. Others argued it was either an asset only available to the collective, the individual or here too, both
without apprehension. There also emerged the critics who found fault with the term being in use at all as its definition was not articulated to the point of giving the concept any heuristic value whatsoever.

First, let us consider the external and internal dimensions of social capital. It was argued by the likes of Coleman and Putnam that a bounded network of strong ties would provide internally to the network the norms of reciprocity and high trust associated with large reserves of social capital. Initially proposed by Bourdieu, Granovetter’s *Strength of Weak Ties Theory* furthered the argument echoed by Burt (1992) and Portes for availability of social capital external to closed networks via diverse and open social networks (Adler & Kwon, 2002). The terms of bonding and bridging social capital emerged to illustrate simply this distinction. Wellman and Wortley (1990) and Lin (1999) represented the viewpoint that held that both dimensions could coexist and adopted the stance of valuing both while espousing the term for its value to individuals.

By perceiving the term as more literal than metaphor one could arrive at an entry point into the consideration of these individual and collective dimensions of social capital. *Financial capital* accrues as the result of the investment or exchange of one or multiple forms of capital; *money* is the currency of financial capital (“Capital (Economics),” n.d.). While money, financial capital, is kept in a bank, under a mattress, or invested in some other repository, *social capital* resides in the social networks one is a part of and is fostered by the quality of these connections (Adler & Kwon, 2002; Coleman, 1988; Lin, 1999; Portes, 1998). Just as financial capital is considered an asset, so too is social capital. It is convertible into other forms of capital and it can be a substitute for, or a complement to, other resources (Adler & Kwon, 2002). Capital in all of its forms might be considered from the point of view of it being an asset to the individual or to
the collective. Most of the scholars who viewed social capital from a social network analysis paradigm considered it observable in exchanges between individuals but also measurable in groups.

Political scientist Robert Putnam (1995) took a contrary view and measured social capital as membership in voluntary associations, newspaper readership, civic engagement etc. and found all of these on the decline in his research. This caused him to conclude consequently that social capital was sharply declining at the end of the 20th century. Portes (1998) contended that Putnam’s logic was circular. “As a property of communities and nations rather than individuals, social capital is simultaneously cause and effect.” (p. 19) Notwithstanding the circularity of his argument Putnam’s work did find favor outside academia (Portes, 1998). The term social capital emerged into mainstream consciousness with Putnam as the envoy. Putnam was featured in People magazine and inspired passages in then Presidents Clinton’s 1995 State of the Union Address. His work also became cleaving within left leaning politics. Critics pointed to class bias unacknowledged in Putnam’s assertions. There was enough conversation and debate inspired that his journal article was expanded to 542 pages in 2000 (Putnam, 2000).

For the purposes of this study, the construct of social capital will be conceptualized as an individual asset located within diverse social networks of strong and weak ties. From this author’s perspective Bourdieu’s original definition stands up the best to criticism and offers the most utility. Social capital is “the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition” (Bourdieu & Wacquant, 1992, p. 119).
Social Network Sites and Social Capital: Communication as currency

Not surprisingly as we have begun to visualize, design and interact with our social networks online, the social capital implications of this move of our social networks to the digital venue have become an active area of research. Lin (1999) acknowledged areas of concern as our paradigm of social systems is translated onto the digital spectrum. Dynamic and contentious issues such as privacy versus access to data, and decency versus free speech, may challenge our assumptions about social networks and social capital. Still, with a tip of the hat toward the idea that social capital had been on the decline during the last half of the 20th century as argued by Putnam (1995) in the journal article that predated and inspired his book “Bowling Alone” (Putnam, 2000), Lin (1999) proposed that, “we are witnessing a new era where social capital will soon supersede personal capital in significance and effect” (p. 46). If networks of varying density had value, and the access to the internet held the potential to expand and lower the cost of connecting to one’s networks, then there was going to be a windfall in global social capital. Lin (1999) proposed a “Network Theory of Social Capital” as a framework for future research. Lin’s work represents an intersection of understanding between network theorists from sociology and economics with network theorists in computer and information science. In the conceptualization of this online social capital as sociotechnical capital, Resnick (2001) similarly asserted that the affordances of online communication could serve to supplement social capital offline.

Lin (1999), Wellman (2001) and Resnick (2001) make a compelling case that the internet and social media would grow social capital. This increase in social capital takes place even in offline communities by the rapport and trust built within the network and by the actors online. One mitigating factor in the ability to accrue and exchange social capital in any venue, online or
off, is effective communication (Wellman, 2001). Communication can be both a social and a technical endeavor. Either way, effective communication lowers the cost of accruing, and accessing the value, of social capital. While this may be similarly the case in the financial, physical and human capital markets, the subtleties and media of this information exchange might more influence the outcomes in the social capital market as the capital itself also resides in the quality of the connections. Adler and Kwon (2002) consider this to be a defining hallmark of social capital in contrast to all other forms. It is unique in that the value is located not only in the actors but within the relationship between actors. Online as offline, there are both social and technical dimensions to these relationships. These relationships are negotiated through communication. Communication could then be described as the currency of social capital. Social capital processes have been articulated to mean the ways in which individuals maintain and interact with these relationships to draw the value from their social networks online (N. B. Ellison et al., 2010; NB Ellison, Vitak, Gray, & Lampe, 2014).

As noted by Lin (1999) and Wellman (2001), the developing functionality of computer-mediated communications allows internet users to interact with one another in myriad ways. Users can interact in real-time or asynchronously; share text, audio and video; connect with their own social network and the networks of friends. Information is accessible around the world at the speed of light. Resnick (2001) articulates six technological affordances of online communication that can influence social capital. Three examples particularly salient here as they lower communication costs are 1) the removal of spatial and temporal barriers to interaction, 2) the expansion of reach, and 3) control of information flow. Social network sites (SNS) include these affordances and are designed to foster this kind of interactivity with other users. boyd and Ellison (2013) define social network sites as:
networked communication platforms in which participants 1) have uniquely identifiable profiles that consist of user-supplied content, content provided by other users, and system-level data; 2) can publicly articulate connections that can be viewed and traversed by others; and 3) can consume, produce, and interact with streams of user-generated content. (p. 158)

**Approaches to examining Social Capital in practice**

The debate and divergence related to social capital is similarly reflected in the spectrum of measures that exist to study it. When researchers are conceptualizing social capital as did Putnam (2000), they are apt to measure it as Putnam did. Attitudes about their communities, feelings of trust and belonging, membership in civic organizations, are all examples of indicators that Putnam and others have used to measure social capital. Others seeking to develop new measures of social capital have taken a network structure approach and examined the breadth and depth of social connections via name and position generators and actual resources available to individuals via their social networks using resource generators (Appel et al., 2014; Kawachi et al., 2008).

The name generator method of measurement consists of asking questions that probe for the names of people that an individual might discuss, for instance, “important matters with”, then via follow up questions and further probing a map of sorts is developed that describes the number of close or strong ties within one’s social network (Appel et al., 2014; Lin, 1999; Van Der Gaag & Snijders, 2005; Webber & Huxley, 2007). The name generator method is one of the earliest used in communication research to measure social network resources (social capital) (Appel et al., 2014). The drawbacks of the name generator are that there are several prompts used in lieu of “important matters” such as “political events” or the like consequently there is no
standardized generator of names, making the method difficult to reproduce in different contexts. The method is time intensive as it can require interview and follow-up questions to accurately enumerate and understand the strength of the relationships shared by respondents. Generally, the generator returns what would be described as lists “strong” ties, likely in response to the generator’s theme. While this may help researchers understand the “bonding” social capital available, Granovetter and many others since have argued for the availability of much social capital in the weaker or “bridging ties”.

Position generators work from the assumption that understanding the number of connections a person has with individuals of positions of varying prestige and status will give insight into the heterogeneity of an individual’s social network (Appel et al., 2014; Lin, 1999; Van Der Gaag & Snijders, 2005; Webber & Huxley, 2007). By comparing this information to the individual’s own position and demographics, and the setting in which the individuals are connected to the positions (neighbors, family, online, social organization etc), it is theorized that researchers can understand the number and relative strength of social ties, which would help to assess access to social capital via ties of varying strengths. A drawback of this method and similarly of the name generator is that neither measures actual resources. Both methods work from the assumption that the quality of the social network will grant varying degrees of access to resources embedded within the network.

