NEW MEDIA USES AND DEPENDENCY EFFECT MODEL: EXPLORING

THE RELATIONSHIP BETWEEN NEW MEDIA USE HABIT,

DEPENDENCY RELATION, AND POSSIBLE OUTCOMES

by

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ABSTRACT OF THE DISSERTATION

New media uses and dependency effect model: Exploring the relationship between new media use habit, dependency relation, and possible outcomes

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New media technologies have become embedded into the daily life of college students. This study explores the relationship between new media use habits and possible prosocial and consumer behavioral outcomes. New media dependency, a psychological construct posited here, explores the interaction effects of new media uses with outcomes. Methodologies included focus group interviews followed by an extensive survey of Korean college students. The survey data were then used to build a series of regression models. In the proposed models, the analyses indicate that new media use habits and behavioral patterns predict outcomes. New media dependency predicted 32% 24% and 27% 11% of consumer behavior and prosocial behavior outcome variance respectively. And, comprehensive uses and dependency-effect models predicted 34% and 29% respectively. New media dependency has proved itself to be a mediator of the outcome

variables. The importance of the dependency relation is emphasized by clarifying the influence of the behavioral patterns of new media use and the embeddedness of new media into daily life. The study provides conceptual and methodological guidelines for new media research in light of dependency and outcomes.

Acknowledgement

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I. INTRODUCTION

Living a day without the Internet is unthinkable to many people. Indeed, new media technologies have become indispensable. We are living in an ever-changing new media environment in which people and media interact and influence each other in various and profound ways. People are adopting and using the newest applications of new media that are becoming ever so embedded into their daily life which is akin to McLuhan's (1968) notion of invisible "extension." Unlike any other time, people are now participating in the creation of new media environments, playing multiple roles—users, producers, and transmitters of media content—and changing the very landscape of what is called media. This symbiotic relationship between people and new media technology best characterizes the current status of the new media environment.

One view of this symbiotic relationship can be explained using the System Perspective (Ball-Rokeach *et al.*, 2003). According to this concept, media use to include media and people can be considered as "elements" that have certain attributes. They interact, and this interaction (or communication, to be exact) is what is usually called "use" of or "exposure" to media. So, from the system perspective, media use, which is commonly considered to be a unidirectional or a "one-way" process by media effects scholars (e.g., Lasswell, 1971; Lippmann, 1991), can also be understood as an interactive mechanism that makes the development of the relationships between people and media technology possible (Ball-Rokeach, 1985). This system perspective of the interaction between people and media technology is useful in furthering our understanding of the new media environment but most explanations lack an empirical platform buttressed by research and endorsed by a

consensus of experts. Exceptions to this are those studies which do offer tangible evidence of how such relationships among media systems and people exist (e.g., Ball-Rokeach *et al.*, 1990; Ball-Rokeach *et al.*, 2003).

Historically speaking, the more notable empirical research effort to study the influences of the media environment and to predict the outcomes of communication process in the environment has been made by scholars from the media effects perspectives using methodologies which can create explanatory and predictive models. This includes those involved in developing such areas as cultivation theory, agenda-setting theory, and the spiral of silence. However, unlike the system perspective, the media effects research does not address the ecological understanding of issues and, instead, it focuses on elaborating the effects of certain media campaigns or of persuasive communication efforts (Mansell, 2004). The majority of early media effects studies have claimed that continuous exposure to mass media can result in the relationship between people and media that is one of inequality in power and control (Lowery & DeFleur, 1988). Additionally, media effects research has been under persistent criticism for its meager statistical effect sizes (i.e., variance explained) leading to models with low explanatory power and inadequate attention to outcomes (Shrum, 2002).

The unidirectional or "one-way" interaction in those early studies has considered the outcomes of communication as something that can be exclusively assessed with media's influence on people or what media do to people. They ignored the notion of the interactive relationship and the possibility that the effects also result from what people actively do with media. In that aspect, the current study regards the "effect" of new media to be not only of the media effects but also of relationship "effect." It is an extended notion

of media influences in terms of both "content" and "form." Scholars had focused on statistical models where media exposure to contents became the sole predictor outcome (e.g., Berkowitz, 1984; Huesmann & Miller, 1994), without assessing the contribution made to the model by the psychological variables. This approach has since evolved to encompass both use and relationship concerns in studies of uses and gratification (U&G) (Rubin, 1994).

The U&G perspective gained popularity as a useful theoretical position to understand the effects and often-negative outcomes when the media use environment expands to encompass new technological developments. The popularity of U&G also corresponded with an attempt to increase explanatory power (Lee & Perry, 2004). U&G researchers have explored the cognitive processes that might mediate and influence the interaction between people and media (e.g., Hawkins & Pingree, 1990; Reeves, Chaffee, & Tims, 1982). Media system dependency (MSD) theory, as a branch of overall U&G research (Ball-Rokeach, 1994), probes dependency relations within a study of cognitive processes to understand overall media effects. Media system dependency is one of the two theoretical platforms providing structural support for the models developed in this study. When applied at the individual level, it is called the theory of individual media dependency (IMD).

Audience activity and interactive relationships form the central conceptual framework for both U&G and MSD theory. After all, the new media environment has proactive audience activity which can be contrasted with prior conceptualizations of "passive" or "one-way" mass media effects. Combining U&G and MSD theory is an important and necessary step to take as they can supplement each other to raise the

explanatory power of the effect model. Variables used in U&G, such as the temporal dimension of media use, audience activity, behavioral use patterns, and the psychological construct of dependency should raise the overall explanatory power of the media use model. This should then contribute to a better contextual understanding of the new media environment and eventually lead to the creation of media model with predictive power.

The new media environment is becoming embedded into daily life of young people, more than any other previous dominant media (e.g., mass media) (Kubey, 2001; Lin & Tsai, 2002; Whang *et al.*, 2003). This can be attributed to the high level of audience activity or user participation, searchable content features, and social media interactivity. Young audiences have benefited from technological innovations punctuated by interactivity and interaction. They are likely to interact with media and build stronger relationships with media. These contextual characteristics are also explained within a combined U&G and MSD framework. This can lead to a model which can predict potential outcomes in the new media environment.

The research model appropriate here involves several components: the relationship effect and its interactions with the use habit (from U&G), the extent of people's dependency (from MSD), and personal and situational variables uncovered from preliminary studies and focus group interviews. This study probes the interaction between new media and college students as it considers the possibility of a dependency relationship. In addition, understanding the "interactive" yet unequal power relationship in terms of dependency is needed because it could assume that the relationship exerts tremendous power over individuals, even to the point of becoming a pathological concern. For instance, Internet dependency is a widespread notion of an unequal relationship between Internet

and user which can be exacerbated by excessive, uncontrollable involvement into interactivity with the Internet (Song *et al.*, 2004).

Dependency itself has been treated by many as a negative outcome, comparable to addiction to a substance (Davis *et al.*, 2002; Lavin *et al.*, 1999; Morahan-Martin & Schumacher, 2000). Yet, not every habit-forming behavior can be seen as a candidate for addiction. It has been noted that some studies have focused on extreme cases of dependency (e.g., Hall & Parsons, 2001; Kandell, 1998) that seem applicable to a smaller percentage of individuals. These depict very high embeddedness of new media into college students' daily routines. Yet, the issue still needs scrutiny, because as Internet use increases over time and strong habits of consumption build up, problematic outcomes are bound to ensue (Ball-Rokeach, 1998).

Increasingly, users—especially younger ones—are engaging with computers and novel digital media at school and at home during much of their scheduled and discretionary time. In a number of cases, these young individuals can become pathologically dependent on such media interaction (Song *et al.*, 2004). The relationship with these new technologies will decisively shape how individuals think, know, react, feel, and behave and will consequently impact society and culture (Wallace, 1999).

Among the college students, new media and Web 2.0 are becoming an important "information system" (Ball-Rokeach, 1985) useful for them to make sense of the world (Lenhart & Madden, 2005). Their participatory interaction with new media increases the involvement with the content and information proffered by the medium and deepens their relationship with the media. This, then, can intensify certain outcomes in a sense that people who spend so much time with new media technologies and its content are more

likely to think about things they never would have thought if it were not from the media. In a sense, getting people to think is itself a media effect (Thomas, 2006).

However, this does not claim that transmitted messages alone cause the effects of communication but it might suggest that the interactive relationship with the medium also induces a measureable effect in terms of cognitive, affective, and behavioral outcomes. Also, an "effect" could have been stimulated in an instant or direct communication, but it is more plausible to think that the study deals with a "long-term" or cumulative effect, as in cultivation theory or medium theory. Uses and the dependency relation people develop with the new media systems can be seen to develop into an irreplaceable resource for media content which, in turn, are hypothesized to intensify the media effect and influence the next encounter with new information. This presents a cyclical model of media interaction although the current study focuses on static instances of this overall pattern.

The dissemination of information increasingly reinforces the Internet as a mass medium (Morris & Ogan, 1996). The present research specifically focuses on new media use which emphasizes the mass media function of the Internet in providing information, news, and various content from mainstream new media with additional information provided from "user generated contents" (UGC) (Salzman, 2007). This study explores the relationships among individuals' new media use habits, dependency, and the consumer and prosocial behavioral intentions as possible outcomes or "effects" of the aforementioned variables.

The study proceeds as follows. It first sets the theoretical foundation of the study in relation to the notion of "effect." Then, it outlines the research model with a concomitant statement of research questions and hypotheses. Next, it explains the methodologies used

in this study: surveys and focus group interviews. Special attention is paid to measurement and analyses of variables. Findings of both qualitative and quantitative studies are integrated to provide a unified framework to assess the proposed model and provide for its research implications.

II. LITERATURE REVIEW

2.1. Uses and Gratification (U&G)

As noted in the previous chapter, U&G provides a major theoretical platform for this research. U&G is an audience-centered approach to mass communication and claims that understanding why people use media helps explain media exposure and consequences (Pavlik & McIntosh, 2004). The theory popularized the notion of "use" or "use habit" which has been studied in relation to such psychological determinants as need and motivation. The notion of an active audience is emphasized with its focus on the use habit with the added proposition that the audience is the subject of the interaction between people and media (Rubin, 1994). In effect, use is addressed in terms of the behavioral patterns and the temporal dimension of media use.

With its emphasis on the notion of an active audience, U&G can be considered as an opposite alternative to the concept of media effects (Ruggerio, 2000). Although adopting the notion of active audience, this study assumes that the notion of active audience and goal-directed use do not imply its immunity against the effects of new media use. With the proliferation of "persuasive technology" in the new media systems (Fogg, 2002), this assumption seems more plausible in the context of a new media model. In a similar vein, Shah and his colleagues (1996) support such an assumption. In their study of framing effects, they claim that culturally salient values can have significant effects on voters' judgments, even though these effects are mediated by active and goal-directed voters and governed by their stands on issues and on their own ethical principles. Thus, the study suggests that it is a false dichotomy to suppose that strong framing effects imply passive audiences—or that active audiences imply weak framing effects. In that sense, this

study suggests that people and media "interact" and can result in shaping how individuals think and make decisions over media content. In other words, the relationship (e.g., dependency) built through interaction can be understood as an outcome of its own and also as a mediating factor for another effect.

Nonetheless, U&G theory is seldom considered as a complete media effects theory (Chang *et al.*, 2006; Rubin & Perse, 1987). Previous studies of U&G theory are limited to describing the relationship between interests and the strength of motivation as these influence the use of the Internet. Additionally, scholars failed to address the psychological factors that actually induce consequences (e.g., Neuendorf et al., 2000; Jeffres, 2004). In a similar vein, Ball-Rokeach (1989) asserted that it is the limitation of U&G research that merely describes the needs behind use but hardly explains the outcome of the use.

Some scholars argue that personality factors might influence media use and that in turn media use might affect possible outcomes (Bandura, 2002). Katz and his colleagues (1974) sought to understand the social and psychological origins of needs which lead to differential patterns of media use resulting in needs gratifications and other consequences. The present study adopts portions of the latter approach by Katz and his colleague (1974) which is compatible with the notion of the media system dependency (MSD) perspective. This position claims that individuals differ in the media system they construct because they have different goals and interests (DeFleur & Ball-Rokeach, 1989), which are manifested in the behavioral patterns of media use, and, in turn, this then results in varying outcomes.

In relation to the behavioral patterns of media use, the notion of audience activity in U&G theory is manifested in the categorization of ritualized and instrumental use (Nabi, 2004; Rubin, 1984; Vishwanath, 2004). Based on the findings of this study's focus group

interview, which confirmed the relationship between active audience and dependency relationship, this research employs a measure of ritualized and instrumental use.

The audience activity factors from the individual media dependency theory—"active selector" and "casual observer"—seem inadequate to grasp the essence of user activity within a new media context. This might be attributed to one of the major attributes in new media information system which can include the customization of information (Chang *et al.*, 2006). Search is one of the most used applications of the new media information system, which enables the user to seek any information they desire. However, the notion of active selector and casual observer does not completely cover the contextual requirement of the new media information system.

Traditional media could assume an audience of casual observers but this concept does not link well to the new media environment with its technological attributes. For example, a computer mouse can be defined as a control mechanism over the Internet. Its main attribute is its capability to navigate and this defines it as an active selector as opposed to a casual (i.e. accidental) observer. Another factor distinguishing old and new media is the outcome of interest as a long-term effect rather than that of a short-term exposure. This is embedded within media system dependency where the notion of ritualized, instrumental, and long term use patterns differentiate an active selector from a casual observer—especially with short term exposure to media content.

Also, in MSD the effect of interest is that of media content. However, in this research the effect of interest is a long-term effect of new media use (of it information content) and also the effect of relationship over longer period of time. This is somewhat

analogous to the social cognitive process of learning (Gerbner *et al.*, 2002) or cultivation (Shrum, 1995).

In a study comparing the impact of the patterns of past behavior and of motives for choosing the behavior (or intentions to behave), a strong causal path emerged from past behavior to future behavior (r = .45, p < .001) than from intentions to behave (r =.27, p < .001) (Ouellette & Wood, 1998). Considering this, it seems appropriate to explore actual use patterns rather than examine self-reported goals or needs that are highly correlated with intention to use. A major portion of use is related to the strength of one's use pattern (ritualized or instrumental) to gratify various needs or motives such as orientation and social utility. Consequently, the behavioral patterns of media use are related to dependency (Rubin & Windahl, 1986).

2.2. Media System Dependency (MSD)

MSD's basic notion is that the more dependent an individual is on a medium for having needs fulfilled, the more important the medium is to the individual. Ball-Rokeach and DeFleur (1976) first proposed the MSD Model, but there was, a decade later, limited research to verify its media effects (e.g., Rubin & Windahl, 1986). MSD results from motives, strategies, and the restricted availability of media that fulfill the motives. MSD has been used as a mediating variable of media effects associated with mass media use (e.g., Lindlof, 1986; Windahl et al., 1986) and it has been used in studies as a dependent variable. Dependency has been regarded as a consequence of media use (Fordland, 1978). Also, it has been studied as an independent variable depicting the pattern of media use as its outcome (Rubin, 2002). The result of this is that the psychological construct of dependency

is affecting many aspects of media use and its outcomes.

There are two levels of application available for a media model derived from the above constructs. Macro-level application of media system dependency explicates the interdependencies among audiences, media, and society. The theory attributes media power to the dependency relations created between audiences and society, thus placing itself somewhere between magic bullet models of media effects and other contemporary theories of minimal effects (Grant & Guthrie, 1991). Meanwhile, micro-level applications of media system dependency highlight the relationships individuals develop with mass media that in turn predict exposure.

On a micro level, this is also called Individual Media Dependency (IMD) and delineates the degree of intensity an individual is dependent on certain media. However, in this study, it is considered mainly as a mediating variable, following the IMD. It is hypothesized that dependency mediates exposure at the encounter of media content, and then it mediates the process of arousal, which then mediates involvement. The involvement then mediates the probability of effect.

As shown below in Figure 1, the difference in the level of dependency influences the differences in the level of cognitive and affective arousal, thus the difference in the level of involvement in information processing, thus the difference in the media effects in terms of cognitive, affective, and even behavioral effects. Unlike previous studies on the causes of differences in the level of media effects, MSD lays out the step-by-step analysis of processes that causes media effects.

Figure 1. The "Original" Individual Media Dependency (IMD)
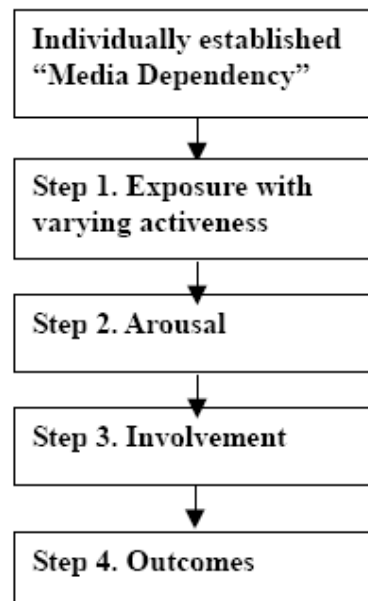
"A major aim of media system dependency theory is to explain why mass communications sometimes have powerful and direct effect and at other times have indirect and rather weak effects" (DeFleur & Ball-Rokeach, 1989, p.302). It is considered "ecological theory" due to its focus on relationships between small, medium, and large systems and their components. Added to this is the notion of "organic structure" which can be especially helpful in understanding and examining how parts of micro and macro social systems are related to each other and how these then attempt to explain the behavior of the parts in terms of those relationships (Skumanich & Kintsfather, 1998).

IMD theory attempts to explain a cognitive psychological process that increases the likelihood of one's being affected by media use. The process begins with an individual who scans the media to decide actively what he or she wants to read. But this scanning process, with the technological advance of the Internet can be contrasted with traditional media. Also, the Internet being a "persuasive technology" (Fogg, 2002) has some bearing on this point.

Miller and Reese (1986) argue, "dependency on a medium appears to enhance the opportunity for that medium to have predicted effects" (p.245). They observed that certain media effects, specifically political effects (i.e., participatory activity with behavioral outcomes) were more evident from exposure to a relied-upon medium. This is relevant to the fact that a cognitive process model should provide clear links between the stimulus (e.g., media exposure) and the response (e.g., behavioral intention). It means the outcome cannot be understood solely in terms of what's being injected but also needs to be understood within the concept of "relationship" (Zillmann, 2002)

A two-by-three typology of individual media dependency generates six goals which individuals strive to achieve. "Understanding," "orientation," and "play" are the goals individuals strive to achieve on individual and social levels. Specifically, "self-understanding," "action orientation," "solitary play," "social understanding," "interaction orientation," and "social play" are included in the typology of individual media system dependency relations (Ball-Rokeach, 1985) and in the scale developed in this study. Even though the labels are different, the goals are similar to those of uses and gratifications theory in that both of them speak to psychological motivations. What is really different is that the central question of MDS addresses one of the issues that in U&G is considered missing: Why, when, and how media exert power in regard to individuals and interpersonal networks and with what consequences? (Ball-Rokeach, 1998) However, in the present study, MSD is posited to direct its focus on consequences (after gratifications) of the relation that individuals build with media. The consequences of the MSD relation are hypothesized as an aspect of the effects of media use or exposure.

MSD conceptualizes media as society's primary information systems and the links between individuals and the social structure (Merskin, 1999; Waring, 1996). It further assumes that the impact of media messages on audience perceptions is a function of how dependent audiences are on mass media as sources of goal satisfaction (e.g., informational goals). Individuals who are dependent on a medium selectively expose themselves to its content and attend more to its messages to meet their goals, increasing the likelihood that messages are cognitively processed and consequently have effects (Ball-Rokeach & DeFleur, 1976). Although media dependency and exposure are likely to be correlated, ongoing dependencies, and dependency coupled with exposure (an interaction effect), may provide a more appropriate basis for predicting media effects than exposure per se (Ball-Rokeach, 1985; Grant, Guthrie & Ball-Rokeach, 1991).

2.3. New Media Dependency (NMD)

Adding to the measure of IMD (Ball-Rokeach, 1985) are the unique characteristics of new media, including social media domain and the unique contents available through participatory use. These are reflected in the "New Media Dependency" (NMD), as shown in Figure 2 below. Of course, the basic notion of NMD is the underlying premise of MSD by Ball-Rokeach (Kubey, 2001; Lin & Tsai, 2002; Whang et al., 2003) which comprises the scope and intensity of the relationship that people develop with the Internet in their daily life, in terms of how indispensable the Internet is to a person. Meanwhile, this study also focuses on the relationship of dependency in regards to its interaction with media; additionally, the long-debated "prosocial vs. consumer" behavioral outcomes are also considered.

As already noted, the current study examines the relationship (i.e., dependency) between people and media and it includes a "use" factor from U&G because of high audience interactivity with new media.

Figure 2. New Media Dependency (NMD) Model
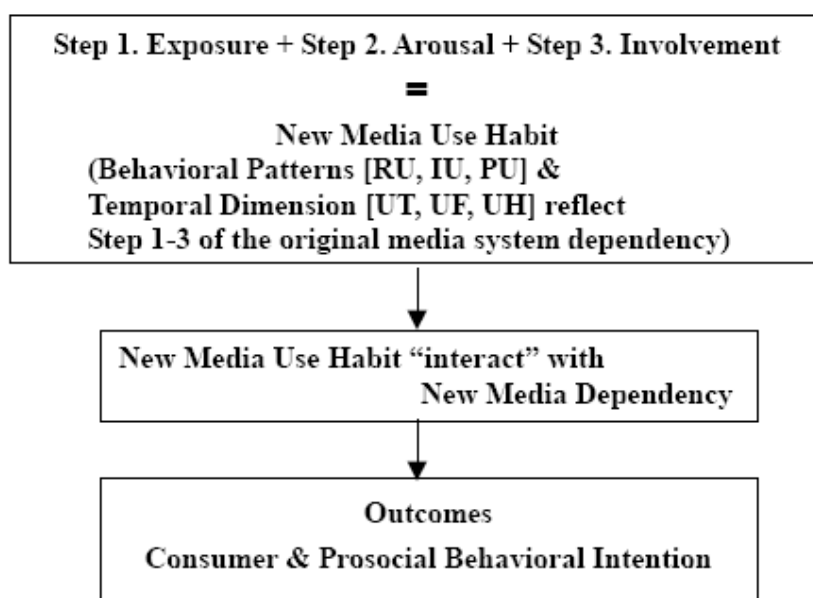
Internet dependency is usually conceptualized as a dependent variable in the form of excessive or uncontrolled interactions with media, especially in terms of time of use. This has been assessed in terms of classic dependence symptoms and the displacement of other normal social activities (Boyd, 2007). In contrast, NMD is treated as a mediating variable, just as postulated by IMD. NMD is a cognitive process that mediates the possible outcomes and includes the psychology of audience with the addition of an interactive process occurring between people and media.