The resource generator then offers the answer to this dilemma of actual resource measurement and invites individuals to enumerate the number of resources they have available to them via their social network (Appel et al., 2014; Lin, 1999; Van Der Gaag & Snijders, 2005; Webber & Huxley, 2007). The assumption within the resource generator is that there are resources that demand varying degrees of risk for the actor that holds the resource and varying
degrees of trust between the actors engaged in the transaction. Perhaps one would ask only close friends, those whom they trust a great deal, to watch their children, but advice about how to fix a computer might come from an acquaintance where there connection is not as strong. The lists of resources from which individuals can choose are developed to be representative of a diversity of resources and strength of tie, rather than exhaustive of all resources embedded within the individual’s social network.

Most of the research into social capital via Facebook, and a number looking at other platforms, have forgone the use of a network approach in favor of adaptations of the Internet Social Capital Scale (ISCS) developed by Williams (2006). Williams relied largely on Putnam’s arguments in the development of the scale that purports to measure bonding and bridging social capital. Williams combed existing measures to get at what he interpreted Putnam to imply were the criteria for bridging: “1) outward looking, 2) contact with a broader range of people, 3) a view of oneself as part of a broader group, and 4) diffuse reciprocity with a broader community” (p. 600), and bonding “1) emotional support, 2) access to scarce or limited resources, 3) ability to mobilize solidarity, and 4) out-group antagonism” (p.601). By measuring the same indicators online and off, Williams hoped that the ISCS would be of use to researchers interested in learning how the internet influences losses or gains of social capital in either domain. Despite diffusion of the ISCS, Portes’ (1998) issues with Putnam’s circular reasoning conflating predictors and outcomes of social capital seem to have arrived at the doorstep of the ISCS. A recent paper (Appel et al., 2014) has called into question its validity. This is largely because Appel and colleagues conclude that the “ISCS substitutes psychometric measures of the predictors and outcomes of social capital for structural measures of social capital” (p. 408). As a
result, Appel and colleagues suggest returning to the use of structural measures of social capital, such as the name, position or resource generators considered above.

**Facebook - Features and Affordances and Social Capital**

Facebook meets all of boyd and Ellison’s criteria and has become the farthest-reaching social network site to date. Since its introduction in 2004, Facebook has grown to 1.35 billion monthly active users (“Company Info | Facebook Newsroom,” n.d.). Further, as boyd and Ellison ((N. B. Ellison & Boyd, 2013) assert, as a socio-technical system, “the technological constraints and affordances of [the] site will shape user practices and … social norms will emerge over time” (p.166). As an ecosystem, the users (the living) and the technology (the nonliving) (“Ecosystems,” n.d.) exist in concert making Facebook a rich destination for social informatics study and social capital has often been used as a conceptual framework for these studies.

One of the challenges when trying to get a handle on the technological constraints of Facebook in order to better understand the shaping that boyd and Ellison describe and that social informatics would predict is that the constraints often occur behind a curtain. Proprietary algorithms aren’t openly shared by the publicly traded company and seem to change frequently making them even more difficult to tease out. Affordances seem to be somewhat easier to identify. Affordances refer to “the range of possible activities’’ a thing may perform (Norman, 1999). The affordances of Facebook as a social network site, as defined by boyd, offer a host of tools to facilitate communication among network ties. These affordances allow users to broadcast messages, location, links and photos to their network via status updates and target these broadcasts through privacy settings. Networks are articulated by “friending” another user, which entails sending, and having accepted, or accepting an incoming friend request. Users may
comment on the posts of others and private message via Facebook’s instant message feature. Facebook offers users the opportunity to set up “groups” to develop and maintain communities around an issue or a cause (Park, Kee, Valenzuela, & Park Kerk F. Valenzuela, Sebastián, 2009) and set varying levels of privacy to the content and membership list of the group.

Facebook allows users to create profiles and share the information within using varying levels of privacy. For instance, where someone might use their full birthdate on their profile, they might only share the month and year with friends and not share this information at all with people with whom they are not friends. Similarly, there are varying levels of privacy that one can assign to status updates. One can post an update publicly, so it can be visible to non-friends and friends alike or they can target the post to subsets of friends or none at all with the “only me” privacy setting. Facebook users can also peruse the networks of others by looking at their friend lists and search the entire network with a name search.

Ellison, Gray, Vitak, Lampe, and Fiore (2013) considered the mobilization of social capital resources via Facebook by looking at the requests for assistance users posted to their network via the status update function. Ellison, et. al., argue that by using Facebook to broadcast actual requests for assistance to their network, they are seeking to “cash in” their social capital for the knowledge and resources of others in their network. Several other studies have found that social capital exists and is available to be mined via Facebook (Ellison, Lampe, Steinfield, & Vitak, 2010; N. Ellison, Vitak, Gray, & Lampe, 2014; Williams, 2006). It can be argued at least that Facebook could be studied as a “durable network of more or less institutionalized relationships of mutual acquaintance and recognition” (p.119) as Bourdieu asserted would contain the resources he named social capital.
According to Lin (1999), “The premise behind the notion of social capital is rather simple and straightforward: investment in social relations with expected returns” (p.30). By considering social capital through the capital theoretical lens that draws parallels affording social capital “value” that is exchanged expecting returns (Adler & Kwon, 2002; Coleman, 1988; Portes, 1998), just what sort of returns can one expect? What then if anything does this value buy? Borgatti, Jones, and Everett, (1998) claimed it could be cashed in for such things as better jobs and faster promotions, while others were considering the value it offered was positive health and wellness (Ferlander, 2007; Lin, 1999; B Wellman, 2001). Ferlander (2007) considered this exchange by way of an overview of the dimensions and debate in social capital, arguing for the application of the network perspective as proposed by Lin in 1999.

Ferlander traced the link between social capital and health as far back as to the work of Durkheim, “…who showed that social integration was inversely related to the suicide rate in societies” (p. 120). Ferlander (2007) reviewed a number of the empirical studies that lent support to the link between social capital and reduced mortality, and increased self reported health (general, physical and mental). Ferlander explored the assertion that certain types of social capital could be exchanged or called upon to produce different positive health outcomes. Ferlander (2007) concluded through the review of these studies that large reserves of bridging social capital are made up of many weak ties that offer diversity and heterogeneity that can have palliative effects on physical health. Further, high reserves of bonding social capital are made up of many strong ties that offer emotional support and access to resources generally associated with improved mental health outcomes.
Putnam (2000) devoted an entire chapter to “Health and Happiness”, and the circularity of his arguments notwithstanding, he did review a number of studies that considered individual social capital and health which “have established beyond a reasonable doubt that social connectedness is one of the most powerful determinants of our wellbeing” (p. 326). One study he cited compared social capital by state and the health of the state’s residents (Kawachi et al. as cited in Putnam, 2000). Health was better in the states where social capital was high. So striking was this impact that moving to a high social capital state could do almost as much good for one’s health as quitting smoking. Researchers proposed a number of plausible theories. One such idea is that social networks provided “tangible assistance such as money, convalescent care, and transportation which reduces psychic and physical stress and provides and safety net” (p. 327).

Included in the reader “Social Capital and Health” (Kawachi et al., 2008), several chapters offer meta-analyses of the literature linking these variables. While many of the studies looked at social capital at the community level there were dozens reviewed that found a compelling link between individual social capital and positive self-rated physical health. A meta-analyses of the literature also found this link to exist between individual social capital and mental health.

A few early studies have drawn the line between social capital online and health. In their research looking at online cancer support groups and positive health outcomes, Beaudoin and Tao (2007) appear to be some of the earliest to make use of the concept of social capital as it pertained to the use of the internet and health. According to Beaudoin & Tao, the study provided insight for health practitioners, namely a better understanding of “…the benefits that online communication can have in regard to the development of social capital, social support and subsequent positive health outcomes” (p.589). Their work in 2007 led them to conduct a similar
study that looked at internet use by the *supporters* of cancer patients and whether it grew their social capital and improved health outcomes (Beaudoin & Tao, 2008). They found that they could draw a similar line from online communication, to growing social capital, to positive health outcomes, for this group as well. Additionally, they asserted, “It can be inferred that, in turn, improvements in the health status of supporters could encourage improvements in the well being of the cancer patients themselves” (p. 333). This is a powerful argument for the influential role online social capital can play.

All of this is to pave the way here, justification for an examination of the relationship (if any) between social capital *via Facebook* and physical and mental health. One study has found that Facebook may play a part in keeping people well (Nabi, Prestin, & So, 2013), finding that the number of Facebook friends one had was positively related to health across physical and mental dimensions but did not employ the construct of social capital. By utilizing the concept of social capital we might improve understanding of the relationship and offer a multidisciplinary contribution via a social informatics driven analysis.

**Health and Wellness**

In general conversation, the terms health and wellness are often used interchangeably. More specifically, health is often the term used to mean the absence of disease or disorder while wellness is often used to mean the presence of physical and emotional resilience. There is often an overlap in what the terms are referring to. In fact a number of studies (Dobransky & Hargittai, 2012; Greene, Choudhry, Kilabuk, & Shrank, 2011; McCullagh & Augusto, 2011; Munson, 2011; Sundar, Oeldorf-Hirsch, Nussbaum, & Behr, 2011; Zhang, 2012) have used the two terms interchangeably without qualm and I would tend to concur with this approach. The World Health Organization has since 1948 defined health thusly, “Health is a state of complete physical,
mental and social well-being and not merely the absence of disease or infirmity.” (“WHO definition of Health,” n.d.) In this study, the physical and mental components of health and wellness will be considered, physical health being the bodily wellbeing of the individual and mental health being the emotional wellbeing of the individual.

**Research Question and Hypothesis**

As noted above, many studies have found a relationship between Facebook use and social capital. Further, social capital has long been associated with better health. Little research has yet to look at social capital available via Facebook and health. Therefore, this study seeks to explore the following: **Is there any relationship between an individual’s social capital via Facebook and their mental and/or physical health?** The expectation is that there will be a positive relationship between social capital via Facebook and physical and mental health. Therefore:

H1: An individual’s social capital via Facebook will be positively related to their mental health.

H2: An individual’s social capital via Facebook will be positively related to their physical health.

IV1: social capital via Facebook

DV1: physical health

DV2: mental health
Chapter 3: METHOD

The data analyzed in this study were collected from an online survey designed and administered via Qualtrics. Responses were collected from January 2015 to March 2015 using snowball sampling via Facebook and various email listservs. The survey link was shared a total of 5 times via the status update affordance using the author’s Facebook profile. Members in the author’s personal network were asked to take and share the survey with their own social networks. A link to the online survey was also posted in a number of Facebook groups, the Association of Internet Researchers listserv, and emailed to others within the author’s social network. At the close of the survey, response items were recoded within Qualtrics and imported into the statistical analysis software SPSS 22.

Health Measures

The instrument used to measure the dependent variables (DV), physical and mental health, is taken in its entirety from the Short Form Health Survey (SF-12v2) (Maruish & Turner-Bowker, 2009). Initially developed as part of a multi-year study of medical outcomes in the US in 1992, The SF-12 v2 has been translated into 110 languages and is one of the most widely recognized and utilized instruments for physical and mental health self-reporting in the healthcare community. Numerous studies, across many disciplines have used the Short Form Health Surveys (SF-12, SF-36) to measure health in relationship to social capital in the offline space (Boehm, Eisenberg, & Lampel, 2011; Pinxten & Lievens, 2014; Ziersch, 2005). While the analysis of the data collected may be mathematically complicated, the benefit of the standardization of scores allows for comparison to other studies, past or future. The “short form” collection of health surveys, of which the SF-12v2 is one, is the most widely used in clinical trials (Maruish & Turner-Bowker, 2009).
In order to arrive at the composite physical and mental scores to use to test the hypotheses set forth in this paper, the scoring guidelines as outlined in the *Users manual for the SF12 v2* (Ware et al., 2009) were used. Eight dimensions of health comprise the measurement of physical and mental health. These dimensions are: physical functioning (PF), role physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role emotional (RE), and mental health (MH). The transformation into new variables converts the lowest and highest possible scores to zero and 100, respectively. Scores between these values represent the percentage of the total possible score achieved and make these dimensions easily comparable to each other using a scale that the public understands. For the purpose of physicians in conversation with patients, this can be very helpful.

Transformed scale = \((\text{Actual raw score} - \text{lowest possible raw score})/\text{possible raw score range}) \times 100\)

The items from the transformed scales were standardized using a z-score transformation according to the very specific guidelines in the *Users manual for the SF12 v2* (Ware et al., 2009). This meant using means and standard deviations from the 1998 general U.S. population rather than relying on z-score calculation within SPSS which would have used the means and standard deviations from the sample. This approach was chosen to produce results that would be comparable to other studies. The U.S population mean was subtracted from each scale score and the difference divided by the corresponding scale standard deviation from the general US population:

\[
\text{PF}_Z = (\text{PF} - 81.18122) / 29.10558
\]

\[
\text{RP}_Z = (\text{RP} - 80.52856) / 27.13526
\]
BP\_Z = \frac{(BP - 81.74015)}{24.53019} \\
GH\_Z = \frac{(GH - 72.19795)}{23.19041} \\
VT\_Z = \frac{(VT - 55.59090)}{24.84380} \\
SF\_Z = \frac{(SF - 83.73973)}{24.75775} \\
RE\_Z = \frac{(RE - 86.41051)}{22.35543} \\
MH\_Z = \frac{(MH - 70.18217)}{20.50597}

After the z-score was computed, the aggregate scores for the physical and mental summaries were arrived at using the physical and mental factor score coefficients from the 1990 general US population as given in the *Users manual* (Ware et al., 2009):

\[
AGG\_PHYS = (PF\_Z * .42402) + (RP\_Z * .35119) + (BP\_Z * .31754) + (GH\_Z * .24954) + (VT\_Z * .02877) + (SF\_Z * -.00753) + (RE\_Z * -.19206) + (MH\_Z * -.22069)
\]

\[
AGG\_MENT = (PF\_Z * -.22999) + (RP\_Z * -.12329) + (BP\_Z * -.09731) + (GH\_Z * -.01571) + (VT\_Z * .23534) + (SF\_Z * .26876) + (RE\_Z * .43407) + (MH\_Z * .48581)
\]

Aggregates scores were transformed into the norm-based (50, 10) scores as follows:

Transposed Physical Component Summary (PCS) = 50 + (AGG\_PHYS * 10)

Transposed Mental Component Summary (MCS) = 50 + (AGG\_MENT * 10)

**Social Capital Measures**

For this study, Van der Gaag and Webber’s (Kawachi et al., 2008) resource generator was modified for an American audience on Facebook. This adaptation consisted of adding “on
Facebook” to every question after “Do you know someone”. Survey participants were instructed, “For these questions, please consider all the people that you have access to via Facebook. In other words, the whole of your online social network on Facebook. This may include people you also have contact with offline, but they must be a part of your online social network on Facebook.” The items used were from a version used for the United Kingdom so two questions that refer to “local council” were changed to read “local government” and “elected official” to suit an American audience. A total social capital score was generated by the number of resources available to respondents via their Facebook network out of a total of 27 listed in the resource generator.

Comparative Measures

If there are any assumptions being drawn about the social capital available via Facebook they would nearly all likely be due to studies that used the ISCS (Williams, 2006) or an adaption of the ISCS, as the method of measurement. According to Appel et. al. (2014), the ISCS has become particularly widespread in the study of ICTs so much so that the first paper published using the scale was the second most cited article in the Journal of Computer-Mediated Communication, where it was published. As Appel et.al. were the first to seriously call into question the validity of the instrument, this study also includes an adapted ISCS for the Facebook audience for comparative purposes similar to theirs. The Facebook Intensity of Use Scale (FBI) (Ellison, Steinfeld, & Lampe, 2007) measures numbers of Facebook friends, time on the site and attitudes about Facebook use and the Facebook community. It has been used with the ISCS as adapted for Facebook, and was included for exploratory purposes in this study.
To answer the research question, Pearson bivariate correlation was used to analyze the data for positive correlation between the Facebook social capital measures and physical and mental health. Demographic data such as age, gender, race, level of education and income were also collected. The Institutional Review Board at the University of Hawaii, Manōa approved the survey for administration on January 15, 2015.
Chapter 5: RESULTS

Sample overview, scale reliability and descriptive statistics

The sampling method returned a total of 250 respondents. Demographic description of the sample is illustrated in Table 1.