The properties or characteristics of the Internet independent of its content can also cause effects. Some scholars believe that this is possibly the central issue in media effects research (Eveland, 2003; McLeod *et al.*, 1991; McLuhan, 1964). In a previous study,

media effects has been considered as a function of media system dependency, moderated by the frequency of traditional media use (Morton & Duck, 2000).

Changes in communication technology and subsequent changes in form have played a crucial role in influencing media effects—often with behavioral consequences (Eisenstein, 1983; Innis, 1951). A long tradition of mass communication research documents the demographic and psychological determinants of media effects (Tolbert & McNeal, 2003). Medium theory proposes that the medium becomes our cognitive extension. That effect cannot be directly observed but it can result in changes in cognition, such as hypothesized "effect" in terms of enhanced proficiency of cognition and outcome of better memory, and dependency on the medium in terms of cognition.

New media effects come as the consequence of cognitive, affective, and behavioral "involvement" (Zaichkowsky, 1985) of audience with media and this approximates MSD's focus. The new environment is different from that of traditional mass communication with regard to the nature and degree of involvement in that an individual is more and more "into" the flow of information and the communication process. This can lead to recent concerns with a Ubiquitous Media which is indispensable in various aspects of daily life.

2.4. New Media Environment

To justify some of the variables included in the model in relation to dependency and outcomes, it is necessary to highlight some of the characteristics that are unique to the new media environment. First, the unique attributes of content and information are suspected to be related to dependency. New media provide us with unprecedented amount

of news and information, and a variety of multimedia contents. Adding to this, social media (Thomas, 2006) has expanded to encompass a wide spectrum of audience participation to add "user generated contents" (UGC) (Salzman, 2007) or "user created contents" (UCC) (Lenhart & Madden, 2005) to the stream of enormous new media contents.

Second, the dynamic of "social media" is another unique characteristic. The interactivity between new media and audience sharing content and re-purposing content creates a new information environment. This sharing activity expands the structure and even the scope of mass communication, epitomized in the notion of information exchange. In the United States, as of 2005, 57% of teens (aged 12-17) who use the Internet create their own content (Ferguson & Perse, 2000; Kaye & Johnson, 2004).

Social media epitomize this trend and it is included within the scope of this study on a mass communication level. Social media best describe unique content circulated through new media. This re-purposing of content, regardless of the intent of the original information, results in multilevel mass communication. Whatever an audience creates and shares accumulates in the database and can become available to others. This proliferation of the new media environment, with enhanced forms of communication, affords different storytelling that induces many kinds of interactivity (Pavlik, 1999). The content of this interactivity is multilevel information ranging from intrapersonal communication to mass communication. Also available through the new media system is "social information" (Holtz, 2006) which is embedded in the content shared by users. Social media and "Web 2.0" (O'Reilly, 2005) are the Web applications which generally refer to the social environment in which everybody has the potential to become a creator of content or

applications (DiMicco & Millen, 2007) and to reshape the relationship between user and media as well.

O'Reilly (2005) first presented Web 2.0 as a second stage in the development of the Web, superseding the predominant publishing model of many web-based information applications and services. With Web 2.0, content and information services are to become more dynamic, and more sensitive to user action. This is characterized by the way users are actually participating and interacting in this system of storytelling. It encompasses more participation and activity of the audience in their creation, use, and re-creation of information.

Web 2.0 is intended to capture the dynamic interaction of information through receiving, publishing, and modifying content (Pisani, 2006). User contributions create a sum of knowledge greater than its parts, suggesting the potential to harness collective intelligence. This is in some part why social information has "powerful" influences overn college students who are more and more dependent on the collective intelligence aspect of Web 2.0. Such a trend is prevalent with the use of Facebook, a well known and popular social network site reported to be used by 85% of college students in the United States (Lazarsfeld & Katz, 2005).

There is also recognition that Web 2.0 may not be characterized by technological innovation at an advanced level. However, Web 2.0 is still recognized for its ability to reshape the relationship between users and the new media system by changing the understanding of the status of information and the role of the user in respect to content and media applications (Tredinnick, 2006).

The language used to describe those individuals involve with media is also worthy of note. The term "audience" is a byproduct of the era of mass media, while the term "user" is more suitable to be used in the context of new media. Indeed, instead of "audience activity," there is now described the growing importance of "user participation" intrinsic to Web 2.0 (Miller, 2005). As noticed by many scholars in the study of new media, Web 2.0 has been acknowledged as, "one of the key aspects of Web 2.0 is that it connects people so they can effortlessly participate in fluid conversations and dynamic information sharing" (Thomas, 2006).

The way information and news are consumed is changing as many branches of communication address its possible impact. The field of journalism is now confronting the impact of the new media. "Tomorrow's potential readers are using the Web in ways we can hardly imagine, and if we want to remain significant for them, we need to understand how" (Pisani, 2006). Yet news organizations, compared to commercial interests, have been reported to be too slow to change (Pisani, 2006). A "new news ecosystem" is evolving, adapted to the multifaceted participation of people who no longer want to be considered as anonymous members of an audience. Indeed, it is the time to think about such implications for possible outcomes of this study.

With the status of new media in mind, this study focuses on adding context to the understanding of the relationship between new media with the youth who were raised with the influence of new media in terms of its social media domain and participatory use aspect. Web 2.0 and its novel attributes instigate a whole new trend of interactions (including participatory use of new media contents) and have influenced college students in terms of "dependency" relationships.

Just as the internet allows users to create and share their own media, it is also enables them to organize digital material their own way, as most of social media are designed to capture the growing use of tagging on sites such as YouTube, Flickr, and del.icio.us. These sites allow users to add personal meaning to information and then make this easily available to others, who in turn can comment on or expand the information content (Holtz, 2006). This has made the practice of the creation, dissemination, providing feedback, and linking of information more of a participatory activity or "social" practice (Meyrowitz, 1998).

New media systems are also distinguished by their inclusion of unique information, content, and even the unique system of information dissemination. Social media and user-generated content phenomena grew as collaborative tagging systems allow people to organize a set of new media contents, annotating them with tags via a web-based interface. While using the system individuals can see others who are participating by observing their tagging activities. This feedback loop affords the asynchronous and asymmetrical collaboration which can be sees as making these systems "social." The result of such a social activity is a collection of annotations, also called folksonomy.

The new media system encourages the embeddedness of the application. Tagging also makes sharing, classifying, and adding a "meaning" to information a regular if not daily practice. Tagging is a way to mark, store, and then retrieve information that users already found valuable and of which they want to keep track (Rainie, 2007). The growing popularity of collaborative tagging is a focus of the Pew Internet & American Life Project (2007). According to the report, 28% of online Americans used the internet to tag information. This is revolutionizing the way people "making sense" of information, which

is a similar aspect to Bruner's notion of the "meaning making" (1989) process of communication of information. It actually affects regularities in user activity by recommending other users to consume information (Golder & Hunerman, 2005). Therefore, whether the subjects use tagging or not is a measure of embeddedness of new media into the daily routine for individuals such as college students.

As explained so far, in terms of the "environment," the new media system comprises a variety of "new" communication modes or affordances, both interpersonal and mass communication. Consequently, this new media necessitates a different approach to the notion of effect as found in traditional media.

2.5. "Effect" of New Media

Media effects have been traditionally defined as the influence of certain media text/content on people's cognition, emotion, or behavior (Bryant & Jennings, 2002). However, the current study does not specify what media text/content is input to an audience. This might be similar to medium effect (Bryant, 2008) which asserts that the "form" aspect of media has a unique domain of influence on people. To raise the predictive power of such a model, this study also looks into the effect of "embeddedness," as a product of use habit and dependency (use habit x dependency = embeddedness). In that sense, the focus of this study is, again, different from that found in the media effects tradition and its research.

Using U&G and IMD, the author presented media effects research findings as the outcome of media use to be different from the media effects tradition. There are several reasons for this approach. First, this study is not about media effects but it does concern

itself with outcomes (i.e., consumer behavioral intentions and prosocial behavioral intentions) that have been used extensively in media effects research. This would facilitate the comparisons of the predictive power of the model with ones from previous new media effects research. Second, there hasn't been any empirical study that looked into relationship effects. Lastly, it is possible that what was found to be caused by media effects (i.e., what media do to people) could be actually due to relationship effect or embeddedness effect explored in this study.

Historically speaking, the fact that scholars of early media effects research "blindly" believed in the "power" of media coincides with the proliferation of "transmission of messages" studies (McCombs & Shaw, 1972), seeking "causality" claim. Whether it be political or commercial, in the early days of communication research, media effects has been recognized as how much a person is persuaded by a message. Therefore, the question of "message," in terms of how to "induce" an effect of a persuasive message was the primary context of how media effects were understood. Naturally, it has been predominantly researched in this same context.

However, more recently, the effect of media has been realized to be more complicated than what can be solely conceptualized in terms of the immediate influence of content. In the effort to "grasp" this complicated issue, the media effects research had to move beyond mere "hypodermic" model of the media effects and adopt a "cognitive" and "cultural studies" approach into its artillery to better address the issue (Ball-Rokeach & DeFleur, 1989). In a similar effort, different schools of thought have broadened the notion of "effects" to study the relationship between people's interaction with mass media and their subsequent influence on people. Scheufele's (2000) definition of media effects as the

outcome of communication regardless of the intention of the communicator best describes this broadened notion.

This research's approach is compatible with the expanded notion that effect is not only what media impose on audience but also the outcome of a communication process as the audiences engage in interactions with media. For this reason, the behavioral patterns of use are adopted from the U&G perspective. Now considered are the influence of dependency and its relationship with the effect. However, some might argue that the notion of media effects is an outdated conceptual framework in itself. Indeed, unlike any other phase in the history of media research, audiences are ever more empowered, self-controlled, active, and independent of the influence of media. Audience activity is at its peak with the advent of interactive new media, and the interchanging role of audience as information "provider" and "consumer" seem to diminish the influence of media. Audience activity commonly has implied the opposite of media effects (Stafford & Faber, 2005).

One conflicting claim is that audiences are even more empowered but that this could simply expand the notion of "effect." Such a view would blur the role of sender and receiver but it would not address who is influencing whom nor would it isolate the source of power in the sender of the message or in the control of the channel (Peters, 1999). This leads to redirecting attention to the definition of an information system (Ball-Rokeach, 1989) which emphasizes the media system's role of providing information to fulfill our goals of understanding, orientation, and even play. As the users utilize an information system to meet these goals, they are engaged in an interdependent relationship with this information system. Among many mass communication research traditions, U&G and the

information-processing approach regard this relationship as interdependent.

Throughout the history of mass communication research, the relationship between audience and the media has been a constant concern. In the early days of mass media research, it was all about the theories of all-powerful media and the notion of passive audience (Gerbner et al., 2002). This view shifted developed into active audience theories such as U&G. The theory realizes the active selection of audience in choosing information from the media. However, some critics feel that U&G is less an independent theory in its own right and that it is more of a restatement of certain aspects of selective influence theories. Another limitation is that, thus far, research using the the U&G perspective alone has generated little more than lists of self-identified "reasons" for which people claim that they select and attend to different media. However, with the integration of other theories, several researchers have proposed developing causal models of media use based on the U&G perspective (e.g., Strizhakova & Krcmar, 2003).

This research is based on the theoretical framework that is similar to Strizhakova and Krcmar's (2003) in that it fuses two theories; U&G and media system dependency. This is done to consider the contextual characteristics of the new media information system and to construct a causal model that is more compatible with the "effect" of new media use. The part of media system dependency theory to be replaced with U&G's notion of ritualized and instrumental use is the inclusion of active selector and casual observer. Both notions are about the use pattern of media. However, as mentioned earlier, the U&G's fits better with new media context. However, the U&G's major limitation that was mentioned earlier (that there is no linkage to "effect") will be supplemented by the media system dependency's notion of dependency and its impact on "effect."

The alternative notion of the "embeddedness" effect was addressed by Gitlin (1980) who asserted that users "earned to live with media and then realized they could not live without media—and this might be the strongest "effect" of media. The statement is representative of the study's aim to pin down the "embeddedness" effect that is similar to the "cumulative" effect of media use. In a similar vein, advocates of "powerful effects" include Gitlin (1978), who even argued that the opinion leader idea was mere camouflage for the direct effects of the media, and researchers like Lang (1981), Adorno (1969), and McLuhan (1964), who insisted that the power of the media lay in slowing change or in "long-run" effects and not in short-run "campaigns" to affect voting or buying behavior. They had two basic assertions: (1) communications research has been studying short run mass media effects; and, (2) the intellectual history of this research is best characterized as a successive taking into account of those factors which intervene between the mass media and their audience and, thus, which modify mass media effects.

McCombs and Shaw (1972) claimed that the effect or outcome of media use is cognitive rather than persuasive (informing, giving both sides of an issue, and seeking to persuade individuals in the audience of one position). Here, media become the main suppliers of information and images about events and people outside our immediate environment. By promoting various aspects of social reality, media also influence individuals' judgments about how to deal with important social problems (Iyengar, 1991).

Some researchers had considered that leisure use and playing video games on the Internet may be associated with lower levels of knowledge (Niemi & Junn, 1998; Shah, 1998), whereas use for information search and exchange is likely to have positive effect on political learning (Shah, McLeod, & Yoon, 2001). Behavioral patterns and consistency in

media use can give clues about what influences the communication process and how that process, in turn, influences use. This may be called a cumulative effect (Patwardhan & Ramaprasad, 2005). To understand media influences, media effects research should identify psychological processes that may be triggered by the media messages and that may direct individuals' judgments (McLeod, Kosicki, & Pan, 1991).

The outcomes of interest for the current research have focused on two controversial issues: consumer and prosocial behavior. First with the issue of consumer behavior, scholars of critical theory claim that the embeddedness of media influenced consumer culture with a somewhat negative connotation, while advertising research is focusing on how to increase the effect. The critical view also claimed that the effect of media on consumer behavior actually hinders prosocial behavior (Park & Kim, 2003; Valkenburg & Cantor, 2001). Therefore, the two behaviors have been viewed by media critics as constructs in opposition to each other. However, the fact that they both deal with the embeddedness effect allows for some connection between the two positions.

The consumer and prosocial behavioral intentions are mainly explored in terms of their relationships to predictive variables. They are understood as the outcomes of both the media use effect and the dependency effect. The topics themselves have little implication for the purpose of this study. In previous research, consumer behavior like purchasing (e.g., Bellman, 1999; Gardner, 1985; Li, 1999; Park, 2003) and prosocial behavior like volunteering (e.g., Anderson, 2001; Bagozzi, 1994; Berkowitz, 1984; Eisenberg, 1989; Huesmann, 1994; Penner, 2004) have been studied in association with media use, using the measurement of behavioral intention, rather than past behaviors. As noted, within the scope of this study, both are selected as examples of effect-oriented research focusing on

outcome behaviors in the field of advertising and political communication. Important here would be how to induce the outcome or effect through a particular communication process.

The use of behavioral intention as a "proper" measurement of effect or outcome for future behavior needs to be addressed. A number of studies have assessed past behavior as an indicator of future behavior (e.g., (Ouellette & Wood, 1998). However, for the reasons specified below, this study chose to use behavioral intention as the measurement of effect.

Central to an explanatory model with a causality claim is the recognition that there is an isomorphic link between one variable which acts as a necessary and sufficient pre-condition for its influence over another variable. Ouellette & Wood (1998) found that behavioral intention (r = .62, p < .001) is better at predicting future behavior than past behavior r = .12, p < .001) (Bandura, 2002). According to the individual media dependency theory, the domain of outcome or effect can be cognitive, affective, and behavioral (Ball-Rokeach, 1989). Yet, the intricate relationship between the cognitive and the affective domain makes it almost impossible to separate them (Ouellette & Wood, 1998). The effect of interest is future behavior. Even though it is a behavior that the model needs to predict, the best measure is not necessarily a behavioral trigger but rather a cognitive influence.

In other words, measuring past or current behavior seems at least more objective yet questions remain as to what degree it is a reliable measure of future behavior. Although measuring behaviors in natural settings might be considered less biased, it is hard to specify or isolate certain effects in behavior for all domains (i.e., cognitive, affective, and behavioral) where the construction of behaviors are intertwined. The hardship of

measuring effects in any domain persists. Therefore, this study measures behavioral intention, which is considered a comparably reliable measure than that of past or current behavior to predict future behavior, as many previous studies in the realm of marketing research have shown (e.g., (Subramani & Rajagopalan, 2003); Zaichkowsky, 1985).

Also, studies of online consumer behavioral intentions support the current measurement choice and approach. It is important to note that this study attempts to predict future online purchasing behavior as possible outcomes of information behavioral patterns and dependency on them. Distinguishable from the offline context is the consumer attitude of the online buying (especially for younger individuals). Heavy new media users are more likely to engage in such behaviors as purchasing products which have been advertised (Lin, 1994). "While shopping via the web has been reduced to little more than the bit of eye-hand coordination required for a series of mouse clicks, the impact of a consumption-heavy lifestyle on the environment has decidedly not been lessened" (Brown, Renner, & Halweil, 2000, p. 11). Indeed, two intersecting trends include the expansion of synergistic marketing communication and the spread of digital interactive media. These are changing the persuasion industries throughout the world and are seen as mandating scholarly examination (McAllister & Turow, 2003). In that sense, the current approach also seems timely.

As mentioned in the previous section, consumer generated contents, user generated contents, and user created contents are central concerns emerging in the new media. People with similar interest are sharing information more than ever through social media. That information can be easily searched by others who share interests. Searching social information is a common practice among college students. Some have proposed that

we are entering the era of "consumer-generated media" because consumers today are 50% more likely to be influenced by content posted by other customers and individuals than by traditional advertising (Intelliseek, 2006). New media are a whole new foreground for "word of mouth" or "viral" marketing.

In a similar vein, social marketing is the next magic word for the marketing industry which first noticed the potential of "storytelling system" of the new media and began to keep track of the world full of "a massive set of conversations" (Holtz, 2006). It is a common practice of marketing research firms to keep track of those conversations about their clients to monitor what consumers are saying about their clients' product (Andreasen, 2006). Organizations that wish to wield influence would need to participate in such conversations.

Social media and social marketing have been concerned with the possible influence of the Internet on sustainable consumption. Of interest here are consumption patterns and lifestyles, along with the Internet's role in developing public awareness of environmental and social issues (LaRose *et al.*, 2001). The latter focus is the hypothetical reason for looking at "prosocial" intention as a possible "effect" of the new media information behavioral patterns (or media use patterns) and dependency on them. As noted in numerous studies, "networking" attributes of the new media and social media can promote a sense of "community." People with similar interests can work together online to maximize collaboration.

Social information has to do with audience's role as not only consumer but also as producer of information. This notion has been applied to cover a wide spectrum of different perspectives in research. This includes such areas as agenda-setting effects in terms of

audience's role as agenda-setter for mainstream media and determining what issues people should consider instead of the classic notion of what issues the media define (Chaffee & Metzger, 2001; Delwiche, 2005). These areas have been explored in the context of new media marketing in such applications as comparing word of mouth advertising and social marketing,

The content of this venue of communication is unique. Jackson (2007) realizes the uniqueness on two levels: first in terms of the scale and the scope of available information, and second in terms of the nature of communication itself that is potentially transformed to create a "multicommunicating environment." The new media system in this respect supports the hypothesis that the more intense the relationship (dependency), the more people are influenced by it (attenuating the effect). For example, it was found that higher dependency on mass media for environmental information results higher agenda-setting (Salwen, 1987). Also, a positive relationship between online shopping behavior and instrumental use was found (Fader, Bellman, & Lohse, 2004). It was confirmed that looking for product information on the Internet is the most important predictor of online behavior (Bellman, Lohse & Johnson, 1999; Keum & Cho, 2003).

Another type of dependency may evolve from using a communication medium in a ritualized fashion. These studies explored such areas as how rituals gratify habits, consume time, and create diversionary motives (Rubin, 1983, 1984; Windahl & McQuail, 1979). Rubin and Windahl (1986) expected the outcomes of ritualized use and instrumental use of media to be different. McLeod, Becker, and Byrnes (1974) found agenda-setting effects to be less likely for individuals whose media use is motivated by information seeking, a behavioral form of instrumental use. Therefore this research hypothesizes that

instrumental use will result in less effect compared to ritualized use.

The interaction between the user behavior, which results from different motives, and dependency leads to different outcomes, consequences, or effects (Rubin & Windahl, 1986; Ball-Rokeach & DeFleur, 1989). Building on earlier explorations of the role of habit in media usage behavior (Rosenstein & Grant, 1997; Stone & Stone, 1990), it is assumed that once content consumers learn that they can get their "fix" from a source, they quickly stop agonizing over the selection decision from day to day and moment to moment. Meanwhile, the U&G paradigm would insist they should continue to agonize over such decisions. Instead, they fall into a pattern of repeated media behavior that is not subjected to active self-observation; thus, a media habit is formulated (Diddi & LaRose, 2006). Over time, habit strength builds, perhaps aided by the process of classical conditioning in which content consumers return to their preferred content source to relieve their vague sense of unease about not knowing what is "going on" in the world or to satisfy their curiosity about virtually anything (Lunt & Livingstone, 1996).

So far, the hypothesized relationships between uses, dependency, and effect are highlighted with supporting research from relevant fields. To summarize them, the next chapter presents research questions and hypotheses for the current study.

III. THEORETICAL FRAMEWORK AND HYPOTHESES

The study first explores the relationship between new media use and "traditional" media use to confirm the embeddedness of new media into the daily life of college students. College students are used in the investigation for several reasons: (1) they are likely to have knowledge and experience use of both older and newer media channels; (2) they are more likely to embed new media into their daily lives; (3) recent statistics on Facebook and other social network sites show a preponderance of use by younger individuals, especially college students; and, (4) important to note here, such individuals are more available for study as a convenience sample for this unfunded research. The relevant variables under investigation here spring from the concepts covered earlier and these include new media use habit, reflected in the amount or intensity of temporal new media use (i.e., time, frequency, and history) and the intensity of the three behavioral use patterns (i.e., Ritualized Use, Instrumental Use, and Participatory Use), "traditional" media use habit, and the level of dependency on new media.

The model proposed here is partitioned into two framework structures as it attempts to assess the relationships among the variables of new media use habit to the variable of new media dependency. These will then feed into how these stay link to the outcome variables of interest, the prosocial and consumer behavioral intentions. It is expected that Framework I of the model might reveal if the new media use habit has any influence on individual's intention to engage in prosocial and consumer behavior.