Table 1
Descriptive Statistics for Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (N=193)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>55</td>
<td>28.5</td>
</tr>
<tr>
<td>Female</td>
<td>138</td>
<td>71.5</td>
</tr>
<tr>
<td>Age (N=194)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-28</td>
<td>29</td>
<td>14.9</td>
</tr>
<tr>
<td>29-38</td>
<td>44</td>
<td>22.7</td>
</tr>
<tr>
<td>39-48</td>
<td>68</td>
<td>35.1</td>
</tr>
<tr>
<td>49-58</td>
<td>31</td>
<td>16.0</td>
</tr>
<tr>
<td>58-69</td>
<td>79</td>
<td>8.8</td>
</tr>
<tr>
<td>69 and over</td>
<td>5</td>
<td>2.6</td>
</tr>
<tr>
<td>Education (N=192)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school graduate</td>
<td>54</td>
<td>28.1</td>
</tr>
<tr>
<td>Bachelor’s degree or more</td>
<td>138</td>
<td>71.9</td>
</tr>
<tr>
<td>Income (N=190)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$19k</td>
<td>24</td>
<td>12.6</td>
</tr>
<tr>
<td>$20k to $39k</td>
<td>36</td>
<td>18.9</td>
</tr>
<tr>
<td>$40k to $59k</td>
<td>31</td>
<td>16.3</td>
</tr>
<tr>
<td>$60k to $79k</td>
<td>30</td>
<td>15.8</td>
</tr>
<tr>
<td>$80k to $99k</td>
<td>22</td>
<td>11.6</td>
</tr>
<tr>
<td>&gt;$100k</td>
<td>47</td>
<td>24.8</td>
</tr>
<tr>
<td>Race *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>138</td>
<td>55</td>
</tr>
<tr>
<td>Asian</td>
<td>17</td>
<td>6.8</td>
</tr>
<tr>
<td>Black</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Latino</td>
<td>22</td>
<td>8.8</td>
</tr>
<tr>
<td>Indigenous/Native American</td>
<td>6</td>
<td>2.4</td>
</tr>
<tr>
<td>Other</td>
<td>27</td>
<td>10.8</td>
</tr>
</tbody>
</table>

Note: *Respondents had the option of choosing as many as they identified with
When compared to the entire population of Facebook users, the sample in this study was older, had more females, and was more formally educated (Hampton, Goulet, Rainie, & Purcell, 2011).

Health Measures

Scale reliability analysis of the SF12v2 returned a Cronbach’s alpha of 0.883. Mean PCS and MCS scores are close or comparable to the population norms (Ware et al., 2009) as illustrated in the Table 2.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample</td>
<td>50.41</td>
<td>10.94</td>
</tr>
<tr>
<td>Population Norm</td>
<td>50.12</td>
<td>9.5</td>
</tr>
<tr>
<td>MCS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample</td>
<td>48.36</td>
<td>10.92</td>
</tr>
<tr>
<td>Population Norm</td>
<td>50.04</td>
<td>9.59</td>
</tr>
</tbody>
</table>

Social Capital Measure – Adapted Resource Generator

Scale reliability analysis of the adapted resource generator returned a Cronbach’s alpha of 0.887. Mean social capital for the sample as measured by the adapted resource generator was 20.61 with a standard deviation of 5.70. Highest reported resource was “Do you know someone who knows a foreign language.” (mean = 0.99) and lowest reported resource was “Do you know someone who is an elected official” (mean = 0.39).
### Table 3

*Adapted Resource Generator Items – Means and Standard Deviations*

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you know someone on Facebook who can repair a broken-down car?</td>
<td>202</td>
<td>.70</td>
<td>.460</td>
</tr>
<tr>
<td>Do you know someone on Facebook who is a reliable tradesman? (e.g. plumber, carpenter, welder etc.)</td>
<td>202</td>
<td>.66</td>
<td>.475</td>
</tr>
<tr>
<td>Do you know someone on Facebook who is good at gardening?</td>
<td>202</td>
<td>.84</td>
<td>.371</td>
</tr>
<tr>
<td>Do you know someone on Facebook who works in local government?</td>
<td>202</td>
<td>.65</td>
<td>.477</td>
</tr>
<tr>
<td>Do you know someone on Facebook who knows a lot about health and fitness?</td>
<td>202</td>
<td>.90</td>
<td>.306</td>
</tr>
<tr>
<td>Do you know someone on Facebook who can speak another language?</td>
<td>199</td>
<td>.99</td>
<td>.071</td>
</tr>
<tr>
<td>Do you know someone on Facebook who knows how to fix problems with computers?</td>
<td>199</td>
<td>.91</td>
<td>.288</td>
</tr>
<tr>
<td>Do you know someone on Facebook who is an elected official?</td>
<td>198</td>
<td>.39</td>
<td>.490</td>
</tr>
<tr>
<td>Do you know someone on Facebook who would do your shopping for you if you were ill?</td>
<td>199</td>
<td>.88</td>
<td>.321</td>
</tr>
<tr>
<td>Do you know someone on Facebook who would loan you a small amount of money?</td>
<td>198</td>
<td>.85</td>
<td>.354</td>
</tr>
<tr>
<td>Do you know someone on Facebook who has a professional occupation?</td>
<td>198</td>
<td>.97</td>
<td>.157</td>
</tr>
<tr>
<td>Do you know someone on Facebook who knows a lot about government regulations?</td>
<td>198</td>
<td>.79</td>
<td>.410</td>
</tr>
<tr>
<td>Do you know someone on Facebook who has good contacts with the local newspaper, radio or t.v.?</td>
<td>199</td>
<td>.64</td>
<td>.482</td>
</tr>
</tbody>
</table>
Table 3
Adapted Resource Generator Items – Means and Standard Deviations

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you know someone on Facebook who could give you sound advice about money problems?</td>
<td>198</td>
<td>.75</td>
<td>.433</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could give you sound advice about problems at work?</td>
<td>199</td>
<td>.81</td>
<td>.394</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could give you career advice?</td>
<td>198</td>
<td>.83</td>
<td>.378</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could discuss politics with you?</td>
<td>198</td>
<td>.94</td>
<td>.239</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could give you sound legal advice?</td>
<td>194</td>
<td>.61</td>
<td>.489</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could give you a good reference for a job?</td>
<td>197</td>
<td>.87</td>
<td>.334</td>
</tr>
<tr>
<td>Do you know someone on Facebook who knows a lot about DIY (do-it-yourself)?</td>
<td>198</td>
<td>.86</td>
<td>.344</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could help you with small jobs around the house?</td>
<td>198</td>
<td>.82</td>
<td>.382</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could help you move or dispose of bulky items?</td>
<td>198</td>
<td>.75</td>
<td>.433</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could help you to find somewhere to live if you had to move?</td>
<td>199</td>
<td>.78</td>
<td>.416</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could lend you a large amount of money?</td>
<td>196</td>
<td>.42</td>
<td>.495</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could look after your home or pets if you go away?</td>
<td>199</td>
<td>.87</td>
<td>.332</td>
</tr>
</tbody>
</table>

Valid N (listwise) 185 .76

Note: Adapted resource generator items coded as 0=no, 1=yes
Social Capital Measure – ISCS

Scale reliability analysis of the ISCS returned a Cronbach’s alpha of 0.884. Items were adapted for Facebook as they have been in previous studies replacing offline/online with “in my Facebook network” (Ellison et al., 2007).

Table 4
ISCS Items Means and Standard Deviations

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interacting with people in my Facebook network makes me interested in things that happen outside my town.</td>
<td>200</td>
<td>3.83</td>
<td>.847</td>
</tr>
<tr>
<td>Interacting with people in my Facebook network makes me want to try new things.</td>
<td>200</td>
<td>3.68</td>
<td>.794</td>
</tr>
<tr>
<td>Interacting with people in my Facebook network makes me interested in what people unlike me are talking about.</td>
<td>200</td>
<td>3.54</td>
<td>.950</td>
</tr>
<tr>
<td>Interacting with people in my Facebook network makes me feel like part of a larger community.</td>
<td>199</td>
<td>3.43</td>
<td>.997</td>
</tr>
<tr>
<td>Interacting with people in my Facebook network makes me feel connected to the bigger picture.</td>
<td>198</td>
<td>3.43</td>
<td>.999</td>
</tr>
<tr>
<td>Interacting with people in my Facebook network reminds me that everyone in the world is connected.</td>
<td>198</td>
<td>3.71</td>
<td>.936</td>
</tr>
<tr>
<td>I am willing to spend time to support general Facebook community activities.</td>
<td>199</td>
<td>2.96</td>
<td>.961</td>
</tr>
<tr>
<td>Interacting with people in my Facebook network gives me new people to talk to.</td>
<td>198</td>
<td>2.99</td>
<td>1.085</td>
</tr>
<tr>
<td>There are several people in my Facebook network I trust to help solve my problems.</td>
<td>194</td>
<td>3.70</td>
<td>.978</td>
</tr>
<tr>
<td>There is someone in my Facebook network I can turn to for advice about making very important decisions.</td>
<td>193</td>
<td>3.88</td>
<td>.960</td>
</tr>
<tr>
<td>Items</td>
<td>N</td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-----</td>
<td>------</td>
<td>--------------------</td>
</tr>
<tr>
<td>There is no one in my Facebook network that I feel comfortable talking to about intimate personal feelings.</td>
<td>194</td>
<td>3.64</td>
<td>1.176</td>
</tr>
<tr>
<td>When I feel lonely there are several people in my Facebook network that I can talk to.</td>
<td>193</td>
<td>3.81</td>
<td>.933</td>
</tr>
<tr>
<td>If I needed an emergency loan of $500, I know someone in my Facebook network I can turn to.</td>
<td>192</td>
<td>3.55</td>
<td>1.120</td>
</tr>
<tr>
<td>The people I interact with in my Facebook network would put their reputation on the line for me.</td>
<td>191</td>
<td>3.42</td>
<td>.937</td>
</tr>
<tr>
<td>The people I interact with in my Facebook network would be good job references for me.</td>
<td>190</td>
<td>3.72</td>
<td>.881</td>
</tr>
<tr>
<td>The people I interact with in my Facebook network would share their last dollar with me.</td>
<td>191</td>
<td>3.17</td>
<td>1.017</td>
</tr>
<tr>
<td>I do not know people in my Facebook network well enough to get them to do anything important.</td>
<td>188</td>
<td>3.70</td>
<td>.930</td>
</tr>
<tr>
<td>The people I know in my Facebook network would help me fight an injustice.</td>
<td>190</td>
<td>3.92</td>
<td>.769</td>
</tr>
</tbody>
</table>

Valid N (listwise) 181

Note: Items were measured on a 5 point scale where 5 “Strongly agree” to 1 “Strongly disagree

Facebook Intensity of Use (FBI)

Scale reliability analysis of the FBI returned a Cronbach’s alpha of 0.754. This study’s sample is comparable to what is found in other studies regarding total number of Facebook friends (201-250) and time on site (31-60 minutes). Hampton et. al. (2011) found total number of Facebook friends to average 229 and Ellison et al. (2014) found the average time on site to be 33.89 minutes per day.
### Table 5
**FBI Items Means and Standard Deviations**

| Facebook is part of my everyday activity. | 203 | 1  | 5  | 3.86 | 1.083 |
| I am proud to tell people I'm on Facebook. | 203 | 1  | 5  | 3.15 | 0.849 |
| Facebook has become part of my daily routine. | 201 | 1  | 5  | 3.79 | 1.134 |
| I feel out of touch when I haven't logged onto Facebook for a while. | 203 | 1  | 5  | 2.99 | 1.190 |
| I feel I am part of the Facebook community. | 203 | 1  | 5  | 3.15 | 1.004 |
| I would be sorry if Facebook shut down. | 203 | 1  | 5  | 3.16 | 1.172 |
| Approximately how many TOTAL Facebook Friends do you have? | 202 | 1  | 9  | 6.01 | 2.331 |
| In the past week, on average, approximately how many minutes PER DAY have you spent on Facebook? | 202 | 1  | 6  | 3.07 | 1.481 |

| Valid N (listwise) | 200 |

Note: Following Ellison et al., 2007) total Facebook friends was measured on the following scale: 1=10 or fewer, 2=11 to 50, 3=51-100, 4=101-150, 5=151-200, 6=201-250, 7=251-300, 8=301-400, 9=more than 400. Minutes per day was measured as 1=less than 10, 2=10-30, 3=31-60, 4=1-2 hours, 5=2-3 hours, 6=more than 3 hours. All other FBI scale measures used the following index: 5 “Strongly agree” to 1 “Strongly disagree.”

### Tests of correlation and regression

After eliminating any cases that included missing data within the studied scales the sample consisted of 200 cases. Fifty were eliminated for incomplete data. Pearson correlation tests generated the results illustrated in Table 6 below.
Table 6

PCS/MCS Correlations with Adapted Resource Generator for Social Capital via Facebook

<table>
<thead>
<tr>
<th></th>
<th>PCS</th>
<th>MCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook Adapted Resource Generator</td>
<td>0.129</td>
<td>0.155*</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significance (2-tailed)</td>
<td>0.068</td>
<td>0.028</td>
</tr>
<tr>
<td>N</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

Note: * Correlation is significant at the 0.05 level (2-tailed).

Table 7

PCS/MCS Correlations with Selected Adapted Resource Generator Items

<table>
<thead>
<tr>
<th>Do you know someone on Facebook who works in local government?</th>
<th>PCS</th>
<th>MCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>0.125</td>
<td>0.157*</td>
</tr>
<tr>
<td>Significance (2-tailed)</td>
<td>0.077</td>
<td>0.026</td>
</tr>
<tr>
<td>N</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you know someone on Facebook who knows a lot about health and fitness?</th>
<th>PCS</th>
<th>MCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>.222**</td>
<td>.227**</td>
</tr>
<tr>
<td>Significance (2-tailed)</td>
<td>0.002</td>
<td>0.001</td>
</tr>
<tr>
<td>N</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you know someone on Facebook who would loan you a small amount of money?</th>
<th>PCS</th>
<th>MCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>.141*</td>
<td>.185**</td>
</tr>
<tr>
<td>Significance (2-tailed)</td>
<td>0.048</td>
<td>0.01</td>
</tr>
<tr>
<td>N</td>
<td>196</td>
<td>196</td>
</tr>
</tbody>
</table>

Note: ** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Two individual items from the list of resources included in the adapted resource generator had significant correlations with both MCS and PCS and one with MCS as noted in Table 7.
Facebook Social Capital and Health

To answer the research question, the study proposed the following hypothesis regarding mental health.

**H1: An individual’s social capital via Facebook will be positively related to their mental health.**

As shown in Table 6, there was a positive and significant correlation ($r = .155$, $p<.05$) between total social capital via Facebook and mental health.

Wellness is considered to be both mental and physical health. As a result, to fully answer the research question, hypothesis two proposed that there is a positive correlation between Facebook social capital and physical health.

**H2: An individual’s social capital via Facebook will be positively related to their physical health.**

There was possible support for this hypothesis ($r = .129$, sig.=.068). The correlation does approach significance and suggests that the resource generator social capital scale may be very close to predicting one’s physical health. Further analysis using various adaptations of the scale may result in a significant correlation.