Figure 3. Theoretical Framework I
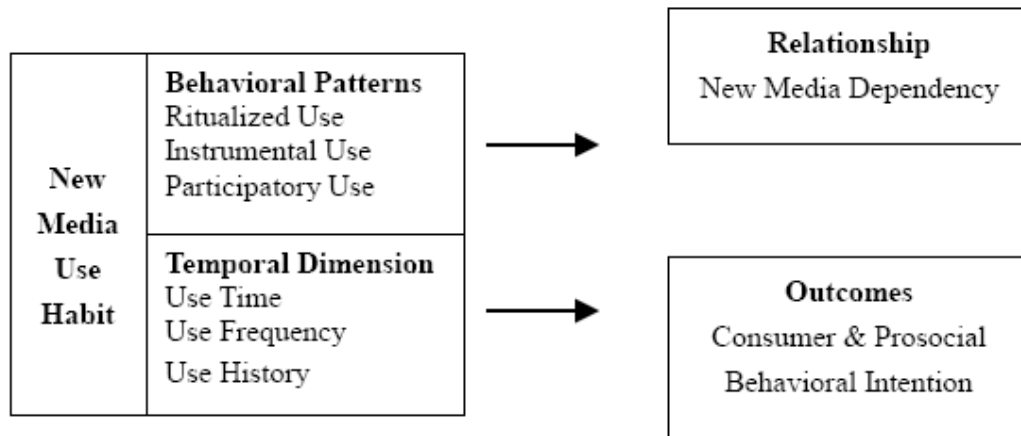
RQ1. How are the uses of various media contents (e.g., information, news, and other media contents) from the Internet, TV, and newspaper like in terms of time, frequency, and behavioral and cognitive pattern?

RQ2. What is the relationship between mass media (TV and newspaper) use and new media use?

RQ3. What are New Media Use Patterns [UP] like? How are the patterns related to each other?

RQ4. How does the media use (reflected in terms of media use and use pattern) vary by the different characteristics of sample in terms of gender, age, and value?

RQ5. How are the Use Patterns (UP) of new media related to the temporal dimension (i.e., UT, UF, UH) of new media use and of other media?

RQ6. What is New Media Dependency (NMD) like, according to the characteristics of the subjects?

RQ7. What is the relationship between new media uses (in terms of UT, UF, UH, and UP) and New Media Dependency (NMD)?

RQ8. What's the relationship between new media uses (in terms of UT, UF, UH, and UP) and the possible outcomes?

Through Framework II, the study examines the relationship between the new media use habit and the outcomes of prosocial and consumer behavioral intentions as these may account for the mediation effect of dependency on the outcome variables. Framework I mainly explores central tendency differences (arithmetic mean and frequency distribution) and it assesses the correlation between variables to determine at a descriptive level if the data are appropriate for inferential analyses and if multicollinearity exists among variable declared as Independent Variables within a particular model. Framework II moves the model to an inferential level to investigate the significant statistical relationships among variables using multiple linear regression analyses. These relationships are examined in the Hypotheses stated below (H1 through H4).

Figure 4. Theoretical Framework II
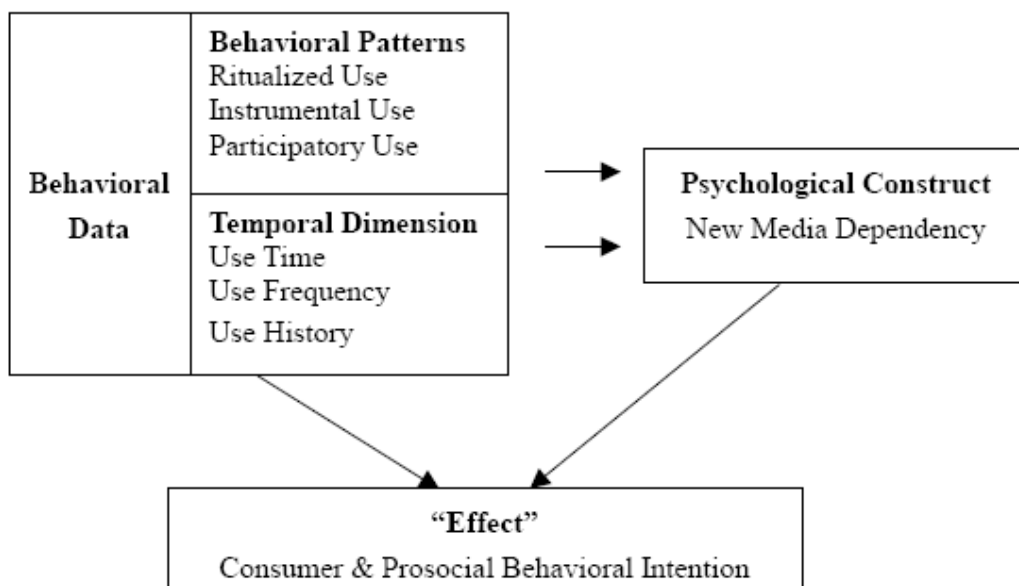
H1. The new media uses will have influence on the outcome variables.

    H1-1. Temporal dimension of new media use will influence the consumer behavioral intention.

    H1-2. Temporal dimension of new media use will influence the prosocial behavioral intention.

    H1-3. Intensity of behavior patterns in new media use will influence the consumer behavioral intention.

    H1-4. Intensity of behavior patterns in new media use will influence the consumer behavioral intention.

H2. The new media use will have influence on new media dependency.

    H2-1. Temporal dimension of new media use will influence the new media dependency.

    H2-2. Intensity of behavior patterns in new media use will influence the new media dependency.

H3. The new media dependency will have influence on the outcome variables.

    H3-1. New media dependency will influence the consumer behavioral intention.

    H3-2. New media dependency will influence the prosocial behavioral intention

H4. Controlling for the effect of new media dependency, the influence of new media use on the outcome variables will be diminished.

    H4-1. With the new media dependency statistically removed from the model will result in a diminished influence of new media use on the consumer behavioral intention.

    H4-2. With the new media dependency statistically removed from the model will result in a diminished influence of new media use on the prosocial behavioral intention.

IV. METHODOLOGY

4.1. Focus Group Interview

4.1.1. Planning and Preparation

Various qualitative data collection methods were evaluated to identify how best to capture the essence and characteristics of habitual use of new media and of new media dependency. In addition, an assessment of a new psychological construct (i.e., new media dependency) would be used in this research. Thus, survey instrumentation would require an initial investigation to confirm and identify pertinent variables. The focus group interview was considered the best and the most economic way to prepare for a more extensive survey, and this approach has been recommended in other research (Lindlof & Taylor, 2002). Therefore, the main goal of focus group interview was to identify variables in the description of college students about their use of new media and to assist and fine-tune the operationalization of variables.

The convenience of recruiting college students as participants contributed to using the focus group interview as well. This study intended to explore an area not well understood within the model proposed: college students' use of the Internet as a means of mass communication. Normally, college students use the Internet as assuming that it is an interpersonal communication medium and not one at the mass communication level. This latter framework attempts to add a new dimension to the existing understanding of dependency by acknowledging the characteristics and nature of the new media "environment" and the importance of interactions (or communication) unique to new media (i.e., ritualized, instrumental, and participatory use). Eventually, the approach used in this study proposes new measures and new models of media use and dependency.

Media system dependency (MSD) is cast as a theoretical construct and its major

hypothesis identifies the relationship college students have with the Internet while

assessing the overall effects of the Internet. After identifying the major objective of the

focus group interview, the researcher developed questions to explore reasons and goals

underlying dependency that may be unique to the new media environment. The focus

group interviews were intended to isolate the relationship the "Internet generation" has

with the medium. Also, college students were questioned about audience factors

(dependency and peer influences) and their impact on various aspects of daily life. The

focus group is particularly useful when researchers seek to discover participants' meanings

and ways of understanding (Lunt & Livingstone, 1996). This study examines directed

conversation with current college students asking about why and how often they get online

and what they do and what they think and feel about their use and about the medium.

4.1.1. Procedure

Potential subjects were contacted and invited to a focus group discussion session

and provided with an agenda, session time and list of questions the group will discuss. The

subject population for the study is college students in Korea. A snowball convenience

sample was used to recruit 21 participants who were willing to participate in a focus group

session spanning one-and-a-half to two hours. A total of four sessions were held during

three weeks. Exactly two-thirds of participants were female (N = 14) and the rest were

male (N = 7).

Each focus group was conducted with four to seven members who shared similar

background information such as age group and status in academic programs. The

researcher, playing a role of moderator, attempted to select members who did not know each other. Since these were self-selected, volunteered individuals, it would be expected that they might be more likely to be participative and reflective. It is usually recommended to ask at most five or six questions during such a session (e.g.,Cho *et al.*, 2003; Kim & Hamilton, 2006; Rhee & Kim, 2004; Wellman & Haythornthwaite, 2002). However, it's critical that all members participate as much as possible as the session advances and generates useful information. Because the session is often a one-time occurrence, it is useful to have a few, short ground rules that sustain participation, yet do so with focus. A recording device was used during the session along with notes. As suggested by Lunt and Livingstone (1996), rather than counting the number of people who agree with another's position, the moderator tried to focus more on the "words" than the indicating consensus. Subjects were asked to participate in the discussions based on their observation of people around the school. Specific topics of focus group discussion include but were not limited to the following statements: First, the Internet is embedded into the daily life of college students. Second, the Internet is the medium that has most intense relationship and significance to college students. Third, the scope and magnitude of a student's relationship with the Internet varies by subject and might be a predictor of the self-perceived degree of influence. Fourth, students who have more intense existing relationship with the Internet show stronger influence of online content and of overall media content, and this can be reflected in their attitude and behavioral history. The actual questions used during the session are attached as Appendix. A.

After each session, a complimentary meal was provided for the student's participation. During the meal, the moderator had an opportunity to ask further questions

and secure contact information for future reference. The researcher received assistance

from some participants while devising the survey questionnaire.

4.2. Survey

4.2.1. Sample

Media use varies by country. The scope of embeddedness of media technology is a measure of a country's developmental stage. This study assumes that Korea's leading status in terms of its embeddedness of new media on both social and individual levels might provide a good model for other countries to predict what the future may be like when new media embeddedness becomes as high as Korea's level. Even though there is a different social context in which new media develop, it is assumed that the way people interact with new media is similar throughout the world. This assumption then allows for using Korean students in initial investigations such as this one.

Korea's global leadership in the technological development of new media technology makes it a likely candidate to study the social impact of new media technology and numerous research studies have been conducted in this area (Ha *et al.*, 2000; Wee, 1999; Yang, 2001) Due to its early technological primacy, the "dependency" issue has been a social issue in Korea long before other countries (e.g., Choi, 2001; Jung *et al.*, 2001; S. Yoon, 2001). Based on the preliminary findings from a focus group interview with Korean college students' dependency, the choice of college students as a target population for this study was made corresponds with related research on the new media (K. Kim *et al.*, 2006; Whang et al., 2003; Yoon, 2006). There have even been reports indicating that there is evidence of pathological or abusive use among such college students—especially of the Internet (e.g., Chang et al., 2006; J. Kim *et al.*, 2008).

Korea has a highly advanced infrastructure for Web 2.0 which is an important aspect of Internet requirements for this study. This infrastructure is mentioned as a key

component in numerous studies examining the social impact of new media (K. Kim et al., 2006; Whang et al., 2003; Yoon, 2006). Korea also has the world's highest broadband access (70%) (Chang et al., 2006). College students have ready access to Internet connections and have been the focus of numerous studies of Internet usage (Papacharissi & Rubin, 2000; LaRose et al., 2001). In addition, college students are young and use a variety of digital technologies. By studying college students, it is assumed that this can yield insights into future online trends (Jones, 2002). Of course, a probability sample with random selection from a population and random assignment to treatment groups would be the ideal design for this study. However, access to students and the prohibitive costs associated with such research led to the compromise of using s non-probability convenience sample.

Social media or social network sites like Cyworld enjoy exceptional popularity among Koreans with 18 million members, or more than a third of Korea's entire population (Hall, Ihlwan, & Einhorn, 2006; Schonfeld, 2006). Indeed, Korea is the nation where many case studies on embeddedness of new media technology in daily life have been conducted. Some of these studies include the topic of addiction and dependency (W. Loges & Jung, 2001).

The subjects of this investigation using undergraduate college students belong to the age group that Tapscott (1998) calls the Net Generation. This age category, born between 1977 to 1997, seem to be more globally oriented and emotionally uninhibited, advocates of learning, technology savvy, and preoccupied with maturity and adulthood (Tapscott, 1998). Therefore, they are considered as one of the first generations who have played the dual role of producer/user.

In the United States, today's college students are the first "Internet generation" (Diddi & LaRose, 2006). According to a study by Pew Internet and American Life (2002), college students are early adopters and heavy users of the Internet, and by the time they are about 16 years old, nearly all present-day college students have started using computers. Also, their Internet use has not replaced conventional media even among the Net Generation (Parker & Plank, 2000). An explanation for this may be provided by this study wherein habit strength was found to be a significant predictor of all types of news consumption. College students, who are information seekers (Parker & Plank, 2000), are getting in the habit of checking e-mails and news headlines on Internet news sites and Internet portal sites like Yahoo, MSN, and AOL. However, they also have habitual consumption patterns with respect to conventional news media, and these habits may predate their contact with the Internet as a news source (Pew Research Center, 2002).

Meanwhile, the case is different for Korean subjects who began to use the Internet in their early teen and shows intense levels of dependency on new media (Yoon, 2006). The Net Generation of Korea has been exposed to the technological infrastructure such as broadband networks since their childhood; moreover, the social environment that encourages their exposure to computers and the Internet begins in their early ages. The use of newest application of the Internet, for example, the wireless Internet, also reflects on this dependency. The National Internet Development Agency of Korea (2005) reported on the growing use of wireless Internet among Korean middle school students compared to other generations. As of September 2005, more than 80% of middle school (83.6%) and nearly 90% of high school (89.3%) students used wireless Internet. Youths aged 12 to 19 who had their own mobile phones used the wireless Internet 6.7 times per week.

Also, in regard to the outcome variables, Korean Internet users are one of the leading consumers of on-line shopping for services and goods ("e-commerce") (Rhee & Kim, 2004). Even popular social movements have gone "on-line" in South Korea with civil organizations effectively mobilizing their resources through Internet networking (Rhee & Kim, 2004). The implication of the Internet use on journalism and the mass media fields have been studied extensively within and about Korea. The more rapid development of new media applications and services has made Korea a leader in online journalism. Ohmynews.com, one of the first citizen journalism cites in the world, has been studied extensively. Cyworld.com, a social network site, has been studied in terms of its embeddedness into daily life of Korea.

4.2.2. Sampling Procedure

The combination of convenience sampling and snowball sampling technique was used to collect email addresses of college professors of various fields (such as economics, engineering, and social science). With the help of these college professors, their students were recruited on a voluntary basis and were told they would contribute to this research for their participation. The total sample consisted of 647 participants with approximately 60% of whom are female (N=389), while the rest are male (N=258) students. These individuals came from various majors in four different universities of metropolitan area of Korea.

The data-collection processes are primarily managed through the Internet. Researchers are increasingly using the Internet as a data-collection tool, and it appears to have many advantages over more traditional methods (Yun & Trumbo, 2000). Participants who are interested in participation were asked to visit the survey website (announced

offline or online via class email) and to read the consent form at the welcome page. They were told that only if they agree with the terms in the consent form, they are invited to begin the survey by clicking the link to the next page. In the consent form they are notified of the personal nature of some of the questions and the fact that they could withdraw their consent at any time. On average, participation took approximately 35-40 minutes. Data for the entire sample were collected during a 20-day period. Research procedures closely followed the guidelines prescribed by the Rutgers University's Human Subjects Committee.

4.2.3. Measures

This study frequently refers to the term new media use to emphasize the mass communication aspect of new media contents, which are information, news, and various contents available in a variety of modes of "delivery" from both mainstream and alternative sources such as professional and non-professional (i.e., layperson) outlets. New media use is a particular interest in this study because it is supposedly different from other "traditional" mass media in terms of uses, dependency, and outcomes. Therefore, new media use applies to the use of new media contents, excluding the use of new media for the sole purpose of interpersonal communication.

Using new media content is measured in terms of time, frequency, and pattern to reflect new media use behavioral habit.

Independent, Control, and Mediating Variables

New and traditional media use are assessed using an existing 18-item Internet and media use survey (Kaye & Johnson, 2004; Ko *et al.*, 2005) and adding items from various studies of U&G (Burnett & Buerkle, 2004; W. Loges & Jung, 2001).

-*Demographics* [DM]: This includes statistical data of personal characteristics of the population. Demographics are assessed by using commonly accepted measures including age, gender, and educational status.

-*Interested Contents* [IC]: This includes the areas of content a user is most interested in. In the questionnaire, respondents are asked to identify three important online media content they use on a daily basis.

-*Use Time* [UT] (Ball-Rokeach & DeFleur, 1976; W. Loges & Jung, 2001): This is the duration of use/exposure and such a measure has been used extensively as an independent variable of media "effect" in previous mass media research. For this variable, students were asked to report the duration of new media use, the hours per week they spend on new media content use or exposure: New Media Use Time [NMUT], Television Use Time [TUT], Newspaper Use Time [NUT]

-*Use Frequency* [UF] (Lee & Perry, 2004): For this variable, students were asked to indicate the average number of times per week they devote to the use of or exposure to new media content: New Media Use Frequency [NMUF], Television Use Frequency [TUF], Newspaper Use Frequency [NUF]

- *Use History* [UH] (Lee & Perry, 2004): For this variable, only *New Media Use History* [NMUH] was reported by asking students how long they have contributed to a particular medium for mass media use.

-Use Patterns [UP] (Ball-Rokeach, 1985): Only *New Media Use Patterns* [NMUP] were

assessed because new media are the main focus of the study. Students were asked to report

on different behavioral habits and tendencies associated with "ritualized" (Rubin and

Windahl, 1986), "instrumental" (Rubin and Windahl, 1986), and "participatory" (Miller,

2005) use patterns, which are supposed to show different levels of involvement.

Involvement is a significant construct in mass communication and media effects

research. It mediates attitudes and behavioral responses to information processing,

signifies arousal, interest, and motivation (Rubin *et al.*, 1994). This study modified a

measure of involvement with media, the Personal Involvement Inventory (PII)

(Zaichkowsky, 1985) to fit into the new media context and to ensure the validity of

measurement.

As a key stage of the communication process in media use/exposure, involvement

(Ball-Rokeach, 1985) is considered as a mediating variable of media effects which is

traditionally defined as the extent to which the audiences consider an issue to have

significance in their own lives (Skumanich & Kintsfather, 1996). However, in the model of

media system dependency (Ball-Rokeach, 1985) it is treated as independent variable, a

principal premise of the Elaboration Likelihood Model (ELM) in that it influences how

much relevant thought, personal relevance, or "cognitive elaboration" a message is likely

to generate (Ball-Rokeach, 1985) as a mediating variable.

This study relates habitual behavioral new media use patterns with involvement, so

that "objective" indicators/measures of new media use patterns can be used as an

independent variable. The premise underlying this variable is that the higher the

involvement in a new media use pattern, "the more cognitive elaboration that occurs, thus,

the more likely the information will be incorporated into existing cognitive structure of the audience and will result in knowledge, attitudinal, and behavioral changes" (Skumanich & Kintsfather, 1996). Contrarily, audiences who have low involvement are much less attentive to content and are more likely to focus on stimuli that are peripheral to the message arguments, such as source credibility or attractiveness (Slater, 1999).

A varying degree of internalization of cognitive elaboration toward content or subject matter (Bloom, 1956) is the premise of differences in involvement (Krathwohl, Bloom, & Masia, 1964). Ranges from lower-order levels of involvement to higher-order levels is reflected in three different new media use patterns; *Ritualized Use* [RU], *Instrumental Use* [IU], *Participatory Use* [PU].

In this study a new scale was devised to measure the three different levels of involvement with several initial items from U&G studies, TV use ritualized, and instrumental motives (Rubin, 1984). This study incorporates a new aspect of dependency related to "participatory" or social media attributes of new media use based on the findings obtained from focus group interviews and the literature review of new media environments which was not covered in the original propositions (Rubin, 1984). Thus, a total of three types of habitual use patterns, which are behavioral by nature, are suspected to emerge in this exploration of exposure to new media content.

However, in order for participatory use to represent another level of involvement, questions asking about it should emerge as a "new" factor with different level of involvement, from RU and IU. So, 18 closed-ended Likert-type items were used (6 items for each latent variable) to capture and operationalize three habitual *Use Pattern* [UP] variables. Using 5- point Likert-type scales, the direction of these scales was varied to

prevent response habituation. The UP scale was developed using items with response options ranged from "1," *never* to "5," *always.* The scale is based on the difference in the intensity of involvement, which is similar to the criteria that distinguishes between active audience and passive audience (Rubin, 1994).

The embeddedness of new media use into the daily life of college students can be understood in terms of their involvement with the role as consumer and producer (Tapscott, 1998) of new media content or online information. So, Rubin's two dimensions of "ritualistic" and "instrumental" use (Lee & Perry, 2004) is assessed to measure the level of involvement as consumers of new media content. For example, "I habitually surf around information/contents" ($\underline{M}$=3.52, $\underline{SD}$=.90) and "I surf around and click whatever gets my attention" ($\underline{M}$=3.93, $\underline{SD}$=.79) tap into the notion of ritualized use. Items which begin with "I 'search' to find information/contents of my interest" ($\underline{M}$=3.54, $\underline{SD}$=.88) are coded to indicate instrumental use. Questions are based on the literature of U&G research (Ferguson & Perse, 2000). In addition, to address the specific audience activity patterns linked to their role as "producer" of media content, items like "I create contents in social media for others to share" ($\underline{M}$=2.70, $\underline{SD}$=1.10) and "I provide feedback to others' content" ($\underline{M}$=2.35, $\underline{SD}$=1.12) were added.

Confirmatory factor analyses are conducted on all of the multi-item scales to ensure that they met the criteria of instrument validity, internal consistency, and parallelism (Hunter & Gerbing, 1982). To confirm the three dimensions of Use Patterns, confirmatory factor analysis was assessed. Using varimax rotation, eigenvalues of 1.0 or higher are considered as a distinctive dimension. As expected, three dimensions emerged, indicating eigenvalue of 1.0 or higher, and explained 55.79% of variance.