Of note, when examining the correlation between each item included in the adapted resource generator, the highest significant positive correlation to both physical and mental health was with “Do you know someone on Facebook who knows a lot about health and fitness?” (PCS, $r=.222$, sig = 0.002, MCS, $r=.227$, sig = 0.001). Another item “Do you know someone on Facebook who would loan you a small amount of money?” also showed significant correlation
with both health measures (PCS r=.141, sig 0.048, MCS r=.185, sig=0.01). The item “Do you know someone on Facebook who works in local government?” had a significant correlation with MCS (r=.155 sig=0.028).

A linear regression model (See Table 8) examined mental health (MCS) as the dependent variable with social capital via Facebook, Facebook intensity of use (FBI), income and education used as control variables. Other demographic variables such as gender, ethnicity and age were left out of the model per the assertion of Ellison et. al. (2011) that they do not play a significant role in predicting social capital. The model has an adjusted $R^2$ of .057. Social capital was shown to be a significant predictor of mental health (p<0.05). Income was also shown to be a significant predictor (p<.001).

**Table 8**
Ordinary Least Squared Regression for MCS (N=200)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Capital via Facebook</td>
<td>.349**</td>
<td>.197</td>
</tr>
<tr>
<td>FBI mean</td>
<td>-1.860</td>
<td>1.305</td>
</tr>
<tr>
<td>Income</td>
<td>.738***</td>
<td>.232</td>
</tr>
<tr>
<td>Education</td>
<td>-.351</td>
<td>.573</td>
</tr>
<tr>
<td>F Statistic</td>
<td>3.843***</td>
<td></td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.057</td>
<td></td>
</tr>
</tbody>
</table>

Note: Significance < *.10, **.05, ***.01.

Comparative measures

As illustrated in Table 9 below, when compared to the online social capital measures proposed by Williams (2006) as adapted for Facebook, significant correlation, although weak, was found between both health measures and bonding social capital. None was found between either health measure and bridging social capital.
Table 9

PCS/MCS Correlations with Bonding and Bridging ISCS scales

<table>
<thead>
<tr>
<th></th>
<th>PCS</th>
<th>MCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.144*</td>
<td>0.161*</td>
</tr>
<tr>
<td>Significance (2-tailed)</td>
<td>0.046</td>
<td>0.026</td>
</tr>
<tr>
<td>N</td>
<td>192</td>
<td>192</td>
</tr>
<tr>
<td>Bridging</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>-0.026</td>
<td>-0.028</td>
</tr>
<tr>
<td>Significance (2-tailed)</td>
<td>0.719</td>
<td>0.694</td>
</tr>
<tr>
<td>N</td>
<td>198</td>
<td>198</td>
</tr>
</tbody>
</table>

Note: *Correlation is significant at the 0.05 level (2-tailed).

Facebook Intensity of Use and Social Capital via Facebook - Adapted Resource Generator and ISCS as Adapted for Facebook

Correlation to differing degrees at significant levels was observed between FBI and online social capital via Facebook using all social capital scales.

- FBI and the adapted resource generator, moderate correlation: $r=0.378$, sig = 0.00
- FBI and ISCS bridging, strong correlation: $r=0.669$, sig = 0.00
- FBI and ISCS bonding, moderate correlation: $r=0.318$, sig 0.00

Correlation to differing degrees was found to be significant between the adapted resource generator scale for online social capital via Facebook and the ISCS bridging and bonding scales as adapted for Facebook. There was moderate correlation between the adapted resource generator and ISCS bridging scale ($r=0.426$, sig = 0.00) and strong correlation between the adapted resource generator and ISCS bonding scale ($r=0.602$ sig = 0.00).
Chapter 5: DISCUSSION

The positive correlation between mental health and an individual’s social capital via Facebook was found to be significant. While there have been numerous studies that have found that the access to offline social resources that social capital represents can have a palliative effect on mental health (Kawachi et al., 2008), this study determined that Facebook generated social capital could play a role mental health as well. It is suspected this effect is due to many factors. As observed by Ferlander (2007), high amounts of bonding social capital demonstrates emotional support and access to resources that are often associated with improved mental health. For offline social capital, this has been found to be the case for children, adults and seniors. If social capital measures capture the emotional and material assistance available to individuals and this access is said to alleviate stress leading to improved mental health outcomes (Kawachi et al., 2008), then it is reasonable to assume that access to financial resources, as evidenced by increased income, could also alleviate stress and improve mental health. This would explain the significance of income as a predictor variable of MCS in the regression model. In addition, the regression model highlighted the positive relationship between Facebook generated social capital and mental health even when controlling for several other influential factors. Furthermore, the regression also demonstrates that the social capital acquired through Facebook could provide access to bonding social capital. When examining significant individual correlations in the 27-item scale (Table 7), the three significant items (local government, health and fitness, small amount of money) that correlated with mental health outcomes are arguably measures of bonding social capital. As a result, the findings corroborate previous studies that link bonding social capital and access to material resources as significant predictors of mental health outcomes (Ferlander, 2007; Kawachi et al., 2008).
The role of Facebook for generating social capital and improved mental health should garner increased attention as more and more people find their way online and as health care costs creep ever upward. What is curious is that a similar relationship was not found between social capital and physical health as is found in the offline space. To what could this be attributed? Perhaps there is some as yet unidentified feature of social capital in the online space that is dissimilar to the social capital in the offline space. Of note here is that there was a significant, correlation between bonding social capital as measured by the ISCS and both mental and physical health. Is it the attributes and resources embedded in close tie networks online that offer the palliative effect? Further, the specific resource of a social tie with knowledge about health and fitness showing a significant correlation to both dimensions of wellness is a topic for further inquiry. Do healthy people seek out other healthy people with whom to connect or are healthy people a resource to improve one’s health? It is clear there is much more to learn about social capital measurement online and the connection of this social capital to wellness. It is a complex relationship that should be examined from many vantage points. Unpacking the aggregate “potential and actual” resources to which Bourdieu referred as comprising social capital and coming to some consensus regarding the most effective ways of measuring it should be of vital importance to researchers.

Social informatics findings offer some helpful guideposts to the future research and dialogue around online social capital and health. As to the finding that ICTs are “interpreted and used in different ways by different people” (Kling et al., 2005), a recent paper (NB Ellison et al., 2014) suggests that the ways that individuals interact with their Facebook network (given the name “Facebook Relationship Maintenance Behaviors”, FRMB, by the authors) can predict bridging social capital. Essentially, this may mean that it is not just that you have certain
resources in your network that makes the social capital of value but that the ways in which you interpret those relationships and use Facebook to manage them that allows for the drawing of the value. Whether FRMB mediate online social capital for health returns offers an interesting avenue for future research. As researchers discover more about how social capital influences wellness, the health care community could apply those discoveries to development of best practices in managing ones social capital for wellness, online and off. Understanding the affordances and features of the communication tools available to manage and maintain social capital should be of interest to public health advocates and communication researchers alike.

Similarly the Social Informatics finding that ICTs provide a means to alter existing control structures may also offer some guidance for future research. Studies of social capital in the offline space have found that social capital can provide a mediating effect to the health disparities experienced by those of lower socio-economic classes (Ferlander, 2007; Veenstra, 2000). Future research should investigate whether online social capital can provide a similarly mediating effect. As our understanding of social capital was just picking up speed prior to the ubiquity of the internet, it will be fascinating to watch the conversation continue. Over time, I suspect though that the distinctions between online and off will be of less and less interest. If others would agree, as was stated much earlier in this paper, that communication is the currency of social capital, then the affordances of social network sites such as Facebook simply offer another form of communication to individuals with which to participate in the market place of social capital. Features of either online or offline forms of communication, such as cost and effectiveness would be of similar concern across the multiplexity of media (Haythornthwaite, 2005) (or lack thereof) with which we navigate relationships as would be the actual network structure and resources embedded within. These are interrelated ideas but care should be taken
not to conflate them in the measurement of social capital. A refined resource generator or similar structural measure of social capital should become the norm. If then the desire is to understand social capital exchange, one could study relationship maintenance behaviors, trust in network connections, media employed etc. These lenses would be portable between online and off as well, improving our ability to understand the whole of the communication environment as it pertains to social capital, that is, its acquisition, accrual and exchange.
Chapter 6: CONCLUSION

If the 20th century was the era of financial capital, with its precipitous market crashes and booms, perhaps, as Lin (1999), predicts the 21st century will be the era of social capital. This would alter existing control structures indeed. Yet, ICTs are not magic bullets: they do not solve things by themselves. This Social Informatics finding seems to sum up succinctly the relationship between Facebook use and wellness. The trend upwards of healthcare costs and trend downwards of general wellness will not be reversed by Facebook alone. Intensity of Facebook use does seem to translate into more social capital and this study bolsters an argument that additional social capital led to some wellness returns for study participants.