The adequacy of factor analysis with the data was tested with the Kaiser-Meyer-Olkin measure of sampling adequacy. The result of .87 shows that the partial correlations among the underlying variables are small and this is considered satisfactory. Also, Bartlett's test of sphericity that tests whether the factor model is appropriate or not is satisfactory with a significance level of less than .001 ($p<.001$). Also, the communalities for rotated components are all satisfactory, ranging from .53~.82.

As expected in the review of U&G literature, three factors emerged which can be categorized into different degrees of involvement/audience activity in new media use. They can be regarded as "separate" dimensionality of involvement with new media which resulted in different audience behavioral patterns. The first component is comprised of five items (12, 14, 16, 17, 33). Except for one item, these obtained $r=.50$ and this fits well with the notion of ritualized use pattern of media. Item-total correlations for the revised five-item scale yielded satisfactory correlations ranging from .42 to .57 (with a benchmark set at .30 as acceptable). Cronbach's alpha for the RU scale was .73 (with its threshold of over .60 as desirable). It is characterized with the least participatory activities, in terms of involvement of audience (Ball-Rokeach, 1989) among the three factors.

The second component identified with the question numbers 18, 21, 22, 44 matches best with the notion of IU (Instrumental Use) pattern in various previous studies (e.g., Rubin & Windahl, 1984). Originally, there were 6 items to reflect the notion of instrumental use pattern but two of these had to be dropped to secure the unidimensionality of the measure. Cronbach's alpha for the IU scale was .64, which is satisfactory. And, lastly, an emerged variable, comprised of items 23, 24, 26, 28, 31, 32, turned out to be Participatory Use (PU), involving the most activity of audience among the three. All six

items were included showing a very high Cronbach's alpha of .85.

As long as the items in the scale reflect a common construct, factor indices can be used to represent the construct. To ensure the internal consistency and unidimensionality of composite score, Cronbach's alpha was assessed as reported above, and they were considered to be satisfactory: RU (a=.73), IU (a=.64), and PU (a=.85). After confirming the unidimensionality of the scales, factor indices were used to represent each factor in statistical analyses.

-*New Media Dependency* [NMD]: The basis of the NMD measurement is the "individual dependency relation" measure (Ball-Rokeach, 1989). Dependency is hypothesized to be associated to new media uses: the temporal dimensions, RU, IU, and the additional, PU. Traditionally speaking, dependency has been associated predominantly with UT and UF but not with UP. This study is the first attempt known to associate UP with dependency. In addition, especially with the current popularity of PU, dependency on PU needs to be included in NMD measurement to fully reflect the importance of the dimension in new media contexts.

As examined in the literature section, the new media provides us with unprecedented amount of new media content (news and information, and a variety of multimedia contents). Adding to this, social media system, in which people participate, share, and acquire "user generated content" (UGC) or "user created content" (UCC), has expanded the spectrum of audience participation to add "social information" (Boyd, 2007) to the stream of new media content. PU is supposedly related to the dependency on social media component of new media content; the contents available through PU of "others" or "themselves", the unique new media content provided or acquired by people who

participate in social media or social network sites with new media content such as "two-step," social information. Even though the motive of their participation may not be new media content but "socialization" online, the participation itself means adding more new media content.

This study uses a self-perceived assessment of dependency, asking the main question of "Individual Media Dependency" (IMD) (Ball-Rokeach, 1994), "how important media is to meet one of the six goals?" Self-realized importance of new media as mass media is assessed with different goals. Other previous measures of "traditional" mass media dependency do not comply with the current research goals because they focused on discovering symptoms of dependency from a pathological approach, as it was done with psychological criteria like addiction. After all, high dependency symptoms do not always illustrate that those users display pathological symptoms.

Indeed, dependence measures used in previous studies of newer media such as Internet (e.g., Armstrong, Phillips, & Sailing, 2000; McGlinchey, 2003; Song, LaRose, Eastin, & Lin, 2004; Young, 1998) have shown that the trend has been to depict this as a pathological approach, treating Internet dependency as a problematic symptom. Again, it is not congruent with the purpose of this study nor with the theoretical assumptions of MSD, therefore, a measure of New Media Dependency has been devised using the original IMD (Ball-Rokeach, 1994).

Using confirmatory factor analysis, an inclusive and parsimonious new media dependency measure was operationalized. Consistent with Ball-Rokeach's (1989, 1994) "goals" of dependency relations with media is the variety of "needs" within the construct of uses and gratification theory. Self-perceived importance levels were obtained for both

needs and goals gratified by the use of new media content. This was also supplemented with items involving "participatory" or "social" aspects of newer media, adapted from a list of "Web 2.0" applications of information use. An internal consistency estimate of reliability was computed for the New Media Dependency Scale which turned out to be very high with coefficient alpha (a = .90).

Dependent Variables

Items of behavioral intention and past behaviors in the realm of prosocial and consumer orientation were developed and reduced and categorized using exploratory factor analysis to uncover hidden constructs in the items questioned about Prosocial and Consumer orientations. Cronbach's alpha and more details are provided in Appendix B.

- *Consumer Behavioral Intention* [CBI]: Factor 1

- *Prosocial Behavioral Intention* [PBI]: Factor 2

4.2.4. Method of Analysis

- The methodological strategy is to understand how new media contents have been embedded into the daily life of college students compared to other "traditional" media content uses. Media content uses of various media (in terms of both temporal dimensions and behavioral patterns) are studied in RQ1. Descriptive analyses are used to explore issue raised by RQ1.

- To see if there is a relationship between mass media use and new media use, correlation analysis is used for RQ2.

- To examine if there's a relationship between UP, correlation analysis was used for RQ3.

- RQ4 used t-tests to see if there is a significant difference in new media uses in terms of both temporal and behavioral dimensions.

- To explore if there is a significant relationship between the temporal dimension of new media use and the behavioral patterns of new media use, correlation analysis is employed for RQ5.

- To test how the behavioral use patterns vary by the characteristics of the subject, ANOVA was used for RQ6.

- In order to explore how the major variables are related to each other, correlation analysis was performed for RQ7 and RQ8.

- To test hypothesis 1 through 4, a series of multiple regression analyses and model specifications are performed for the determination of which independent variables should be included in or excluded from a regression equation.

That two variables are orthogonal means, literally, that they have no association (i.e., $r = 0$). The orthogonality of independent variables is of special importance in this research because the study uses many newly devised and revised measurements adding items hinted from focus group interviews. The independent variables must not overlap in principle. However, in social science, it is hard to control since the underlying construct might be linked in some way to other independent constructs. Such a multicollinear association between independent variables in a multiple regression model is almost inevitable. The use of multiple regression is disreputable in this respect in order to avoid problems associated with multicollinearity of the independent measures. Due to its seemingly inevitability, researchers resort to procedures of orthogonalization, in which the non-orthogonal independent variables are made orthogonal artificially, such that multiple

regression can be performed to lead to clearer results. A multicollinarity test using

tolerance and VIF (Variance Inflation Factor) is performed to address this issue.

Multiple regressions are used in the analysis. As noted, regression analysis is a

particularly appropriate technique for this type of research as it allows one to apply some of

the data-sorting benefits of an experimental design to survey data. The regression equation

not only allows one to plot a "slope" of increasing or decreasing effect, but to determine the

impact on that effect if one controls various intervening factors. It does not, however,

determine causality as is possible in experimental design.

To see if there is a mediating effect of new media dependency, different media

dependency levels are taken into account in people's new media uses in explaining the

variance of media influences/effects. The following multiple regressions is assessed for H4,

based on Baron and Kenny (1986) to test the interaction effects in the derived model:

Use→Dependency→Effect. The following is the description of Baron and Kenny's step

(1986).
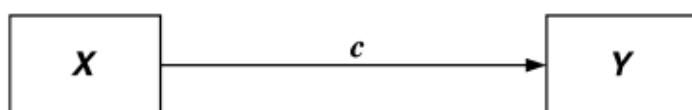
Figure 5. Illustration of a Direct Effect. X Affects Y.

As shown in Figure 6 below, mediation is a hypothesized causal chain in which one

variable affects a second variable that, in turn, affects a third variable. The intervening

variable, M, is the mediator. It mediates the relationship between a predictor or the "initial"

variable X and the "outcome" variable Y. Path c is called the total effect.
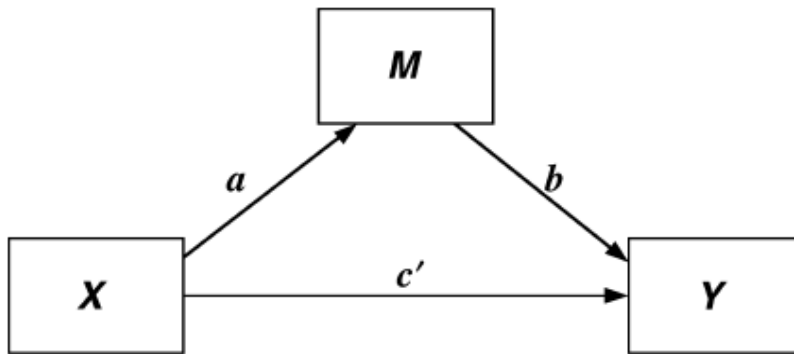
Figure 6. Illustration of a Mediation Design: X Affects Y Indirectly through M.

The effect of X on Y may be mediated by a process or mediating variable M, and the variable X may still affect Y. Path c' is called the direct effect. Complete mediation is the case in which variable X no longer affects Y after M has been controlled and so path c' is zero. Partial mediation is the case in which the path from X to Y is reduced in absolute size but is still different from zero when the mediator is controlled. Testing mediation furthers the understanding of this mechanism through which the initial variable affects the outcome.

If the mediational model is correctly specified, the paths (c, a, b, and c') can be estimated by multiple regression. Baron and Kenny (1986) and Judd and Kenny (1981) have discussed four steps in establishing mediation:

> Step 1: Show that the initial variable is correlated with the outcome. Use Y as the criterion variable in the regression equation and X as a predictor (estimate and test path c). This step establishes that there is an effect that may be mediated.
> Step 2: Show that the initial variable is correlated with the mediator. Use M as the criterion variable in the regression equation and X as a predictor (estimate and test path a). This step essentially involves treating the mediator as if it were an outcome variable.

Step 3: Show that the mediator affects the outcome variable. Use Y as the criterion variable in a regression equation and X and M as predictors (estimate and test path b). It is not sufficient just to correlate the mediator with the outcome; the mediator and the outcome may be correlated because they are both caused by the initial variable X. Thus, the initial variable must be controlled in establishing the effect of the mediator on the outcome.

Step 4: To establish that M completely mediates the X-Y relationship, the effect of X on Y controlling for M (path c') should be zero. The effects in both Step 3 and 4 are estimated in the same equation.

The purpose of Steps 1-3 is to establish that zero-order relationships among the variables exist. If one or more of these relationships are nonsignificant, researchers usually conclude that mediation is not possible or likely (although this is not always true; see MacKinnon, 2006). Assuming there are significant relationships from Steps 1 through 3, one proceeds to Step 4. , Step 4 does not have to be met unless the expectation is for complete mediation (Kenny, 1998). In the Step 4 model, some form of mediation is supported if the effect of M (path b) remains significant after controlling for X. If X is no longer significant when M is controlled, the finding supports "full mediation." If X is still significant (i.e., both X and M significantly predict Y), the finding supports "partial mediation."

The above four-step approach is the general approach many researchers use. In the opinion of most though not all analysts, Step 1 is not required. However, note that a path from the initial variable to the outcome is implied if Steps 2 and 3 are met. Most analysts believe that the essential steps in establishing mediation are Steps 2 and 3. However, there are potential problems with this approach. It does not really test the significance of the indirect pathway – that X affects Y through the compound pathway of a and b. A second problem is that the Baron and Kenny approach tends to miss some true mediation effects

(MacKinnon et al., 2007). The present study takes an alternative which is to calculated the indirect effect and test it for significance as well.

The regression coefficient for the indirect effect represents the change in Y for every unit change in X that is mediated by M. In order to estimate the indirect coefficient, this study adopts the Sobel product of coefficients approach (1982) to calculate the indirect effect by multiplying two regression *unstandardized* coefficients.

In all, the statistical approach used here follows an established tradition in this general area of research. It allows for the specification of the integrity of the derived model which can be assessed with clear indications of variable overlap, directionality, and the presence of mediator variables. Importantly, the approach used here will allow for an articulation of the final results as specified in H4.

V. RESULTS

5.1. Focus Group Interview Findings

Prior to writing survey questions, a series of focus group interviews were conducted with 21 students to identify variables in the description of daily use of new media among college students and to assist in the definition and operationalization of variables. One of the major findings in the focus group interview was that the subjects developed a variety of relationships with new media, and some of them showed a "dependency" relationship. Also, the embeddedness of new media into their daily routine was clear in that they feel very dependent on the medium.

General media use of the participants involved recreation-oriented activities (e.g., browse for fun and obtain shopping information). Almost 65% of them said they use the Internet more for recreation than any other media during the weekdays. During the weekend, many participants said TV is still the medium of choice. It was during one session while talking about general media use that the moderator explored other media consumption to assess its relation to new media uses, dependency, and outcome variables.

Several participants said they use the Internet solely as an information utility (e.g., to get news and specific information when needed). The majority of participants indicated that the Internet is their most used source of news and information. At the same time, most of them say they perform important life activities online (e.g., do school-related research and find leads about jobs) and conduct some kind of transaction (e.g., buy a product). In terms of the aforementioned activities, some of them said they are totally dependent on the Internet and do not think of other ways to perform those activities.

All of the participants agreed college students use new media on a daily basis, and many of them are engaged in habitual new media use and experience "embeddedness" of new media. One participant expressed her obsession for storing up contents in her "space" at a very popular social website. She expressed that her daily life and her interests are meshed with the site and the information she has accumulated. However, interestingly, the site was popular among the freshmen but not for senior students. This may indicate that there exists a gap among the college students, and the level of dependency is more influenced by the popular content among the peers than gender or individual difference in what they value as "readable" content.

Even though the vast majority of participants go online during a typical day, it was not necessarily for mass communication. Instead, they read and send email, using the Internet as a means of interpersonal communication, which is not directly related to the (mass) media effects aspect of the medium. However, it was not easy for them to grasp the difference the moderator explained. Therefore, it seems appropriate to include a control variable of how much students value new media as a means of interpersonal communication to "control" (statistically) its possible influence on other variables (e.g., new media dependency and outcome variables). A few students had hard time understanding the difference between interpersonal and mass communication. The main problem with the distinction seems to be related to the fact that among the information and contents available online it is really hard to tell whether the content was originally for interpersonal or mass communication. So, it was very possible that their affinity for the medium could be intertwined with the respective medium's definition. This indicates that the distinctions proposed may need statistical control to partial out this effect.

As just mentioned, the focus group study suggested the implication of "popular" content or applications used by and depended upon by many students. Being dependent on the medium for popular content might tap into some other psychological factor such as peer pressure to keep up with what friends are doing. This dependence did not seem to apply to traditional media.

Using new media to meet "goals" was stated as an important motivator but many expressed a digression tendency. Some participants are "curiosity-driven" ritualized users who "enjoy," while some "automatically gravitate" to online contents whenever and wherever available. The patterns of information processing seem to be related to their degree of dependency. Even the concept of ritualized use needed to be explored within the new media context.

One participant mentioned that he uses this UGC or UCC site that is full of funny videos to cheer himself. For many, the availability of UGC or UCC is definitely one of the major reasons for use of the new media. A few of them actually "create" their own content to upload, and most of them actually post links or paste content to their own "space." Most of participants talked about this "participatory" or social media attributes of new media use. The moderator affirmed that Participatory Use (PU) is a behavioral pattern, distinctive from the ritualized and instrumental behavioral patterns. As long as it is categorized as "distinctive" in factor analysis, it can be used to represent a unique aspect of new media use.

Expanding beyond the traditional dimensions of goal-resource relationships of MSD, the Internet has become a unique and powerful resource of information. The use of the word "media" almost felt too old and shallow to denote the immensity of the plethora of

information and content available through new media, especially with the newly added communication paths available through social media, user generated content (UGC) or user created content (UCC).

Some were unconsciously and deeply engaged in a "paradoxical" relationship of dependency and self-efficacy, which makes the medium powerful. As use increased, so too does the sense of self-efficacy but this then heightens the possibility of being more dependent. The relationship between active use and dependency needs further exploration. Some expressed that the more they use new media, the more they feel attached to it. Along with the sense of attachment comes the feeling of control and efficacy. A male subject from one focus group said,

"I can get or retrieve whatever information I need in less than 10 seconds, on average. I wish I could have the Internet access during exams… then I will always get A+ in all subjects."

The feeling of efficacy and control over the medium and information seems to go together. Also, it seems to be closely related to the feeling of dependency. However, the relationship seems paradoxical in a way that the feeling of dependency seems to bestow power to the medium, and at the same time, the feeling of efficacy is empowering the audience. However, there existed notable individual differences among the subject.

During the first two sessions, when it felt like interviewees are talking about their extensive engagement with RU, they seemed most attached to the new media. RU is one of the most pertinent aspects of a media habit (Rubin, 1984). But in later sessions, it felt like it did not have to be that way. It evolved that the habit is not only expressed in user's behaviors but also in user's psychological response. It is not only about behavioral patterns

they display but also or even more so about how much they feel attached to it. Therefore, even the notion habit could be an admixture of both behavioral and psychological domains.

New media in the daily routine of college students is almost indispensable. The medium has become so embedded as their personal and academic tool for its practical utility. Especially for academic purposes, all of the subjects in the focus groups expressed that they use new media to do their assignments almost every week. Instrumental use of the medium is mainly related to this aspect. Using the medium as an instrument to be successful (e.g., in getting a job, or making money) is the main purpose of IU for many of them, even more so than for academic purposes. This appeared to be a strong enough reason for them to be dependent on the medium and its utility. But at the same time, searching behavior, which is the major activity of utility, seems like it could become a ritual as well for many new media users.

Some participants expressed a strong powerful domain of instrumental use that they often find themselves typing in keywords "almost automatically," spending hours to find something they felt like they have to find. With the ever-dominant popularity of "search" utilities like Google or Naver (the most popular Korean information and search site), it is expected that students would use new media longer and more frequently even more so than RU. One female student mentioned that she must have access to search engines and that this explained why she has the newest mobile phone.

> "I always need to have access to the Internet. Whenever, I have a curiosity in my mind, I have to go online and find the answer. It is my way of knowing things and I'm quite comfortable with it. I would say I'm addicted to the information seeking… not only for its merit but also as a habit. It is just a habit of mine and I feel like, I mean, I know that I'm becoming more knowledgeable… The Internet has become a part of my brain, almost, and I can't live without it."

In one session, two participants were busy telling about their "crazy" long hours with new media. One of them said he just happened to have that much time to kill. But he said he does not feel "dependent" on the medium. Meanwhile, several people mentioned that sometimes they doubt if they are dependent on the medium, especially when they discovered themselves killing time with the medium. However, ironically, they do not come close to being categorized as heavy users as found in other studies.

Several student mentioned in focus group study, "no particular reason" describes the essence of this type of behavioral pattern. In other words, RU might have to do with an undefined psychological motive. However, this was found in the survey to have the highest predictability for NMD. This suggests that NMD could also be a construct that has most to do with a psychological domain.

Among available media choices, the Internet is the medium where most of the subjects have the closest relationship. One female subject mentioned its significance, saying, "It feels like my companion for a lifetime. Well, at least, I don't need TV. It might have to do with the fact I write in my "space" on a daily basis like on a diary." It seems that the scope and magnitude of an individual's relationship with new media varies by participants. However, the majority of participants, excluding four subjects, shared an aversion or concern about aimlessly "ritualized" use and about the varying degree of its self-perceived effect. Most of those who describe themselves as "ritualized" users said they often find themselves spending too much time on the web and have thought about its negative impact. Some of them made a "self-diagnosis" that "the symptoms are serious."

Given the difference in the level of use and its undesired effect, it was confirmative to find that students who have a more intense existing relationship with new media show a

stronger influence with online content, especially when they have their own "space." Interestingly enough, all of them expressed their concern for spending too much time on, participating in, or writing too much as a daily routine. One student indicated that he "built" his daily routine around the Internet. He had his "business" online.

Except for two individuals, all of them make purchases regularly online. Some said they buy online once a month, solely based on the information they find online. Some even said they trust the information about products they found and that the overall buying experience has been satisfying. Even if their attitude and behavior history (e.g., online purchasing) are so embedded into new media and its content and information, does it necessarily indicate that they are the ones who are more vulnerable to the effect of media? Would they show higher intentions to buy online? Online consumer behavior would be an interesting topic to explore as one of the outcomes of new media effects, not necessarily from a content perspective but from their relationship with the media.

Throughout the sessions, the researcher came to think about the relationship between the new media culture the participants are creating and the medium itself. The researcher came to understand why the medium became an essential need as expressed by the participants and why they defined themselves as dependent on it. Relevant to this is the on-going debate about technology and people in terms of the power to predetermine the outlook of the environment between technological determinists (e.g., Innis, 1950; McLuhan, 1964; Ong, 1982) and social constructivists who study the issue of technology and society (e.g., Silverstone & Haddon, 1996; Williams, 1975; Winston, 1998). In one session, the researcher proposed this topic, and there was a seemingly never-ending debate

after one of the interview sessions about the issue that really helped the researcher assess

the overall tone for this particular study.

5.2. Survey Findings with Research Questions

The survey collected data on new media use habits, reflected in the amount or intensity of temporal new media use (i.e., time, frequency, and history) and the intensity of the three use patterns (i.e., Ritualized Use, Instrumental Use, and Participatory Use), across traditional media use habit, the level of dependency on new media, and possible outcomes. The purpose of the survey includes the exploration of the relationship between variables in relation to new media uses and traditional media uses. The survey also examines whether the new media use habit has any influence on individual's intention to engage in either prosocial and consumer behavior through the aforementioned Framework I.

And through Framework II, the study examines the relationship between the new media use habit and the outcomes; prosocial and consumer behavioral intention; as accounting for the mediation effect of dependency on the outcome variables. Framework I, which mainly looks into the differences in the mean and the correlation between variables, is examined in RQ2 through RQ7. And Framework II, which explores more specific relationships between variables through multiple linear regression, are examined in H1 through H4.

The subjects of the survey are college students from Korea, the country in which the embeddedness of new media into daily life has been studied, and the dependency on new media is found to be high even among those in many developed countries in the world (Choi, 2001; Rhee & Kim, 2004). The sample consists of 647 participants, 59% of whom are female (N=389), while the rest, 41% are male (N=258). These students studied in different majors from four Korean universities located in a metropolitan area. Their age range from 17 to 27 years old, and the average age of a subject is 23.35 years old. The

majority of students by academic standing are undergraduates (62.4%) whose ages ranges from 20 to 23 and is fairly evenly distributed by these years. The mode of participants' age is 21 years old (N=118) which comprise about 20% of the sample. In terms of their self-perceived academic achievement, 48.5% of the subjects said their academic performance is mediocre, 26.3% said it is lacking, and 18.1% said their performance is good.

On the question about how much the participants "value" individually interested or socially interested new media content, the average was 3.72 on the 1-7 scale. It shows a slight tendency toward individually oriented value in choosing new media content. On the item asking about the perceived importance of new media as a means of interpersonal communication and maintaining relationships online, the average was 4.30 on the 1-7 scale, showing a clear tendency toward the thinking that new media are more important as an interpersonal communication medium than as a mass media. However, these two are control variables that "illuminate" the influence of new media as mass media, as controlling what previous studies suggested as factors influencing outcome variables.

RQ1. How are the uses of various media contents (e.g., information, news, and other media) from the Internet, TV, and newspapers alike in terms of time, frequency, and behavioral and cognitive patterns?

In order to explore how embedded the use of online information, news, and contents has become in the daily life of college students, in comparison with other media content uses, RQ1 uses exploratory descriptive analysis. The central tendencies of online media in terms of time spent and frequency are the highest among the media choices,

meaning that new media are the most used media among the subjects by far. As shown in

Tables 1 and 2, for information / news / content, the participants use the Internet most, on

average 11.50 hours per week (SD=8.27), compared to other media like TV, 9.38 hours per

week (SD=8.37), and newspaper, 2.92 hours per week (SD=3.87). They go online 6.78

times per week, 4.74 times for TV, and 2.85 times for newspapers. So, it could be said that

new media are the only mass media they use almost daily. They spend about 1 hour 40

minutes (11.50/6.78) on average whenever they go online for information, news, and other

contents. New media has become the most used mass media choice for college students in

Korea. Also, the average time they spend with TV is about 2 hours whentuned in but not as

frequently as they are connected to new media.

Table 1. Means and Standard Deviation for New Media Content Use

	All Subjects	Male (N=258)		Female (N=389)	
Online Info./News/Content Use Hours per Week [UT]	Mean (SD)	Mean	SD	Mean	SD
	11.5 (8.27)	11.83	9.60	11.21	7.26
Times per Week [UF]	6.78 (5.23)	7.36	5.24	6.25	4.81
History (in years) [UH]	7.25 (2.51)	7.17	2.86	7.23	2.27

As shown in Table 1, generally males spend slightly more hours per week

(M=11.83) on the Internet for information, news, and other media contents than females

(M=11.21). On average they have been using new media, (i.e., Internet as mass media), for

7.25 years. Considering the average age of subjects (23.35 years old), it could mean that

the subjects started using the Internet as mass media of choice, on average, from about the

age of 16 years old. About 22% of subjects have used new media for more than 10 years,

making their starting age 13 years of age on average.

As shown in Table 2, there are some differences between males and females in terms of time spent with TV and newspaper per week. In terms of TV use, the females used 1.71 hours more (10.26 hours) on average than the males (8.55 hours). However, the males used 1.12 hour more (3.66 hours) on average with newspaper than the females (2.54 hours). This will be discussed further in a later section with RQ4.

Table 2. Means and Standard Deviation for Mass Media Use

	All Subjects	Male (N=258)		Female (N=389)	
TV Info/News/Content Use Hours per Week [TVUT]	Mean (SD)	Mean	SD	Mean	SD
	9.38 (8.37)	8.55	8.51	10.26	8.46
TV Info/News/Content Use Times per Week [TVUF]	4.74 (2.79)	4.55	3.16	4.87	2.53
Newspaper Use Hours per Week [NPUT]	2.92 (3.87)	3.66	5.42	2.54	3.42
Newspaper Use Times per Week [NPUF]	2.85 (2.30)	3.30	2.52	2.56	2.10

RQ2. What is the relationship (correlation) between mass media (TV and newspaper) use and new media use?

In order to see the association in media use throughout the media outlets, Pearson Product Moment correlation coefficients [r] were computed between the UT and UF of

mass media and new media. This also explored if there is any relationship between the temporal dimension of mass media use and new media use. If a subject uses different media at an extreme level compared to others, then he or she can be categorized as an overall heavy media user.

The time spent online for information, news, and other media contents and the time spent on TV shows a slight, yet high correlation ($r = 0.187$, $p < 0.01$) among the UT of various media. This seems to imply that some individulas who spend more time on new media also spend more time on TV. For those heavy media users, new media UT seems to spill over to UT of TV. The correlation of the use frequency between TV and newspaper is; $r = 0.174$ with $p < 0.01$; showing the highest correlation among the UF. The more often people watch TV, the more often people read newspapers. Also, the more often people go online, the more often people read a newspaper ($r = 0.158$, $p < 0.01$).

Table 3. Correlations among the Temporal Dimension of Use across Various Media

	NMUF	TVUT	TVUF	NPUT	NPUF
NMUT	.359 **	.187**	.125**	.093*	.076
NMUF		-.006	.081*	.084*	.158**
TVUT			.561**	.003	-.014
TVUF				.110**	.174**
NPUT					.446**

* $p < .05$, ** $p < .01$, ***$p < .001$

However, it is interesting that in terms of use frequency, TV and newspapers are most related, and new media UF is more correlated with TV than newspaper use as

provided in Table 3. Also, new media UF is not significantly correlated with newspaper UF. Throughout the media, UT and UF are highly correlated within the same media, yet they are rarely correlated with different media. This seems to indicate that UT and UF are different concepts than identified in some previous studies (e.g., Pinkleton, 2002) that tried to use them together to operationalize the same concept of the temporal dimension of use. The findings of those studies may need re-examination given the findings obtained here. Also, the current approach to operationalize "use" in a separate temporal dimension with UT, UF, and UH seems appropriate.

Within the use of same media, TV [TVUT and TVUF] shows the highest (r = 0.561, p < 0.01) between UT and UF, then newspaper [NPUT and NPUF] shows the second (r = 0.446, p < 0.01), and lastly, Internet [NMUT and NMUF] shows r = 0.359, with p < 0.01. The fact that new media has the lowest correlation supports that new media has the longest use time whenever people go online and might imply that new media has the most information that people can browse and consume time.

RQ3. What are New Media Use Patterns [UP] like? How are the patterns related to each other?

As shown in Table 7, Ritualized Use [RU] averages 3.47, Instrumental Use [IU] averages 3.54, and Participatory Use [PU] averages 2.57, on a five point Likert scale (1 showing the lowest level of specific use, 5 showing the highest level of specific use). On average, the subjects show the highest tendency of RU, while showing the lowest tendency for PU.

In regard to RU, subjects have shown habitual use patterns, which are linked to "killing time" aspect in their use behaviors. About 85% of the participants showed a tendency for habitual use of online information/news/contents. More specifically, 29.8 % of the participants answered that they "occasionally" go online as a habit without any particular purpose, 47.6% said to do so "often," and 9.7% answered they "always" go online as a habit for no particular reason. A similar RU pattern was found when the participants were asked if they use online information, news, and other media contents to "kill time." Here, 32.9% of the participants said they "occasionally" kill time online, 42.7% do so "often," and 6.5% do so "always."

The notion of RU is related to the use of media for entertainment. As expected, there is strong evidence that college students are using online information, news, and other contents for entertainment. When they were asked about using online information "for fun," 38.9% said they "occasionally" use it for fun, 34.7% do so "often," and 4.5% said they do it "always."

As the social media takes the center stage with the proliferation of social network sites and other social media sites, so does the embeddedness of new media in the life of college students. However, previous studies addressing the participatory use of information, news, and contents among this age group are rare. In terms of operationalization, Participatory Use [PU] mainly focused on individual user's playing a role as a source of information or content in the process of online mass communication. "Participation" in mass communication through posting original content, or making a link for content made by others and available to an audience is an example of PU.

When asked about their PU of new media, which was defined as voluntary act of sharing or transporting information, news, or other forms of media contents (including their own), 66.8% answered at least "occasionally": 34.2% answered they do it "occasionally," 28.3% said they do it "often, " and 4.2% said they voluntarily share or transport information, news, and other contents online. Another famous participatory use of new media is producing user generated content (UGC) or user created content (UCC), which was described as producing or "editing" online media content in different forms (such as text, image, or video) to be shared or transported. More than half (57.8%) of participants said they do it at least "occasionally": 31.6% said they do it "occasionally,' 22.5% said "often," and only 3.6% said "always." However, by adding all three answers which said they do it at least "occasionally" it can be interpreted that 66.7% and 57.7% of participants play a role of "one person mass medium" online.

Also, in regard to PU, about 55% of participants said they share their opinion or ask for others' opinion online, at least "occasionally" (by participating in the "discussion") on a social issue, and 54.9% of participants said they inquire or share information about commercial products at least "occasionally." It is interesting to find that both outcome variables share almost identical percentage of subjects.

The use level of subjects turns out to be high with instrumental use (IU). In terms of operationalization, IU focuses mainly on getting information and using the Internet as a tool to get "intellectual" gratification. When asked about using search engine by typing in keywords, 32.6% of the subjects said "occasionally," 43.7% said "often," and 11.3% said "always."

As seen in Table 4, new media UP are all highly related to each other. Especially, RU and IU show the highest correlation. Given the result of confirmatory factor analysis that demonstrates they are very distinguishable characteristics, it seems appropriate to say that the case is either RU is becoming more like IU, or IU is becoming more like RU. But it is more likely to be the latter. As noticed in the focus group, "almost automatically" users of new media type in keywords to search, suggesting IU is becoming more like RU.

Table 4. Correlation among the New Media Use Patterns

	Ritualized Use	Instrumental Use
Instrumental Use	.490**	
Participatory Use	.325**	.249**

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

RQ4. How does media use (reflected in terms of media use and use patterns) vary by the different characteristics of the sample in terms of gender, age, and value?

A series of independent-samples t-tests were conducted to evaluate the hypothesis that the intensity of media use may be influenced by gender, age, and value. First, in terms of gender, the males go online more often, 7.57 times per week, than females (m = 6.27), and the difference is found to be statistically significant (t = 3.06, p < 0.01). However, the time they spend on the Internet is almost identical so that no statistically significant difference was found: the male use being 11.85 hours, and the female use at 11.24 hours. This seems to show that although males and females show similar use in terms of UT, they differ in the frequency that males go online more often but for a shorter time period than

female. This might suggest that there is a difference in attention span or efficacy among different genders. In terms of use patterns, it is noticeable that the males spend more time on Participatory Use [PU] (m = 2.69) than the females (m = 2.50) and the difference is statistically significant (t = 2.94, p < 0.01). The male students in general are more involved with PU in that they are more likely to be "active" participants in the communication process online, possibly contributing to the interactivity online. The male students are more likely to share information, content, or opinion. No gender difference is found with Ritualized Use [RU] and Instrumental Use [IU].

The gender differences in various media use were found. Overall, the females spend more time using TV and the difference is statistically significant (t = -2.63, p < .01). However, with newspapers, the males spend more time using the media (t = 2.89, p < .01). With different Use Patterns, the females spend more time with RU and IU but the differences are statistically non-significant. As mentioned above, the males spend more time with PU with a statistically significant difference.

Secondly, for age differences, it is interesting to find out that there is no statistically significant age difference in the time spend with new media. Again, the time spent per week was not influenced by age differences, as was the case with gender differences. It is likely that UT is a variable that has been "standardized" to show overall equality among different demographics. In other words, UT could reflect the prevalent "embeddedness" of new media into the daily routine of the subject. However, again, there's a statistically significant age difference in terms of Use Frequency (UF). UF was also influenced by gender difference. The findings seem to suggest that when we are considering the influence of use variables (i.e., UT and UF) on our dependent variables, UT is more of an

"independent" variable that shows lower collinearity, when other independent variables like gender and age are considered. With that in mind, in our further analysis of multivariate statistics, only UT will be considered among the two when gender and age are not stepped into a regression model as control variable.

Back to the age difference, oddly enough, the older group goes online more frequently (7.55 times per week) than the younger group which goes online 6.29 times per week. Consideration of the average ages for both group may help our understanding of this finding. The average age of the older group is about 26 years old, while little less than 21 years old for the younger group, with the age difference of 5.43 years. The younger group, who is is likely to be just out of high school, might have less reason to be online for information than the older group who might need to "utilize" online information for more reasons (e.g., job, career).

Considering the social context, Korean males have an obligation to fulfill military service in the army, it becomes plausible that the group of people whose average age is 26 years are "busy" using online information/content for their future. In Korean society, a "typical" college student might spend most of their time exploring consumer information/content as preparing for many examinations and interviews when seeking a job. Although it was not statistically insignificant, UT also shows that the older group use more time per week in using online information/content, which makes the explanation of the social context in Korea more plausible.

Newspapers were used more among the older group also with a statistically significant difference (t = -3.02, p < 0.01). Both findings are also consistent with the previous explanation of the Korean social context for the age group difference. Meanwhile,

it was found that TV was used more among the younger group with a statistically significant difference (t = 2.97, p < 0.01). Considering the findings in numerous uses and gratification research (e.g., Ko, 2005; Rubin, 1994), the differences in use with newspapers and TV seems plausible that younger students would use TV more for "entertainment" while the older group uses newspaper more for "information and surveillance."

In terms of different use patterns, only Ritualized Use (RU) shows statistically significant age differences. Younger participants use the Internet for more RU (m = 3.55) than the older participants do (m = 3.36), showing a statistically significant difference (t = 3.91, p < 0.01). So, it is fair to say that the younger group is more likely to be engaged in RU for entertainment. Partly, it might have to do with the fact that RU is associated with the entertainment aspect of media use that was just mentioned in the comparison of TV and newspapers. As discussed in the literature review, the ritualized use of media is linked to the use of media for leisure and entertainment purpose. The survey does include some items on the entertainment use to conceptualize RU.

Meanwhile, there was no statistically significant age difference in IU and PU. It might suggest that both age groups engage in IU and PU without much difference in degree. Indirectly, the fact that no age difference was found with IU and PU seems to support the validity of the measurement that they measured what they were supposed to measure. It was expected that there would be no age difference in IU and PU, and those uses are similarly embedded as a crucial part of the subject in a university setting.

Lastly, the subjects were asked to indicate what they value as "readable" contents online. In doing so, this study assessed the "value" of participants in media use. On a 7-point bi-polar scale, the content of individual interest is marked as 1 and the content of

social interest is marked as 7. Divided into two groups, means were assessed. Value has been studied in the early days of Internet research, especially with the topic of Internet adoption (e.g., Rhee, 2004; Zhu, 2002). In those studies, "value" of individuals was one of the variables of possible adoption of the Internet. However, in this study, it is assessed as control variable for outcomes.

Unlike findings in Internet adoption studies, value is no longer a significant predictor of differences in new media use behavior and no value differences were found to be statistically significant. It might have to do with the fact that students are no longer in the phase of adoption, and the notion of novelty should be readdressed, or that "new" media are no longer new.

The various means of use does not show statistically significant differences along with the values. This seems to imply that regardless of what people indicate for the value of their use habit, it has already been embedded into their daily life. Thus, it is hard to expect that their "values" are reflected in the new media use which is more of a practical matter in a university setting. Indeed, the new media has become more of a survival tool than a measure of value.

Table 5. New and Mass Media Uses by Audience Characteristics

			NMUT	NMUF	TVUT	NPUT	RU	IU	PU
Gender	**Male** N=258	M	11.85	7.57	8.33	3.48	3.42	3.50	2.69
		SD	0.60	0.35	0.51	0.27	0.03	0.03	0.05
	Female N=389	M	11.24	6.27	10.08	2.53	3.51	3.57	2.50
		SD	0.37	0.25	0.42	0.17	0.03	0.02	0.04
	t-value		0.86	3.06**	-2.63**	2.89**	-1.86	-1.63	2.94**
Age	**Younger** N=358	M	11.25	6.29	10.17	2.51	3.55	3.58	2.62
		SD	0.37	0.26	0.45	0.18	0.03	0.02	0.04
	Older N=256	M	12.04	7.55	8.25	3.49	3.36	3.49	2.50
		SD	0.61	0.34	0.46	0.26	0.03	0.03	0.05
	t-value		-1.09	-2.90**	2.97**	-3.02**	3.91***	1.75	1.75
Value	**Individual** N=278	M	12.31	6.70	10.10	2.62	3.48	3.52	2.58
		SD	0.53	0.22	0.50	0.20	0.03	0.03	0.04
	Social N=368	M	11.31	7.64	9.03	3.10	3.47	3.58	2.58
		SD	0.59	0.59	0.67	0.31	0.05	0.04	0.06
	t-value		1.21	-1.47	1.28	-1.34	0.16	-1.06	0.09

* $p < .05$, ** $p < .01$, ***$p < .001$

RQ5. How are the Use Patterns (UP) of new media related to the temporal dimensions (i.e., UT, UF, UH) of new media use and of other media?

Correlation analysis is used to determine if a certain type of behavioral pattern in new media use is associated with the length of use, the frequency of use, or use history. The characteristics of Use Patterns (UP) of new media will be assessed by looking at its relationship with the temporal dimension of new media use and of other mass media use. Overall, UP shows "weak" to "moderate" correlations with new media use time (UT), new media use frequency (UF), and new media use history (UH).

Among the UP, Instrumental Use (IU) shows the strongest positive correlation with all three temporal dimension, yet still it is a moderate correlation in terms of its magnitude. First, with NMUT, IU shows a moderate positive correlation, $r = .204$, $p < .001$, as shown in Table 6. It postulates that if subjects use new media for more of IU, they tend to use it longer than other UP. Second, with UF, it shows a weak positive correlation, $r = .174$, $p < .001$. It suggests that the more the subject uses new media for IU, the longer and the more frequently the subject uses new media. Lastly, with UH, it shows a weak positive correlation, $r = .113$, $p < .01$, implying that the more the subject uses new media for IU, the longer the subject has used new media.

PU also shows overall moderate positive correlations with two of the three temporal dimensions. It shows a positive correlation with UT, $r = .197$, $p < .001$, and with UF, $r = .105$, $p < .01$ but not with UH. This seems to suggest that even if the subject has used new media for a long time, that does not have influence on PU. However, RU shows

positive correlations with all three dimensions of new media, and among them, it shows the highest positive correlation with UT, r = .193, p < .001. While the subject showed longer UT with PU, the subject showed more frequent use with RU. This seems to support that RU is related to more frequent use, while PU is associated with longer use.

In regard to the relationship with UT and UF of other media, it is also noteworthy that PU, the unique aspect of use behavioral pattern of new media, is negatively correlated with both UT and UF of TV use, while it is positively associated with newspaper use in terms of temporal dimension. With the UT of TV, PU shows a weak negative correlation, r = -.137, p < .001, and with the UF, PU barely shows a negative correlation, r = -.115, p < .001. This appears to indicate that if the subject uses new media for PU purposes more often, compared to other UP, then they use TV for less time and also less frequently. The finding seems to suggest that college students who are spending more time with PU find less time and less frequency for TV use. Also, UT shows similarly strong correlation with all three patterns of use, while the use frequency shows much stronger correlation with PU.

Table 6. Correlation between Use Patterns and New and Mass Media Uses

	UT	UF	UH	TVUT	TVUF	NPUT	NPUF
RU	.193***	.122**	.087*	-.009	-.071	-.023	-.071
IU	.204***	.174***	.113**	.026	.016	.060	.046
PU	.197***	.105**	.017	-.137***	-.115**	.144***	.090*

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

It is an indirect evidence of comparatively strong habitual characteristics of IU as found in the focus group. The subjects of the focus group mentioned that they often find

themselves typing in different keywords numerous times to find whatever they want. With the ever-dominant popularity of "search" utilities like Google or Naver among young audiences, it is expected that students would use new media longer and more frequently.

Regarding PU, it is interesting to see that newspaper UT shows a moderately positive correlation. This might imply that people who use new media for more of PU spend more time with newspapers. Newspaper use was considered to fulfill our "instrumental" aspect but, instead of showing a correlation with IU, it shows a correlation with PU. It appears that PU might be related to newspaper UT. Considering the fact that PU users depend on mass media as the source of content for PU, the finding seems plausible. Contrarily, the same PU is not transferable between new media and TV and, thus, rather opposite this in that people who go online for PU tend to spend less time with TV (r = -0.137, p < 0.01). This negative correlation seems to indirectly suggest that to begin with, PU of new media and TV have different functions, one being the source or transmitter of media content, and the other being the consumer of media content.

Also, it is remarkable that RU of new media does not spill over to the use time for TV and newspapers. So, those who use new media for RU do not necessarily use other media longer, while they do use new media longer and more frequently. Considering the fact that UT of new media and UT of TV reveal a weak correlation (r = .187, p < .001), the fact that RU did not have a significant correlation with the temporal dimension of other media seems to suggest that the measurement of RU has captured the behavioral pattern of overall use.

In order to further clarify the relationship between new media use patterns (RU, IU, and PU) and different user groups (light, moderate, and heavy users) based on UT of new

media, the differences in means are assessed along with the user group. A one-way analysis of variance is used to evaluate the relationship between UT and the changes in the degree of RU, IU, and PU. There is a difference in each UP according to the user group based on UT of new media; light, moderate, and heavy UT group. The independent variable, UT of new media, included three levels: Light UT, Moderate UT, and Heavy UT.

Table 7. Use Pattern Sorted by Difference in Use Time of New Media (Light, Moderate, Heavy User)

UT		RU ++	IU ++	PU ++
Light	M	3.31+	3.33+	2.42+
	SD	0.62	0.64	0.86
Moderate	M	3.46	3.50	2.47
	SD	0.61	0.61	0.79
Heavy	M	3.63+	3.61+	2.82+
	SD	0.59	0.59	0.80
	F	13.68***	11.43***	10.79***

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

+ Scheffe test result shows significance difference in the mean of the group.
++ UP scales are 5 points Likert scale, ranging from 1, the lowest degree of use in a specific UP to 5, the highest degree of use in a specific UP.

First, the strongest mean difference of the three UP is with RU. As shown in Table 7, the ANOVA was significant, $F(2, 714) = 13.68$, $p < .001$. The strength of relationship between UT and RU, assessed by Eta Squared, was weak, with the UT factor accounting for 4% of the variance in the dependent variable. The rest of the mean differences of three

UP along light, moderate, and heavy uses are found to be significant, for IU, F (2, 714) = 11.43, p < 0.001, and for PU, F (2, 714) = 10.79, p < 0.001.