Even without strongly proving the stated hypotheses of this study, this study contributes to the body of literature exploring social capital online and online activity and wellness. A new scale for measuring online social capital via Facebook, an adapted resource generator, is a useful contribution to the field. This scale offers a structural model of measurement of online social capital that is easily deployed and easy to reproduce across other venues. As it is highly unlikely that the concept of social capital will fall out of use in the near term, strengthening measurement to give the concept the heuristic value, that its critics claim is its challenge, is an important goal. As such, I am hopeful that the data collected in this study and some of the discoveries made as a result will contribute to the ongoing Social informatics study of Facebook, social capital and wellness.

The limitations of this study were its small sample size and the use of snowball sampling in lieu of random sampling. Perhaps as a result of snowball sampling, respondents to the survey used in this study were international based on IP address mapping meaning that the demographics are not generalizable to the US population. The SF12v2, while a robust tool, uses
US population norms in calculations of physical and mental health summary scores. Further, without looking at longitudinal data there can be no claim of causality. As is the case with all quantitative studies, by reducing the phenomena in question to quantifiable constructs, the subtlety and nuance of the human experience can be oversimplified. The only hope is that further studies taking different approaches help to round out our understanding. Similarly, it is the hope of this researcher that this study piques the interest of researchers in the future and offers some ideas of value in the development of their own unique research questions on the topics of social, capital, social network sites and wellness.
REFERENCES


### APPENDIX A

**Resource Generator Items and PCS/MCS Correlations**

**Table 12**

*Resource Generator Items and PCS/MCS Correlations*

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Pearson Correlation</th>
<th>PCS</th>
<th>MCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you know someone on Facebook who can repair a broken-down car?</td>
<td>0.117</td>
<td>0.124</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.098</td>
<td>0.079</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Do you know someone on Facebook who is a reliable tradesman? (e.g. plumber, carpenter, welder etc.)</td>
<td>-0.043</td>
<td>0.041</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.547</td>
<td>0.562</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Do you know someone on Facebook who is good at gardening?</td>
<td>0.016</td>
<td>0.003</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.825</td>
<td>0.962</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Do you know someone on Facebook who works in local government?</td>
<td>0.125</td>
<td>.157*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.077</td>
<td>0.026</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Do you know someone on Facebook who can sometimes employ people?</td>
<td>0.089</td>
<td>0.114</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.21</td>
<td>0.109</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Do you know someone on Facebook who knows a lot about health and fitness?</td>
<td>.222**</td>
<td>.227**</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>PCS</td>
<td>MCS</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>---------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who can speak another language?</td>
<td>0.002</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.124</td>
<td>0.111</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.083</td>
<td>0.12</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>200</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who knows how to fix problems with computers?</td>
<td>-0.008</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.914</td>
<td>0.885</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.197</td>
<td>0.197</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>197</td>
<td>197</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who is an elected official?</td>
<td>0.022</td>
<td>0.041</td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.757</td>
<td>0.568</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.196</td>
<td>0.196</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>196</td>
<td>196</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who would do your shopping for you if you were ill?</td>
<td>0.02</td>
<td>0.069</td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.786</td>
<td>0.338</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.197</td>
<td>0.197</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>196</td>
<td>196</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who would loan you a small amount of money?</td>
<td>.141*</td>
<td>.185**</td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0.048</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.196</td>
<td>0.196</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>196</td>
<td>196</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who has a professional occupation?</td>
<td>0.062</td>
<td>0.099</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who knows a lot about government regulations?</td>
<td><strong>Pearson Correlation</strong></td>
<td>PCS</td>
<td>MCS</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.388</td>
<td>0.166</td>
</tr>
<tr>
<td>N</td>
<td>196</td>
<td>196</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who has good contacts with the local newspaper, radio or t.v.?</td>
<td><strong>Pearson Correlation</strong></td>
<td>-0.021</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.769</td>
<td>0.93</td>
</tr>
<tr>
<td>N</td>
<td>196</td>
<td>196</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who could give you sound advice about money problems?</td>
<td><strong>Pearson Correlation</strong></td>
<td>-0.024</td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.739</td>
<td>0.914</td>
</tr>
<tr>
<td>N</td>
<td>196</td>
<td>196</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who could give you sound advice about problems at work?</td>
<td><strong>Pearson Correlation</strong></td>
<td>0.081</td>
<td>0.107</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.26</td>
<td>0.133</td>
</tr>
<tr>
<td>N</td>
<td>197</td>
<td>197</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who could give you career advice?</td>
<td><strong>Pearson Correlation</strong></td>
<td>0.084</td>
<td>0.113</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.244</td>
<td>0.116</td>
</tr>
<tr>
<td>N</td>
<td>196</td>
<td>196</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who could discuss politics with you?</td>
<td><strong>Pearson Correlation</strong></td>
<td>0.095</td>
<td>0.107</td>
</tr>
</tbody>
</table>
Table 12
*Resource Generator Items and PCS/MCS Correlations*

<table>
<thead>
<tr>
<th>Question</th>
<th>Pearson Correlation</th>
<th>PCS</th>
<th>MCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you know someone on Facebook who could give you sound legal advice?</td>
<td>0.118</td>
<td>0.187</td>
<td>0.137</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.103</td>
<td>0.126</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>193</td>
<td>193</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could give you a good reference for a job?</td>
<td>0.113</td>
<td>0.117</td>
<td>0.124</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.116</td>
<td>0.085</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>195</td>
<td>195</td>
</tr>
<tr>
<td>Do you know someone on Facebook who knows a lot about DIY (do-it-yourself)?</td>
<td>-0.051</td>
<td>-0.024</td>
<td>-0.005</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.477</td>
<td>0.946</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>196</td>
<td>196</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could help you with small jobs around the house?</td>
<td>-0.024</td>
<td>-0.049</td>
<td>0.022</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.737</td>
<td>0.762</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>196</td>
<td>196</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could help you move or dispose of bulky items?</td>
<td>-0.015</td>
<td>-0.037</td>
<td>0.049</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.831</td>
<td>0.497</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>196</td>
<td>196</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could get you cheap goods or &quot;bargains&quot;?</td>
<td>-0.037</td>
<td>-0.066</td>
<td>-0.066</td>
</tr>
<tr>
<td>Do you know someone on Facebook who could help you to find somewhere to live if you had to move?</td>
<td>Pearson Correlation</td>
<td>PCS</td>
<td>MCS</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.608</td>
<td>0.357</td>
</tr>
<tr>
<td>N</td>
<td>196</td>
<td>196</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who could lend you a large amount of money?</td>
<td>Pearson Correlation</td>
<td>PCS</td>
<td>MCS</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.604</td>
<td>0.634</td>
</tr>
<tr>
<td>N</td>
<td>197</td>
<td>197</td>
<td></td>
</tr>
<tr>
<td>Do you know someone on Facebook who could look after your home or pets if you go away?</td>
<td>Pearson Correlation</td>
<td>PCS</td>
<td>MCS</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.407</td>
<td>0.278</td>
</tr>
<tr>
<td>N</td>
<td>194</td>
<td>194</td>
<td></td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
APPENDIX B

Survey instrument

Social Capital via Facebook: a wellness connection?

Informed Consent

Survey Title: Social Capital via Facebook: a wellness connection?

My name is Emily Gonzales, and I am a graduate student at the University of Hawaii at Manoa. I am asking for your help to assess whether there is a relationship between social capital via Facebook and individual health and wellness. Participation in this research will involve the completion of an anonymous on-line survey and is entirely voluntary.