As shown above in Table 7, new media light users' mean for the IU scale (1–5) is 3.33, the highest among the three UP. Compared to the light users' mean of PU, which is 2.42, it is considerably higher. Even a very light user of new media uses new media most for IU—with PU being what a very light user uses new media the least. It is interesting to see among the light users that IU is the highest UP, and meanwhile, among the heavy users RU is the highest UP. Also, Scheffe test shows a statistically significant group difference between Light and Heavy user groups in all three UP.

RQ6. What is New Media Dependency (NMD) like, according to the characteristics of the subjects?

New Media Dependency (NMD) is an application of media dependency (Ball-Rokeach, 1989) linked to the context of new media. Unlike the variables of media use and behavioral patterns, NMD is a psychological construct, assessed by asking about how people actually think and feel about new media. Dependency can include unbalanced power between audience and the medium. An analogy can be made of our interpersonal relationships, and that the nature of those relationships can be assessed indirectly, for example, with an assessment that asks how long people spend time together. More directly, dependency can also be measured by asking what people think and feel about the other or with questions asking how much one feels dependent on the other (Giles, 2003).

Table 8. Means and Standard Deviation of Major Variables

Major Variables		Mean	SD
Use Time (UT: Hours per week)	New Media	11.50	8.27
	TV	9.37	8.37
	Newspaper	2.91	3.87
Use Frequency (UF: Times per week)	New Media	6.78	5.23
	TV	4.74	2.79
	Newspaper	2.85	2.29
Use Patterns (UP: 5 point Likert Scale)	Ritualized Use	3.47	0.62
	Instrumental Use	3.54	0.57
	Participatory Use	2.57	0.83
Dependency (7 point Likert Scale)	New Media Dependency	4.64	0.92

As found in the focus group study, the majority of college students use new media on a daily basis, and many of them are engaged in habitual new media use and experience "embeddedness" of new media. As shown in Table 8, college students in this study are considered heavy users of media in general (Morahan-Martin, 2007). They spend over 23 hours per week, averaging over 3 hours per day, and use the media over 14 times per week. Compared to other media, new media are the most used.

Overall, subjects showed a moderate tendency toward dependency. On a scale of 1-7, considering the fact that "4" indicates neutral, the mean for dependency is 4.65 which suggests a moderate tendency toward dependency. However, the standard deviation of this variable is only 0.92 that this shows little overall deviation in this measure. This appears to support the embeddedness of new media into the daily life of all subjects. For the majority of college student, new media are an integral part of daily life.

As shown in Table 9, there is no statistically significant gender difference in NMD. Additionally, "value," a frequently used variable in media use studies, is also not significantly influential for explaining the differences in NMD. Only age was found to be statistically significant to influence variability in NMD. In regard to age, given the pace of changes in the development of new media application and the proliferation of popular content, the average age difference of 5.43 years is large enough to induce differences in dependency. It was found in the focus group study that there was a very popular online website for content appropriate for incoming college students but not for senior students. This may suggest that the level of dependency is more influenced by popular content among the peers than gender or individual differences in what they value as readable content.

It is noteworthy that the younger people show higher NMD. It could mean two things as reflected in the questionnaire. First, they are psychologically more likely to be affected by the influence of the medium in their daily life, and hence, more psychologically dependent on the medium. Or, it could also mean that, for practical reasons, they are more dependent on its function or its utility for their daily needs. Popular content or applications become the focus of many students who become new media dependent. Being dependent

on the medium for popular content might have some other psychological influences such as peer pressure to keep up with what friends.

It has been noted that the younger people are higher RU, but not higher IU nor PU, and this might suggest that it is due to RU. IU clearly has more to do with the functional aspect, while PU can represent a combination of both attributes. RU itself has more to do with psychological motives and it might have influenced NMD to be higher. It could mean that their RU is the main reason why they are more dependent on the medium.

RQ7. What is the relationship between new media uses (in terms of UT, UF, UH, and UP) and New Media Dependency (NMD)?

In order to explore the relationship between the various aspects of new media use and how the subjects feel dependent on new media, correlation coefficients were assessed. Depending on the temporal intensity of new media use and the intensity of behavioral patterns of new media use, it is expected that the level of NMD might vary. Correlation

Table 9. New Media Dependency along the Demographic Groups

			New Media Dependency [NMD]
Gender	Male	M	4.60
	N=258	SD	0.95
	Female	M	4.68
	N=389	SD	0.90
	t-value		-0.97

Age	Younger	M	4.71
	N=385	SD	0.87
	Older	M	4.54
	N=256	SD	0.99
	t-value		2.25*
Value	Individual	M	4.65
	N=278	SD	0.98
	Social	M	4.64
	N=368	SD	0.88
	t-value		2.25

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

coefficients were computed among the five new media use scales. The result of the

correlational analyses presented in Table 10 shows that 6 out of the 6 correlations were

statistically significant and were greater than or equal to $r = .156$.

As the level of embeddedness of new media increases in daily life, NMD intensifies.

That is, the more people are engaged in ritualized use (RU) of new media, the more they

feel dependent upon the new media. In Table 10, RU shows a very strong positive

correlation with NMD ($r = .444$, $p < .01$). It has the strongest correlation with NMD among

the various aspects of new media. About 20% of the variance of the NMD variable is

accounted for by its linear relationship with RU.

This seems to suggest that when people are extensively engaged in RU, they are

"attached" to new media. This confirms a number of the comments made in the focus

group session and it is well established in the literature review section. RU is one of the more pertinent aspects of media "habit/time-killing" (Rubin, 1984). Habit is not only expressed in user's behaviors but also in user's psychological response. If both behavioral and psychological measures were valid, it seems natural that how subjects feel about media and how much they use media should have a high correlation coefficient.

The runner-up, in terms of its correlation with NMD, is instrumental use (IU), with $r = .440$, $p < .01$, which shows a high or strong correlation. As found in the focus group study, this strong correlation might have to do with new media being used in daily routines of college students and considered by them as almost indispensable. The medium has become embedded as a personal and academic tool for its practical utility. All of the subjects in the focus groups expressed that they use new media to do their college assignments throughout the semester. IU is mainly related to this aspect. Using the medium as "instrument" to get a job done is the purpose of IU. About 19% of the variance of NMD is explained by its linear relationship with IU.

It is interesting to find that UF is the variable least correlated with NMD. However, given the size of the sample, the correlation coefficient of .156 ($p < .01$) is still a statistically significant level although it explains only a small portion of the effect size. Meanwhile, UT has a higher correlation with NMD than UF (at .22, $p < .01$). This might imply that UT is a slightly more "accurate" predictor of NMD because it encompasses the time people spend on the medium. Another temporal dimension of new media use, UH has a weak but significant correlation ($r = .178$, $p < .01$) with NMD. The longer a user has used new media, the more that person is likely to be dependent on the medium.

However, it is noteworthy that PU explains a similar variance of NMD as UT. Before new media became the major medium of college students, many studies of traditional media tended to focus on UT, UF, and UH as major predictors of dependency. Now with new media as a major medium, PU is becoming increasingly important and embedded into the daily life of college students making it as "influential" as UT in predicting dependency.

Table 10. Correlation between New Media Uses and New Media Dependency

	UT	UF	UH	RU	PU	IU	NMD
NMD	.220**	.156**	.178**	.444**	.200**	.440**	1
CBI	.149**	.106**	.127**	.439**	.254**	.424**	.485**
PBI	.106**	.128**	.065	.365**	.430**	.429**	.415**

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

RQ8. What's the relationship between new media uses (in terms of UT, UF, UH, and UP) and the possible outcomes?

Various aspects of new media use are correlated with behavioral intentions. RU's relationship with consumer behavioral intention (CBI) is the highest (r = .439, p < .01) as illustrated in Table 11. When compared to prosocial behavioral intention (PBI) (r = .365, p < .01), RU is more highly correlated with CBI. This difference might have something to do with the nature of the intentions. Prosocial behavior, as shown in literature review, has more to do with rational or purposeful behavior while CBI has more to do with "leisure" or "fun" or recreational behavior.

PU is more highly correlated with PBI (r = .430, p < .01) than CBI (r = .254, p < .01). The more people use new media for RU, the more they are likely to have higher CBI. This difference supports previous studies of social capital (e.g., Lowrey, 2004). PU of new media has more to do with social orientation (i.e., CBI) than individual orientation or behavior. Meanwhile, IU shows similar degree of correlation with both PBI and CBI, r = .429 and r = .424, respectively, and both with p < .01.

The fact that UH has a moderately positive correlation with CBI (r = .127, p < .01) but not with PBI (r = .065, no sig.) seems to have some implications. The longer users have used new media, the more they are likely to have an intention to be engaged in consumer behavior online. Previous studies asserted that in order for people to be engaged in purchasing behavior, they have to feel competent about their online skills (Bellman, 1999; Lee, 1999). It is most likely that the longer users used new media, the more they feel competent about their web skills, and eventually they will feel more comfortable about buying online.

5.3. Survey Findings with Hypotheses

In order to verify the relationship between new media uses, New Media Dependency (NMD), and outcome variables, the following hypotheses are formulated.

H1. The new media uses will have influence on the outcome variables.

H2. The new media use will have influence on NMD.

H3. NMD will have influence on the outcome variables.

H4. With the influence of NMD controlled, the influence of new media use on the outcome variables will be diminished.

Following the Baron and Kenny's steps (1986) of analyses for mediating effect, H1 – H4 are tested along with control variables that include gender and age, and the individual characteristics include value, academic performance, and the perception of new media.

5.3.1. H1 with new media uses and outcome variables

H1. The new media uses will have influence on the outcome variables.

H1-1. Temporal dimension of new media use will influence the consumer behavioral intention.

H1-2. Temporal dimension of new media use will influence the prosocial behavioral intention.

H1-3. Intensity of behavior patterns in new media use will influence the consumer behavioral intention.

H1-4. Intensity of behavior patterns in new media use will influence the consumer behavioral intention.

First, a multiple regression analysis was conducted to evaluate how well new media use predicts online consumer behavioral intention. The predictors or independent variables include two aspects of the new media use habit, the three temporal dimension variables of new media use, and the three behavioral patterns of new media use. Tolerance level and Variance Inflation Factor (VIF) were examined to assess collinearity. None of the independent variables were found to have less than 3 for VIF indicating that there was little threat of collinearity.

The overall linear combination of the new media use measures was also assessed. They were found to be significantly related to the consumer behavioral intention index, $F_{(11, 531)} = 15.67$, $p < .001$. The sample's multiple correlation coefficient was .49, indicating that approximately 25% of the variance of the consumer behavioral intention index in the sample can be accounted for by the linear combination of the new media uses measures.

Among the variables of temporal dimension of new media uses, only Use History (UH) was found to be weakly but statistically significant with B = .085. However, the variables associated with behavioral patterns were all found to be statistically significant. Among them, Ritualized Use (RU) had the highest explanatory power (B = .264), Instrumental Use (IU), B = .214, and Participatory Use (PU), B = .114. A variable such as Ritualized Use (RU), Instrumental Use (IU), Participatory Use (PU), and Use History (UH) are then added as predictors and this increased the model's predictive power as the variance (R^2) of CBI increased by 16%, 4%, 1%, and 1% respectively. Besides RU and IU, the other two variables are barely noteworthy. However, interestingly, among the control variables, only gender was found to be influential and statistically significant (B = .108).

This result seems to show that college students' intention to engage in consumer behavior online is deeply related to their new media behavioral patterns, especially RU and IU. Using new media information and content as ritual has influence on consumerism. Also, "searching" for information/content is associated with the individual's intention to be engaged in consumer behavior. As shown in Table 4 above, the correlation between RU and IU is high, r = .490. Ritualized Use and Instrumental Use is highly correlated yet as found in the confirmatory factor analysis above, they are distinct constructs of a new media use pattern. Even though they have a high correlation, the explanatory power of RU is about four times higher than IU in regard to explaining the variance of PBI.

Table 11. Multiple Regression for New Media Uses and the Outcome Variables

H1	Consumer Behavioral Intention		Prosocial Behavioral Intention	
	Stand. Beta	T	Stand. Beta	T
+ Gender (M:0, F:1)	.108	2.620**	.029	.741
Age	.047	1.145	.034	-.857
Academic Performance	-.006	-.158	.026	.664
Value	.012	.318	.111	2.927**
Online Relationship	.008	.197	.059	1.543
UT	.008	.175	-.060	-1.426
UF	.002	.055	.034	.831

UH	.085	2.132*	.017	.443
RU	.264	5.787***	.037	.802
IU	.214	4.880***	.248	5.743***
PU	.114	2.272**	.335	8.113***
R Square	.245		.261	
Adjusted R Sq.	.229		.245	
F	15.672***		17.120***	

* $p < .05$, ** $p < .01$, ***$p < .001$
+ Some of the variables were dummy-coded.

As new media and its utility have become indispensable in virtually every aspect of the sample student's daily life, the behavioral patterns in its use seem to have mild to moderate predictive power for the development of consumer behavior. Traditionally, although media use has been considered as a predictor in previous consumer behavior research, the "immediate" utility of new media and its "projection" to consistency in behavioral patterns appears to be more influential than found in studies of traditional media and consumer behavior (e.g., Lenhart, 2005; Park, 2003; Wee, 1999).

The analysis of the influence of new media uses on prosocial outcomes, as seen in Table 11, reflect the linear combination of the temporal dimension variables and the intensity of behavior patterns in new media use. This resulted in a statistically significant model explaining components or factors of Prosocial Behavioral Intentions (PBI), $F (11, 534) = 17.120$, $p < .001$. Approximately 25% of variance in PBI is accounted by new media uses. As variables such as Participatory Use (PU) and Instrumental Use (IU) are added as predictors, the predictive power increases as the variance (R^2) of PBI increases by 15% and

6% respectively.

These results support a conclusion that PBI is related to PU and IU but not RU. Some previous research chastised media use as a major hindrance to prosocial behavior in society (Putnam, 2000; Shah *et al.*, 2005; Shah *et al.*, 2001; Uslaner, 2004). However, the fact that here it was found that PU reflects and predicts people's intention to engage in prosocial behavior is remarkable in the sense that the finding provides a different perspective to understand previous studies. This will be discussed in more detail in later sections. Also, IU and its utility aspect in relation to searching behavior have some predictive power for PBI.

The overall model of H1 was supported as shown in Table 12. Then, in order to verify H1-1, H1-2, H1-3, and H1-4, which looked into the differential influence of the temporal dimension and the behavioral pattern, further analyses were pursued. Six multiple regression analyses were conducted to predict the outcome indexes, following the analytic step of "the two unordered sets of predictors" (Green et al., 2000). The first three analyses were to predict CBI, and the second three analyses were to predict PBI. In each of the three analyses, both sets of new media dependency were entered into the model prior to including the three temporal measures; that is, UT, UF, UH were entered as a set of variables and then the use pattern set of predictors were entered (i.e., RU, IU, PU). The steps were repeated for both dependent variables to differentiate the change in variance (R^2) along with two sets of variables as predictors of the two outcome variables.

One by one, both sets were put into multiple regression analysis with control variables to predict the two outcome variables. The regression equation with the temporal measure set and CBI was significant, R^2 was .05, adjusted R^2 was .04, $F_{(3, 534)} = 5.65$, p

< .001. Therefore, H1-1 was supported albeit with weak effect sizes. Also, the regression equation with the use pattern measures and CBI was also significant, R² was .24, adjusted R² was .23, F (3, 534) = 20.67, p < .001, supporting H1-3. Based on these results, between the two sets of the predictors, the use pattern measures appear to be much better predictors of CBI.

The regression equation with the use pattern measures and PBI was significant, R² was .28, adjusted R square was .30, F (3, 532) = 30.16, p < .001. H1-4 was also supported. Meanwhile, the overall regression equation with the temporal measures and PBI were significant with R² at .06, adjusted R² = .04, F (3, 532) = 3.98, p < .001. However, individual variables of the temporal dimension were not statistically significant, hence H1-2 was not supported. Based on these results, the use pattern media also appears to be better predictors of PBI. Even though it was shown in the overall model, with all the independent variables included, that some (i.e., IU and PU) of UP are better predictor, with higher Standardized Beta values. Thus, the partitioning of this model can lead to the conclusion that individual variables were important in the model and not the entirety of the collected sets of variables entered using regression's hierarchical inclusion method. Following the step suggested by Green and his colleagues (2000), the predictive power of each set of new media use was verified and shown that the use pattern variables are, overall, better predictors for the outcome variables. Figure 7 depicts a summary of the findings from H1 highlighting only the statistically significant independent variables,

Figure 7. The Relationship between New Media Uses and the Outcome Variables
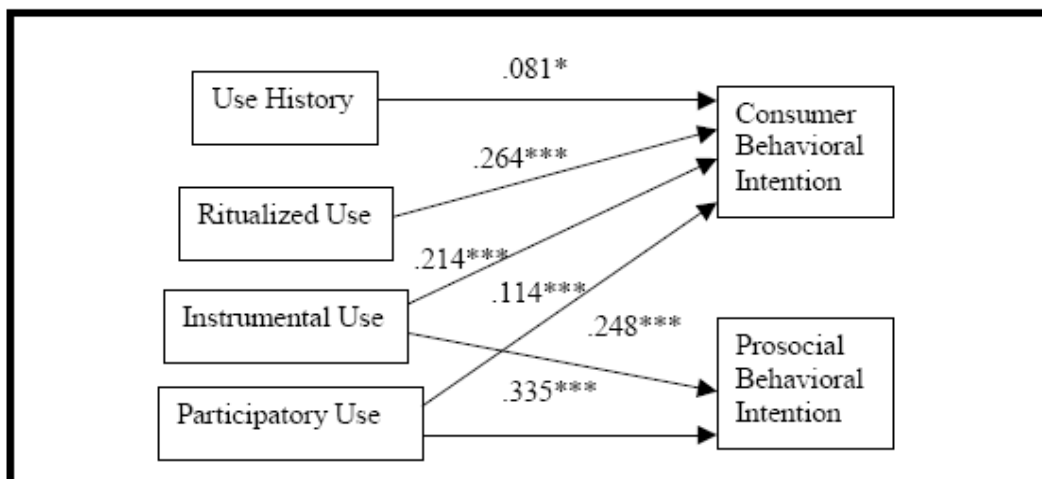
5.3.2. H2 with new media uses and new media dependency.

H2. The new media uses will have influence on new media dependency.

H2-1. Temporal dimension of new media use will influence the new media dependency.

H2-2. Intensity of behavior patterns in new media use will influence the new media dependency.

Multiple regression analysis was employed to verify H2, which is to clarify how the variables of new media use influence the new media dependency (NMD) variable. First, after controlling for gender, age, academic performance, value, and online relationships, the new media use variables were included into the regression model to predict NMD.

As seen in Table 13, the analysis of the relationship between new media uses and new media dependency, the linear combination of the temporal dimension variables and

the intensity of behavioral patterns of new media use are statistically significant in relation to New Media Dependency (NMD), F (11, 530) = 24.92, p < 001. The suggested model explains 33% of variance in NMD. Therefore, H2 was supported. As variables such as UT, UH, RU, IU are added as predictors, the predictive power increases as the variance (R²) of NMD increase by 4%, 1%, 12%, and 4% respectively.

As shown in Table 13, UT (Standardized Beta = .089, p < .05) and UH (Standardized Beta = .076, p < .05) are found to be significant predictors of NMD. The time students spend with new media does have influence on NMD; also, how long they have used new media influences NMD. As mentioned in the discussion of the focus group study, when students spend long hours with new media, they sometimes doubt if they are dependent on the medium.

However, UF, the time they go online per week does not explain NMD's variability. Interestingly enough, among the control variables, online relationships (Standardized Beta = .265, p < .001), which addresses the perceived importance of the Internet in maintaining interpersonal relationships, was the highest among all the variables—including the control variables. This supports findings in previous studies on new media use (Hindman, 2004; Lowrey, 2004) where the Internet is predominantly used as a means of interpersonal communication, such as email and chatting. This, in turn, is highly connected to the dependency or even addiction the users may feel.

Also, RU (Standardized Beta = .249, p < .001) is the strongest predictor of NMD and this is noteworty. Compared to the other behavioral uses, RU does not have a distinct "reason" or utility for use. Several students mentioned in the focus group study "no particular reason" to describe the the basis for this type of behavior. It is then possible that

RU may have to do with a psychological motive. Additionally, NMD is also a

psychological construct and this could lead to a shifting of the direction of how new media

behavior might be explained—with less emphasis on the media and their situation and

more emphasis on the person.

The regression model's pattern also explains NMD with IU (Standardized Beta

= .244, p < .001). This might suggest a "utility" aspect of search engines which are

embedded into the daily life of college students leading to feelings of dependency. PU did

not show any explanatory power with NMD and it may be premature to embeddedness of

this into daily routines.

Table 12. Multiple Regression for New Media Uses and the New Media Dependency

H2	New Media Dependency	
	Stand. Beta	T
Gender (M:0, F:1)	-.011	-.289
Age	-.019	-.482
Academic Performance	-.052	-1.430
Value	.050	1.383
Online Relationship	.265	7.279***
UT	.089	2.212*
UF	-.016	-.407
UH	.076	2.046*
RU	.249	5.795***
IU	.244	5.886***

PU	-.017	-.436
R Square	.341	
Adjusted R Sq.	.327	
F	24.918 ***	

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

To verify H2-1, a multiple regression analysis was performed. The overall model significantly explained 17% of variance in the dependent variable, NMD ($R^2 = .167$, F = 15.276, p < .001). Therefore, H2-1 was supported. Among the control variables, academic performance (Standardized Beta = .038, p < .05) and online relationships (Standardized Beta = .300, p < .001) were found to be statistically significant in predicting NMD. Among the independent variables, UT (Standardized Beta = .137, p < .05) and UH (Standardized Beta = .109, p < .05) were found to be the significant predictors of NMD.

A regression model can now be proposed to explain the intensity of the behavioral patterns of new media use on NMD. The linear combination of behavioral use patterns is significantly related to NMD, $F_{(8, 570)} = 37.353$, p < .001. Thirty four percent of variability in NMD is accounted by the intensity of behavioral use patterns. In this linear model, only online relationships were found to be significant among the control variables (Standardized Beta = .269, p < .001). Among the intensity of new media use variables, RU (Standardized Beta = .254, p < .001) and IU (Standardized Beta = .274, p < .001) showed statistical significance as predictors of NMD. Thus, H2-2 was supported. In order to highlight the findings from H2, Figure 8 is presented as below.