Project Description

Activities and Time Commitment: Participants will complete a survey available via the Internet. Survey questions are multiple choice. Completion of the survey should not take more than 20 minutes.

Benefits and Risks: The results of this research may contribute to a better understanding of social capital available via Facebook and individual health and wellness. There are no foreseeable risks to you from participating in this research.

Confidentiality and Privacy: Your responses to the survey will be anonymous. Your name will not be collected or appear anywhere on the survey and complete privacy will be guaranteed.

Voluntary Participation: Participation is completely voluntary and you may withdraw at any time, without penalty. There is no consequence for not participating in this research, and there are no foreseeable risks. Questions: If you have any questions about this study, you can contact me at emilygon@hawaii.edu. If you have any questions about your rights as a research participant, you can contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu. Thank you for your participation.

I have read, understood, and printed a copy of the above consent form. I desire of my own free will to participate in this study. I am over 18 years of age.

☐ Yes
☐ No

The following questions ask for your views about your health. If you are unsure about how to answer a question, please give the best answer you can.
In general, would you say your health is:

- Excellent
- Very Good
- Good
- Fair
- Poor

The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes, limited a lot</th>
<th>Yes, limited a little</th>
<th>No, not limited at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate activities such as moving a table, pushing a vacuum cleaner, bowling, or playing golf</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Climbing several flights of stairs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

<table>
<thead>
<tr>
<th>Problem</th>
<th>All of the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accomplished less than you would like.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were limited in the kind of work or other activities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

<table>
<thead>
<tr>
<th>Accomplished less than you would like. Did work or activities less carefully than usual.</th>
<th>All of the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

During the past 4 weeks, how much did pain interfere with your normal work (including work outside the home and housework)?

- Not at all
- A little bit
- Moderately
- Quite a bit
- Extremely

These questions are about how you have been feeling during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks...

<table>
<thead>
<tr>
<th>Have you felt calm &amp; peaceful? Did you have a lot of energy? Have you felt down-hearted and depressed?</th>
<th>All of the time</th>
<th>Most of the time</th>
<th>A good bit of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?

- All of the time
- Most of the time
- Some of the time
- A little of the time
- None of the time

The following questions ask about your Facebook use and network. Please answer as best you can.

Facebook is part of my everyday activity.

- strongly disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

I am proud to tell people I'm on Facebook.

- strongly disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Facebook has become part of my daily routine.

- strongly disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree
I feel out of touch when I haven't logged onto Facebook for a while.

- strongly disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

I feel I am part of the Facebook community.

- strongly disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

I would be sorry if Facebook shut down.

- strongly disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Approximately how many TOTAL Facebook Friends do you have?

- 10 or fewer
- 11-50
- 51-100
- 101-150
- 151-200
- 201-250
- 251-300
- 301-400
- more than 400
In the past week, on average, approximately how many minutes PER DAY have you spent on Facebook?

- ☐ less than 10
- ☐ 10-30
- ☐ 31-60
- ☐ 1-2 hours
- ☐ 2-3 hours
- ☐ more than 3 hours

How many Facebook GROUPS are you a member of? Please do not include any pages that you are a "fan" of or have "liked", only GROUPS.

Are you an ADMINISTRATOR of any Facebook groups?

- ☐ yes
- ☐ No

How many Facebook groups do you administer?

For these questions, please consider all the people that you have access to via Facebook. In other words, the whole of your online social network on Facebook. This may include people you also have contact with offline, but they must be a part of your online social network on Facebook. Please answer using the choices provided.

Do you know someone on Facebook who can repair a broken-down car?

- ☐ Yes
- ☐ No

Do you know someone on Facebook who is a reliable tradesman? (e.g. plumber, carpenter, welder etc)

- ☐ Yes
- ☐ No

Do you know someone on Facebook who is good at gardening?

- ☐ Yes
- ☐ No
Do you know someone on Facebook who works in local government?

- Yes
- No

Do you know someone on Facebook who can sometimes employ people?

- Yes
- No

Do you know someone on Facebook who knows a lot about health and fitness?

- Yes
- No

Do you know someone on Facebook who can speak another language?

- Yes
- No

Do you know someone on Facebook who knows how to fix problems with computers?

- Yes
- No

Do you know someone on Facebook who is an elected official?

- Yes
- No

Do you know someone on Facebook who would do your shopping for you if you were ill?

- Yes
- No

Do you know someone on Facebook who would loan you a small amount of money?

- Yes
- No
Do you know someone on Facebook who has a professional occupation?

☐ Yes
☐ No

Do you know someone on Facebook who knows a lot about government regulations?

☐ Yes
☐ No

Do you know someone on Facebook who has good contacts with the local newspaper, radio or t.v.?

☐ Yes
☐ No

Do you know someone on Facebook who could give you sound advice about money problems?

☐ Yes
☐ No

Do you know someone on Facebook who could give you sound advice about problems at work?

☐ Yes
☐ No

Do you know someone on Facebook who could give you career advice?

☐ Yes
☐ No

Do you know someone on Facebook who could discuss politics with you?

☐ Yes
☐ No

Do you know someone on Facebook who could give you sound legal advice?

☐ Yes
☐ No
Do you know someone on Facebook who could give you a good reference for a job?

☐ Yes
☐ No

Do you know someone on Facebook who knows a lot about DIY (do-it-yourself)?

☐ Yes
☐ No

Do you know someone on Facebook who could help you with small jobs around the house?

☐ Yes
☐ No

Do you know someone on Facebook who could help you move or dispose of bulky items?

☐ Yes
☐ No

Do you know someone on Facebook who could get you cheap goods or "bargains"?

☐ Yes
☐ No

Do you know someone on Facebook who could help you to find somewhere to live if you had to move?

☐ Yes
☐ No

Do you know someone on Facebook who could lend you a large amount of money?

☐ Yes
☐ No

Do you know someone on Facebook who could look after your home or pets if you go away?

☐ Yes
☐ No
Interacting with people in my Facebook network makes me interested in things that happen outside of my town.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

Interacting with people in my Facebook network makes me want to try new things.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

Interacting with people in my Facebook network makes me interested in what people unlike me are thinking.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

Interacting with people in my Facebook network makes me feel like part of a larger community.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree

Interacting with people in my Facebook network makes me feel connected to the bigger picture.

☐ Strongly Disagree
☐ Disagree
☐ Neither Agree nor Disagree
☐ Agree
☐ Strongly Agree
Interacting with people in my Facebook network reminds me that everyone in the world is connected.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

I am willing to spend time to support general Facebook community activities.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Interacting with people in my Facebook network gives me new people to talk to.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Through my Facebook network, I come in contact with new people all the time.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

There are several people in my Facebook network I trust to help solve my problems.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree
There is someone in my Facebook network I can turn to for advice about making very important decisions.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

There is no one in my Facebook network that I feel comfortable talking to about intimate personal problems.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

When I feel lonely there are several people in my Facebook network that I can talk to.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

If I needed an emergency loan of $500, I know someone in my Facebook network I can turn to.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

The people I interact with in my Facebook network would put their reputation on the line for me.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree
The people I interact with in my Facebook network would be good job references for me.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

The people I interact with in my Facebook network would share their last dollar with me.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

I do not know people in my Facebook network well enough to get them to do anything important.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

The people I know in my Facebook network would help me fight an injustice.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

What is your gender?

- Male
- Female
What is your age?
- 18-28
- 29-38
- 39-48
- 49-58
- 59-68
- 69-78
- 79 +

Do you consider yourself (check all that apply)
- Non-Hispanic White
- Asian
- Black
- Latino
- Indigenous/Native American
- Other

What was your household's income in 2014?
- $19,999 or less
- $20,000 - $39,999
- $40,000 - $59,999
- $60,000 - $79,999
- $80,000 - $99,999
- $100,000 - $119,999
- $120,000 - $139,999
- $140,000 - $159,999
- $160,000 - $169,000
- $170,000 - $189,000
- $190,000 and above

What is your highest level of education?
- some high school or secondary school
- Completed high school or secondary school
- some college
- Bachelor's or four year degree
- Some graduate school
- Graduate or professional degree