Figure 8. The Relationship between New Media Uses and New Media Dependency
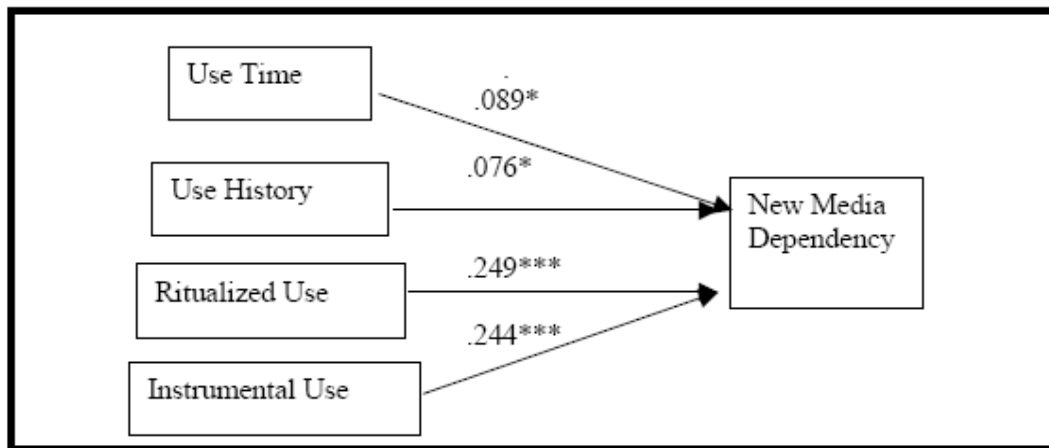
5.3.3. H3 with new media dependency and outcome variables.

H3. The new media dependency will have influence on the outcome variables.

H3-1. New media dependency will influence the consumer behavioral intention.

H3-2. New media dependency will influence the prosocial behavioral intention

In order to test H3, a multiple regression analysis was conducted to evaluate how well NMD measured the predicted outcome level. First, the linear combination of NMD measure, controlling for the influence of new media uses habit, was significantly related to the first outcome variable, Consumer Behavioral Intention (CBI), $F (12, 521) = 21.593$, $p < .001$. After taking into account control variables, the sample multiple correlation coefficient was .576, indicating that approximately 32% of the variance of CBI level in the sample can be accounted by the linear combination of NMD measure. Thus, H3-1 was supported.

As shown in Table 14, the variables that influence CBI level include gender (Standardized Beta = .098, p < .01), online relationship (Standardized Beta = -.086, p < .05) and NMD measure (Standardized Beta = .366, p < .001). Therefore, in order to predict the level of CBI, the degree of NMD needs to be assessed. Knowing how much students feel dependent on new media enables how much they are likely to be engaged in online consumer behavior. The linear model that contains NMD and gender explains the sample value of NMD approximately 21 times more than what is left unexplained. The fact that gender is found to be significant means that women students are more likely to be engaged in CBI. Also, their value of the Internet as a means of interpersonal communication is negatively associated with CBI and this implies that women may think less of new media as an interpersonal communication medium. Yet, they are still likely to engage in online consumer behavior.

Testing H3-2, another multiple regression was conducted to predict the overall Prosocial Behavioral Intention (PBI) index. The same predictor, NMD and control variables were entered into this model. The regression equation with NMD measure was significant, R^2 = .283, adjusted R^2 = .267, $F (12, 523)$ = 17.225, p < .001. Approximately, 26% of variance in PBI is accounted for by the model. As shown in Table 14, variables like NMD (Standardized Beta = .160, p < .001) and value (Standardized Beta = .099, p < .01) are found to be statistically significant in explaining the variance in PBI. Thus, H3-2 was supported as well. So, H3 was supported, and the finding is depicted in Figure 9.

Table 13. Multiple Regression for New Media Dependency and the Outcome Variables

H3	Consumer Behavioral Intention		Prosocial Behavioral Intention	
	Stand. Beta	t	Stand. Beta	t
Gender (M:0, F:1)	.098	2.631**	-.038	-.980
Age	-.031	-.820	-.038	-.950
Academic Performance	.014	.362	.035	.903
Value	.003	.086	.099	2.632**
Online Relationship	-.086	-2.221*	.018	.450
NMD	.366	8.292***	.160	3.517***
R Square	.332		.283	
Adjusted R Sq.	.317		.267	
F	21.593***		17.225***	

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

Of the two control variables, value shows a compatible finding with those of previous studies (Patwardhan & Ramaprasad, 2005); (Rokeach, 1973). Those who value the "social" interest (compared to that of "individual" interest) are more likely to be concerned with prosocial activities. Also, the negative association of gender indicates males are more likely to be involved in prosocial activity. When NMD is added as predictor—with the impact of the two control variables taken into account—the effect size of the PBI model (R^2) increases by about 9%.

NMD also incorporates the sense of dependency on new media for its "social" content and information. Unlike traditional mass media, new media brings content and information from everyone, what is also called social information. As noted in the focus group study, some students are dependent on that information and content, even more than on traditional media content. Students who are dependent on the contents of new media would be more likely to intend to engage in prosocial behavior. Interpretation of this finding will follow later in the discussion section integrated with the findings from the focus group study.

Figure 9. The Relationship between New Media Dependency and the Outcome Variables
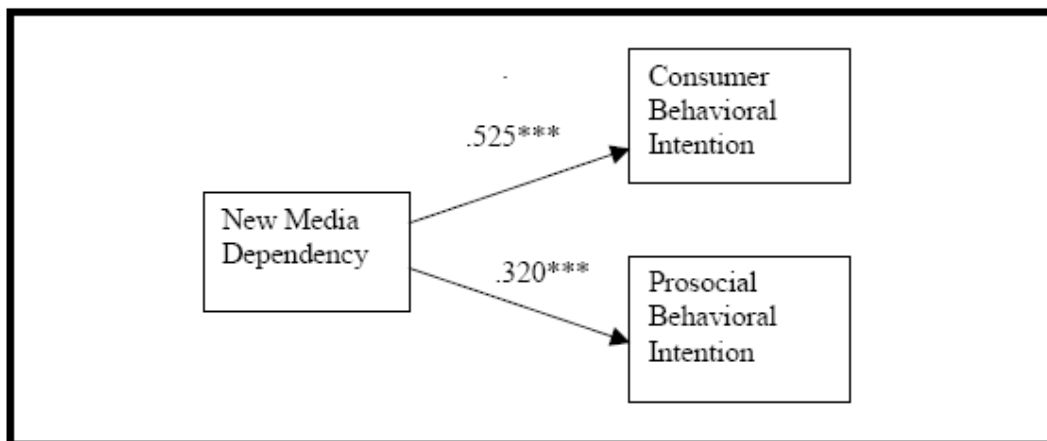
To summarize the findings so far, as illustrated in Figure 7 through Figure 9, it was found that various new media uses have influence on the outcome variables (H1); various new media uses have influence on new media dependency (H2); and new media dependency has influence on the outcome variables (H3). So far, according to Baron and Kenny's (1986) mediation effect analysis, all three hypotheses were supported. As many media use studies have been criticized, new media use alone can't fully induce consumer behavior and prosocial behavior. However, new media use can contribute to a relationship

of dependency with the medium, and the dependency can raise the likelihood that the behaviors of interest would occur. In other words, through the mediation of dependency, the relationship between new media use and the behaviors of interest can be verified or better explained. Previous media use studies have been criticized for linking or relating the use and behavioral outcome directly without considering the possibility of the mediation effect of a psychological construct such as dependency.

So far, as found in H1 through H3, the three conditions to determine whether mediation occurred have been established. The interaction effect of the statistically significant independent variables and the psychological construct (i.e., dependency) are also analyzed. The relation between the statistically significant independent variables and the outcome variables (i.e., dependent variable) is expected to be diminished. H4 will look into this last condition to determine whether the mediation of New Media Dependency (NMD) occurred.

5.3.4. H4 with the mediation effect of new media dependency

H4. Controlling the effect of new media dependency, the influence of new media use on the outcome variables will be diminished.

H4-1. With the new media dependency will influence the consumer behavioral intention will be diminished.

H4-2. With the new media dependency will influence the consumer behavioral intention will be diminished.

Following Baron and Kenny's steps (1986) mentioned earlier, H1 through H3 have been examined and confirmed as supporting original propositions. Now it is appropriate to

verify H4, the mediation effect of New Media Dependency (NMD). In order to confirm the mediation effect or indirect effect, the independent variables of new media uses that are found to be statistically significant in H1 are examined to see if their influences are diminished when the mediation of NMD is controlled.

The results for the analyses of the mediation effect of NMD, involving new media uses as independent variables, NMD as mediating variable, and Consumer Behavioral Intention (CBI) is shown in Table 15. The first model is the linear regression model involved control variables and the significant independent variables (i.e., UH, RU, IU, and PU) explaining CBI, and the second model is the linear regression model that controlled the independent variables and the control variables to see NMD's explanatory power for CBI.

In terms of the significance of model, both the first and second models explain CBI and are found to be statistically significant with appropriate F values (in Table 15) and $p < .001$. The first model that has the selected independent variables (i.e., UH, RU, IU, and PU of new media uses) and control variables explains 26% of CBI. The second model that added NMD to the first model explains 35% of CBI. There has been 9% of increase in the explanatory power which is statistically significant ($p < .001$).

In order to see if NMD has mediation effects with the selected independent variables in explaining CBI, the changes in standardized coefficient Beta values are examined. First, the Beta value for UH has decreased from .033 ($p < .05$) to .022 (no significance). This supports the condition of strong mediation. UH becomes insignificant when M is controlled when explaining CBI. It seems to suggest that how long college students have used new media predicts their intention to engage in online consumer

behavior. This indicates the extent that they feel dependent on new media while accounting for the relation between UH and CBI.

Second, the Beta value for RU has decreased from .439 (p < .001) to .290 (p < .001). Since both Beta values are significant in both models, it supports partial mediation of NMD between RU and CBI. This means that as college students show more tendency toward RU, they feel more dependent on new media, and this should result in more intention to buy goods online. The result shows RU has not only the direct effect on CBI but also the indirect effect through the mediation of NMD.

Third, the Beta value for IU has decreased significantly from .402 (p < .001) to .234 (p < .01). This supports the condition of partial mediation, and IU becomes non-significant when NMD is controlled for when explaining CBI. This seems to suggest partial mediation of NMD between IU and CBI. It may means that as college students use new media for more IU, they feel more dependent on new media, and this might then result in more intention to buy goods online.

Lastly, a partial mediation of NMD between PU and CBI was supported. Beta value for PU has decreased very little from .134 to .130 (p < .01). This implies that as college students use new media for more PU, they feel more dependent on new media, and this might result in more intention to buy goods online. The result also shows PU has not only the direct effect on CBI but also the indirect effect as "interacting" with NMD. Thus, interacting with new media dependency, the extent new media use predicts CBI will decrease, and this supports H4-1.

The result for the analyses of the mediation effect of NMD, involving new media uses as independent variables, NMD as mediating variable, and Prosocial Behavioral

Intention (PBI) is shown in Table 16. The first model is the linear regression model involved control variables and the significant independent variables (i.e., IU, and PU) explaining PBI, and the second model is the linear regression model that controlled the independent variables and the control variables to see NMD's explanatory power for PBI.

Overall, both models explaining PBI are found to be statistically significant with appropriate F values and $p < .001$, as shown in Table 16. The first model that has the selected independent variables (i.e., IU, and PU of new media uses) and control variables explains 28% of PBI. The second model that added NMD to the first model explains 30% of PBI. There has been 2% of increase in the explanatory power that is statistically significant ($p < .001$).

The Beta value for IU has decreased from .480 ($p < .001$) to .367 ($p < .001$). Since both Beta values are significant in both models, this supports partial mediation of NMD between IU and PBI. It suggests that as college students use more "search" functions in their new media use, they will feel more dependent on the new media; moreover, this predicts more intention to engage in prosocial behavior. The result shows IU has not only the direct effect on PBI but also the indirect effect through the mediation of NMD.

Also, the Beta value for PU has slightly decreased from .408 ($p < .001$) to .395 ($p < .001$). Since both models are significant with decreased Beta values, this supports partial mediation of NMD between PU and PBI. This means that as college students use more new media content or contribute to the flow of information online, they feel more dependent on new media, and it predicts more intention to engage in prosocial behavior. Thus, there is an interaction with new media dependency to the extent that new media uses predict PBI and will decrease. This supports H4-2.

Table 14. Comparison of Coefficients between Two Models for CBI

H4	Consumer Behavioral Intention			
	1st Model		2nd Model	
	Beta+	t	Beta+	t
Gender (M:0, F:1)	.181	2.324*	.184	2.520*
Age	-.009	-.795	-.009	-.880
Academic Performance	.005	.119	.023	.596
Value	.015	.548	.001	.034
Online Relationship	.002	.093	-.060	-2.471*
UH	.033	2.255*	.022	1.568
RU	.439	5.995***	.290	4.108***
IU	.402	5.174***	.234	3.096**
PU	.134	2.753**	.130	2.862**
NMD			.406	8.693***
R Square	.260		.350	
Adjusted R Sq.	.247		.338	
F	21.272***		29.316***	

* $p < .05$, ** $p < .01$, ***$p < .001$

+ Unstandardized Coefficient

Table 15. Comparison of Coefficients between Two Models for PBI

H4	Prosocial Behavioral Intention			
	1st Model		2nd Model	
	Beta+	t	Beta+	T
Gender (M:0, F:1)	-.077	-1.015	-.083	-1.108
Age	-.005	-.517	-.008	-.795
Academic Performance	.011	.273	.024	.606
Value	.093	3.628***	.087	3.419**
Online Relationship	.041	1.723	.012	.482
IU	.480	7.303***	.367	5.192***
PU	.408	8.944***	.395	8.744***
NMD			.181	3.962***
R Square	.276		.295	
Adjusted R Sq.	.267		.285	
F	31.213***		29.973***	

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

+ Unstandardized Coefficient

5.3.5. Summary of Valid Mediation Effects

To provide a summary for the variables that satisfy the mediation effect conditions (Baron & Kenny, 1986), the following diagrams are and illustrated. As shown in Figure 10, new media Use History (UH) and online Consumer Behavioral Intention (CBI) are in a weak causal relationship, and the coefficient is comprised of the sum of direct and indirect effects. In other words, the causal effect of X11 (UH) on Y11 (CBI) is the sum of the direct effect of X11 on Y11 (.022) and the indirect effect, the sum of the effect of X11 on M1 and the effect of M1 on Y11 (.076 x .406 = .030). The causal effect can be stated as: .022 + .030 = .052. As noted in Table 17, the indirect effect of UH on CBI through NMD was larger than the direct effect of UH on CBI. This suggests a "strong" mediation effect of NMD. The Sorbel test was carried out and indicated that the mediation effect was significant, z = 4.311, p < .001 (Baron & Kenny, 1986; Preacher, 2006). Therefore, the mediation analysis suggests that the relationship between UH and CBI is significantly mediated by NMD. The following are the premises of such mediation.

1. b(YX) is the total effect of the independent variable X on the dependent variable Y.
2. b(MX) is the effect of the independent variable on the proposed mediator M.
3. b(YM .X) is the effect of the mediator on the dependent variable, controlling for the independent variable.
4. b(YX .M) is the direct effect of the independent variable on the dependent variable, controlling for the mediator.

If the above 1-4 are found to be statistically different from zero, H1 through H4 are supported and constitute the mediation effect of M between X and Y.

Figure 10. The Mediation Effect of New Media Dependency between Use History and the Intention to Engage in Consumer Behavior
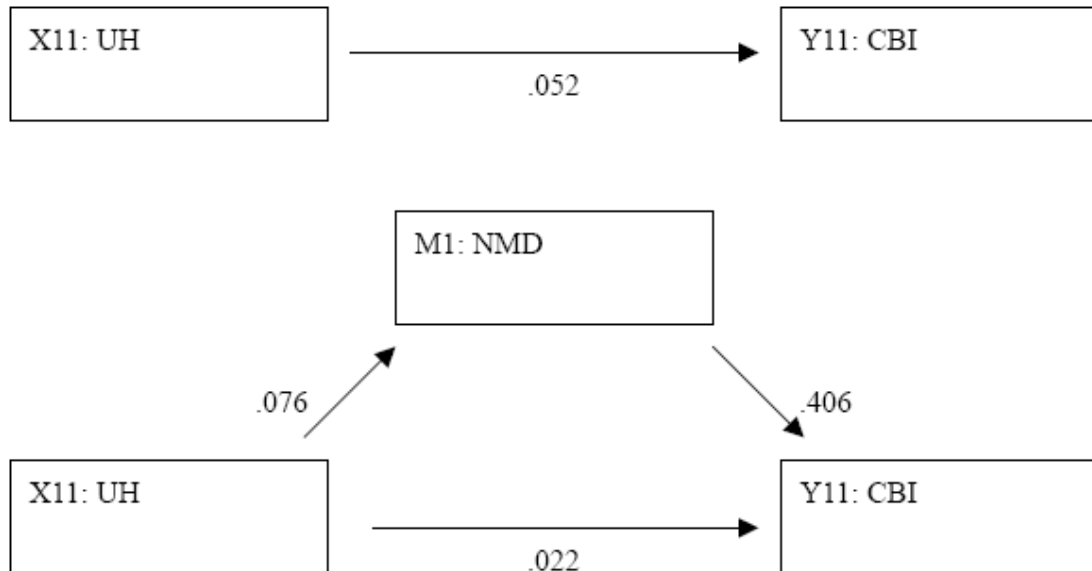
As shown in the Figure 11 below, Ritualized Use of new media (RU) and online Consumer Behavioral Intention (CBI) are in a moderate causal relationship, and the coefficient is comprised of the sum of direct and indirect effects. In other words, the causal effect of X12 (RU) on Y11 (CBI) is the sum of the direct effect of X12 on Y11 (.290) and the indirect effect, the sum of the effect of X12 on M1 and the effect of M1 on Y11 (.249 x .406 = .101). The causal effect is: .290 + .101 = .391.

As noted in Table 17, the indirect effect of RU on CBI through NMD was smaller than the direct effect of RU on CBI. This suggests a "partial" mediation effect of NMD. The Sorbel test was carried out and indicated that the mediation effect was significant, $z =$ 7.602, $p < .001$ (Baron & Kenny, 1986; Preacher, 2006). Therefore, the mediation analysis suggests that the relationship between RU and CBI is partially mediated by NMD. Even though the mediation effect of NMD is partial and small, it still suggests that in order to predict high CBI, not only high RU but also high NMD should be present.
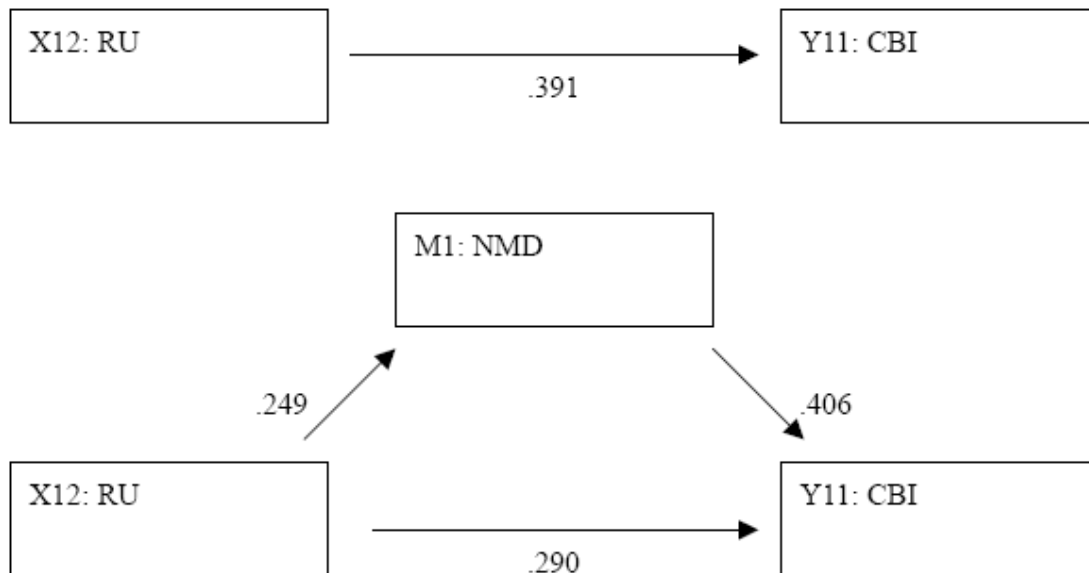
Figure 11. The Mediation Effect of New Media Dependency between Ritualized Use and the Intention to Engage in Consumer Behavior

As shown in Figure 12 below, Instrumental Use of new media (IU) and online Consumer Behavioral Intention (CBI) are in a moderate causal relationship, and the coefficient is comprised of the sum of direct and indirect effect. In other words, the causal effect of X13 (IU) on Y11 (CBI) is the sum of the direct effect of X13 on Y11 (.234) and the indirect effect, the sum of the effect of X13 on M1 and the effect of M1 on Y11 (.244 x .406 = .099). The causal effect is: .234 + .099 = .333.

Also as noted in Table 17, the indirect effect of IU on CBI through NMD was smaller than the direct effect of IU on CBI. This suggests a "partial" mediation effect of NMD. The Sorbel test was carried out and indicated that the mediation effect was significant, $z = 7.841$, $p < .001$ (Baron & Kenny, 1986; Preacher, 2006). Therefore, the mediation analysis suggests that the relationship between IU and CBI is partially mediated by NMD. Even though the mediation effect of NMD is partial and small, it alludes that in order to predict high CBI, both high IU and high NMD should precede this.

Figure 12. The Mediation Effect of New Media Dependency between Instrumental Use and the Intention to Engage in Consumer Behavior
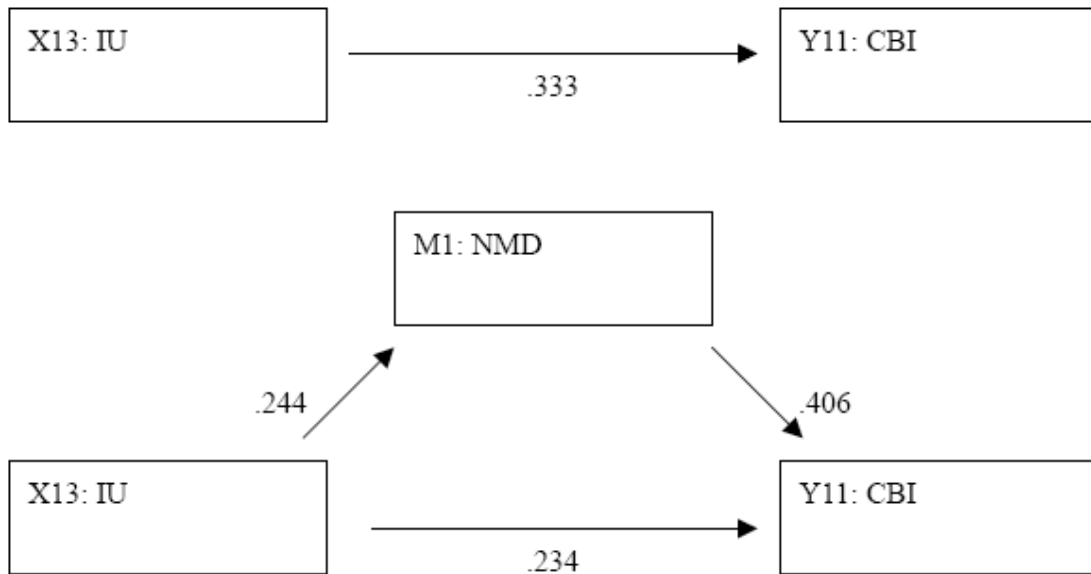
As shown in the Figure 13 below, Instrumental Use of new media (IU) and Prosocial Behavioral Intention (PBI) are in a very strong causal relationship, and the coefficient is comprised of the sum of direct and indirect effect. In other words, the causal effect of X21 (IU) on Y21 (CBI) is the sum of the direct effect of X21 on Y21 (.367) and the indirect effect, the sum of the effect of X21 on M1 and the effect of M1 on Y21 (.244 x .181 = .044). The causal effect is: .367 + .044 = .411.

Also as noted in Table 17, the indirect effect of IU on PBI through NMD was smaller than the direct effect of IU on PBI. This suggests a "partial" mediation effect of NMD. The Sorbel test was carried out and indicated that the mediation effect was significant, z = 4.691, p < .001 (Baron & Kenny, 1986; Preacher, 2006). Therefore, the mediation analysis suggests that the relationship between IU and PBI is partially mediated by NMD. Even though the mediation effect of NMD is partial and small, it strongly

suggests that in order to predict high PBI, not only high IU but also high NMD should

precede this.

Figure 13. The Mediation Effect of New Media Dependency between Instrumental Use and the Intention to Engage in Prosocial Behavior
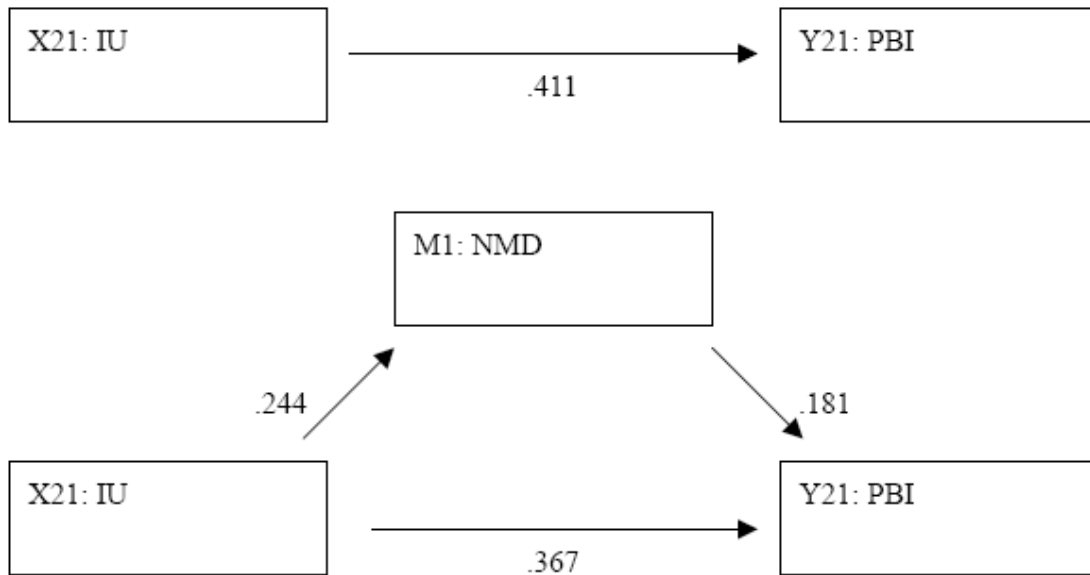
The effect sizes of Figure 10 – 13 are summarized in Table 17 below. Among the

independent variables, only UH has bigger indirect effect (.030) than direct effect (.022),

suggesting a strong mediation. The rest of independent variables have larger direct effects

than indirect effects, suggesting partial mediation. However, this still suggests that in order

to better predict the outcome variables, it is crucial that there should be strong relationships

in each of the independent variable and in the mediating variable.

Table 17. Comparison of Effects on Outcomes

	New Media Uses → CBI	New Media Uses → PBI

	UH→CBI	RU→CBI	IU→CBI	IU→PBI
Direct Effect	.022	.290	.234	.367
Indirect Effect	.030	.101	.099	.044
Causal Effect	.052	.391	.333	.411

VI. CONCLUSION AND DISCUSSION

This study devised a psychological construct, new media dependency, to illuminate its interaction effect with new media uses on outcomes. Studied here has been an exploration of the relationship between new media use habit and possible prosocial and consumer behavioral outcomes. The importance of the dependency relationship between new media and its users is emphasized by clarifying the influence of the behavioral patterns of new media use and the embeddedness of new media into daily life. It is expected that this study provides conceptual and methodological guidelines for media effects research in light of dependency and outcomes.

This chapter presents the discussion and implications of the findings obtained when examining the research questions and hypotheses.

6.1. Summary of Results for the Research Questions

6.1.1. Characteristics of the Subjects

The major characteristics of 647 subjects are as follows. The average age of 389 females (41%) and 258 males (59%) was 23 years 4 months old. The majority of students were undergraduates (62.4%) with age ranges from 20 to 23 fairly evenly distributed by years. The mode of participants is 21 years old (N=118) which comprise about 20% of the population. In terms of their self-perceived academic achievement, 48.5% of the subjects said their academic performance is mediocre, 26.3% said it is lacking, and 18.1% said they perform well.

On the question asking whether they "value" individual interest or social interest of new media content, they showed a slight preference toward individual interest (3.72 on a

1-7 scale). On the item asking about the perceived importance of new media as a means of maintaining online relationships, the average was 4.30 on the 1-7 scale, showing a slight tendency toward thinking that new media is more important as an interpersonal communication medium than mass media. These two variables were used as controls to illuminate the influence of new media as mass media. Prior research had suggested these as factors influencing the outcome variables used here.

The temporal dimension of new media use and behavioral patterns or habits of use are, as far as can be determined, proposed for the first time in this study. Central to these concepts is the notion of the embeddedness of new media use with attention to consumer and prosocial behavioral intentions. Also, this study explored the mediation effects of new media dependency with those independent variables found to be statistically significant. This resulted in the construction of several viable models to explain these phenomena.

6.1.2. Comparison of the Means of Media Uses

Results of analyses of variance (ANOVA) and t-tests are interpreted here to highlight the statistically significant differences found between subject characteristics and the control variables. There was a statistically significant difference in UF between men and women, 7.57 times per week and 6.27 times per week respectively. Males use new media more frequently than females. Also, there was a statistically significant difference in PU between males and females, 2.69 and 2.50 (in the scale of 1-5) respectively. Males are more active in participatory use adding to the flow of new media content, from commenting on content to producing their own content.

A statistically significant difference also emerged when assessing UF by two age groups: younger and older individuals. The younger group used new media 6.29 times per week, while older group used it 7.55 times per week. The older group also consumed more new media content. Additionally, age differences were found with RU. The younger group reported an RU mean of 3.55 (in the 1-5 scale), and the older group's mean was significantly lower at 3.36—with small percent difference in these averages. Both group showed a slight tendency toward RU but the younger group was more likely to use new media as a ritual. Lastly, value was used to divide the subjects into individual vs. social orientation group but there were no statistical differences for this variable.

The means of the three behavioral patterns of new media use have been compared along with the time students spend per week on new media use. When divided into three groups of "light," "moderate," and "heavy" users of new media, the mean differences were found to be statistically significant for all three behavioral patterns. Note that RU showed the most distinguishable mean differences ($F = 13.68$, $p < .001$), IU next ($F = 11.43$, $p < .001$), then PU ($F = 10.79$, $p < .001$). Along with the different behavioral patterns, the groups show significant mean differences on UT. This seems to indicate that there are remarkable user differences in all three behavioral patterns.

6.1.3. Relationship between Major Variables

Some of the noticeable relationships between variables found through examination of their correlation coefficients are summarized as follows. The temporal dimension of new media use, UT, shows the highest correlation with PU ($r = .204$, $p < .001$). As noted in the focus group study, this provides significant if weak support that IU is linked to

audience activity (i.e., searching behavior) and even to digression that consumes time. Also, PU shows a significant correlation (r = .197, p < .001) for those who are "hooked" on producing their own content notwithstanding that it is the most time consuming behavioral pattern of new media use. Also, in relation to Use History (UH), it was interesting to see that IU had a weak but significant correlation (r = .113, p < .01) among the three temporal dimensions. This seems to indicate that the longer the new media is uses, the more the individual engages in search behavior. But it was also surprising to see that UH did not have a statistically significant correlation with PU. This might suggest that easy accessibility of new media enables even a novice to join PU.

Second, in regard to behavioral patterns, Ritualized Use (RU) and Instrumental Use (IU) show by far the highest correlation coefficient with r = .490 (p < .01) and this accounts for about 25% of their shared effect size. As noticed in the focus group study, searching behavior is becoming more of "ritual" for many new media users. Many mentioned in the focus group study that they "almost automatically" access new media content using many types of "searching" functions via typing in a keyword. Also, RU and Participatory Use (PU) showed a strong correlation (r = .325, p < .01). Considering that PU is adding to the content of new media, the focus group study finding was that those who contribute to the flow of information or content do so as a ritual. Some of these students do this on a daily or weekly basis. It is very interesting to notice that PU and IU have become main components of "embeddedness" showing high correlations with RU.

NMD showed the highest correlation with UT (r = .220, p < .01) in its relationship with the temporal dimension of new media use The more the user uses new media, the more they feel dependent on the medium. And, in its relationship with the behavioral

patterns of new media, NMD showed by far the highest correlation with RU ($r = .444$, $p < .01$) and then with IU ($r = .440$, $p < .01$). These are strong positive correlations but it should not be confused with a threat to collinearity (Parker & Smith, 1983). As found in the confirmatory factor analyses, these emerged as separate factors, and when put together in regression models, the Variance Inflation Factor (VIF) was below an indication of concern for such variable overlap. Therefore, it can be concluded that multicollinearity is not an issue here and that the variables can be considered for inclusion when conducting multivariate model building.

The present study attempted to find a relationship among the variables of new media use habit, New Media Dependency (NMD), and the outcome variables of interest, the prosocial and consumer behavior intention, in order to see if the new media use habit has any influence on individuals' intentions to engage in either prosocial and consumer behavior, as illustrated in Framework I (Figure 4). Through Framework II (Figure 5), the study examined the relationship between the new media use habit and the outcomes of prosocial and consumer behavioral intention as accounting for the mediation of dependency on the outcome variables. In order to do that, the present study followed Baron and Kenny's (1986) four step approach in which several regression analyses are conducted and significance of the coefficients is examined at each step. The next section summarizes the major findings from the regression analyses of hypotheses suggested in the Framework II.

6.2. Summary of Result for Hypotheses

6.2.1. Hypotheses involving new media use habit and the outcome effect

H1. The new media uses will have influence on the outcome variables.

As a result of multiple regression analysis to examine the influence of new media use habit on the outcome variables, four variables were found to explain the first outcome variable, Consumer Behavioral Intention (CBI), and two variables were found to explain the other outcome, Prosocial Behavioral Intention (PBI). Use History (Standardized Beta = .081, p < .05), Ritualized Use (Standardized Beta = .264, p < .001), Instrumental Use (Standardized Beta = .214, p < .001), and Participatory Use (Standardized Beta = .081, p < .001) are the statistically significant variables that predict CBI. The variable that exerts the most influence on CBI is RU. This indicates that the more college students' use pattern shows traits of RU, the more they are motivated to engage in online consumer behavior, suggesting they are more vulnerable to the commercials that are targeting them.

Also, IU was proved to be moderately, positively influential in explaining CBI. This seems to suggest that the more college students are engaging in searching behavior, they more they are likely to be interested in online consuming behavior. If the finding was to help a marketing effort, targeting college students should be implemented on sites that promote RU and IU. And if the finding were to promote media literacy, college students who show high involvement in RU and IU should be careful with the commercial influence geared toward them for they appear more vulnerable to it.

Meanwhile, variables that have a relationship with PBI, Participatory Use (Standardized Beta = .335, p < .001) and IU (Standardized Beta = .248, p < .001) were found to be statistically significant in predicting PBI. In other words, the more college students who show behavioral pattern of PU by engaging in "producing" content, the more they are likely to be interested in prosocial behavior. From the perspective of media

literacy, the finding is compatible with the findings of previous research on the "production" of content and the promotion of prosocial behavior (Brown, 1998; Cantor & Wilson, 2003). This finding offers some support to media literacy effort as does the lack of a finding that the same PU did not have a statistically significant relationship with CBI.

The likelihood of prosocial behavior increases for college students who display high intensity in the behavioral pattern of "searching," This implies that IU has indeed become embedded into the sample students' daily life and results in a common behavioral pattern predicting both CBI and PBI. It might fair to conjecture that RU is a better predictor of CBI, PU is a better predictor of PBI, and IU is a common behavioral pattern for both CBI and PBI. Thus, hypotheses 1-1, 1-3, and 1-4 are supported but not 1-2.

It seems appropriate to think about the temporal dimension of new media use. Use History (UH) was influential for predicting CBI but not PBI. But as shown in Table 6, the fact that RU and UH are barely related ($r = .087$, $p < .05$) seems to suggest that it might have to do with the combination of UH and CBI, but not in association with RU. As shown in Table 11, all three variables of the temporal dimension are related to CBI. But when put together with control variables in a linear model, only UH is found to be influential. The duration college students have used new media contains a distinguishable aspect of the temporal dimension to exert influence on CBI only. The longer UH means they might have belonged to the group of early adopters and this might have influenced them to feel more comfortable about purchasing online. But that does not mean they are more likely to engage in PBI. UH has no statistically significant relationship with PBI. However, when taking value aspects into account, it conjoins the nature of the outcome variable and the combination of the two.

6.2.2. Hypotheses involving new media use habit and new media dependency

H2. The new media use will have influence on NMD.

In a multiple regression analysis that examines the relationship between the variables of new media use habit and New Media Dependency (NMD), four variables were found to be statistically significant in predicting new media dependency. The overall linear model, H2, is supported. Use Time (Standardized Beta = .089, p <.05), Use History (Standardized Beta = .076, p <.05), Ritualized Use (Standardized Beta = .249, p <.001), Instrumental Use (Standardized Beta = .244, p <.001) are found to explain non-trivial proportions of the variance in NMD. Therefore, H2-1, H2-2 are supported.

It is interesting that college students feel most dependent on new media for RU. As noticed in the focus group study, it is obvious they are dependent on new media for IU, for practical reasons like searching and surveillance. However, they appear to emphasize dependency when exhibiting their "killing time" behavioral pattern. This might suggest that in the everyday life of these college students new media has become "no particular reason" media. As addressed in the focus group, some college students are experiencing "digression" with RU. In his relationship with new media, one student said he is experiencing an unbalanced power relationship that new media, which holds "control" of "conversation" and can easily "take him away" into digression. He claims he does not have control when using new media. This is RU is in its extremity. This also allows UT to emerge as a valid influence on NMD. UT does not have any statistically significant relationships with other dependent variables except for NMD. The longer students spend on "killing time" or "digression," the more they feel dependent on the new media.

Similarly, IU is also contributing to NMD. The more students engage in IU, the more they feel dependent on new media. As mentioned earlier, some students talked about their "digression" while searching. One student expressed her "addiction" with finding information on products. When she feels a product is "right" for her, she searches all night to find every detail, such as user feedback on products and lowest price. From this, it might be construed that it is hard to tell the difference between the IU and NMD given the behavioral patterns which emerge. However, the items used in confirmatory factor analysis were clearly divided between RU and IU.

Given the fact that RU and IU are highly correlated ($r = .490$, $p < .001$), there exists a possibility that they are related to another factor that the present study may have overlooked. According to Parker and Smith (1983), when two factors are properly operationalized and confirmed as separate factors in factor analysis, and no sign of multicollinearity is found (with low VIF), yet still show high correlation, there's a possibility that there is a third factor that both are highly correlated with.

For example, a concept like digression has high potentiality. It was a concept many students mentioned in the focus group sessions. There was an attempt to include it in RU but it could have been treated as a separate factor and included to reduce the extent of correlation between RU and IU. However, digression would then be another behavioral pattern but not a mediator like NMD. In that respect, the present study's approach to incorporate a psychological construct like dependency to better predict the outcome variables appears appropriate.

6.2.3. Hypotheses involving new media dependency and the outcome effect

H3. NMD will have influence on the outcome variables.

The present study approaches dependency as a relationship or an outcome of new media uses which might incorporate the "interaction" between college students and new media. As shown in Table 11, stronger relationships or more dependency with new media is associated with more uses of new media. Actually, the original media dependency has been studied in terms of its involvement with media content, which varies along with the extent of dependency, to predict any change in attitude or behavior as outcome. No prior studies were located using this in empirical research. This also means that dependency has not been studied to investigate its relationship with outcomes. In that sense, the notion of dependency has been understood as involvement, "ego-involvement," or elaboration likelihood that interact with media messages to bring about influence in an outcome.

However, New Media Dependency (NMD) is different from the original media dependency that it is not necessarily about interactions with certain message content. It is rather the outcome of cumulative interaction with new media and of the ensuing relationship or embeddedness. New media context is different from traditional media in its unprecedented level of relationship or embeddedness. This finding is consistent with previous research and it was also confirmed in this study's focus groups. This was the rationale for the present study to look into a direct correlation between NMD and outcomes.

In a multiple regression analysis to examine the influence of NMD on the outcome variables, it was found that NMD explains Consumer Behavioral Intention (CBI) (Standardized Beta = .525, p < .001). Also, it was found that NMD explains Prosocial

Behavioral Intentions (PBI) (Standardized Beta = .320, p < .001). Obviously, the more students feel dependent on new media, the stronger they show intention for online consumer behavior and for prosocial behavior. How they feel about this relationship influences CBI and PBI. The underlying linear model, H3, is supported.

6.2.4. Hypotheses involving new media use habit, new media dependency, and the outcome effect

H4. With the influence of NMD controlled, the influence of new media use on the outcome variables will be diminished.

　　　To verify the mediation effect of New Media Dependency (NMD), this analysis used Baron and Kenny' approach (1986) to determine if coefficient Beta values of statistically significant new media use habit variables (independent variables) are reduced when controlling for the mediation of NMD. The effect Use History (UH) exerts on online Consumer Behavioral Intention (CBI) results in a coefficient of UH being reduced from .033 to .022 when NMD is put into the regression model. Since the Beta values are statistically valid in both the first and second models, NMD plays a role as partial mediator between UH and CBI. Also, on its influence on CBI, RU's coefficient is reduced from .439 to .290 in the models, suggesting partial mediation of NMD. The mediation effect of NMD with IU on CBI is confirmed with a reduced coefficient when NMD is controlled, going from .402 (p < .001) to .234 (p < .01). Lastly, the coefficient of IU is reduced from .480 (p < .001) to .367 (p < .001) with IU having an effect on Prosocial Behavioral Intention (PBI). Since the Beta values are statistically valid in both the first and second models, NMD plays a role as a partial mediator between IU and PBI.

To sum, when controlling NMD, H4 was confirmed which looked into the diminished effect of new media use habits on outcomes. Note that the causal effect between new media use habit and the outcome variables is comprised of the sum of direct and indirect effects. It was found that there is a direct effect that new media use habits exert on outcomes. This effect is exceeds the mediated, indirect effect of NMD, except with the case of UH in which the indirect effect is larger.

Conclusion based on the verification of hypotheses

The findings indicate that new media use habit, especially behavioral patterns, predicts outcomes. Online consumer behavioral intention is deeply related to RU and IU, explaining 25% of the variability in CBI. This finding can be interpreted from the perspective of media literacy that developing RU patterns increases the likelihood of purchasing behavior. The media use habit has been linked to consumer behavior in media literacy research (Valkenburg & Cantor, 2001).

CBI is best predicted by their ritualized and instrumental use patterns of new media. As noted in the literature review, ritualized use is associated least with "active" involvement among the three behavioral patterns. Those who show a heavy RU pattern also show a higher CBI. RU explains about four times the variance in CBI models when compared to IU. IU was hypothesized to relate to more "active" rather than "passive" involvement, therefore, being less vulnerable to the effects of media. The finding here support the hypothesis based on the "original" media system dependency theory which is also compatible with the propositions of Rubin and Windahl (1986) who expected the outcomes of ritualized use and instrumental use of media to be different.

The findings also support the results of a study finding a positive relationship between online shopping behavior and instrumental use (Fader, Bellman, & Lohse, 2004). Looking for product information on the Internet is the most important predictor of online behavior (Bellman, Lohse & Johnson, 1999; Keum & Cho, 2003)

The results also suggest that RU and IU measurement have successfully captured the essence of involvement. Involvement is a significant construct in mass communication and media effects research. It mediates attitudes and behavioral responses to information processing to signify arousal, interest, and motivation (Rubin *et al.*, 1994). This study modified a measure of involvement with media, the Personal Involvement Inventory (PII) (Zaichkowsky, 1985) to devise the three behavioral patterns that fit into the new media context.

Prosocial Behavioral Intention is best explained by Participatory Use (PU) and Instrumental Use (IU), which explained the variability of PBI by 15% and 6% respectively. From the media literacy perspective, media use habit, regardless of the consideration of different behavioral pattern, has been "blamed" to reduce prosocial behavior throughout the society (Putnam, 2000; Shah et al., 2005; Shah et al., 2001; Uslaner, 2004). However, PU actually increases and predicts people's intention to engage in prosocial behavior and this tentative finding provides a new perspective to understand media use habit and the prosocial outcome. PU, as a unique dimension of new media, has included the practice of creation, dissemination, providing feedback, and linking of information as a distinctive behavioral pattern. More involvement—participatory activity or "social" practice, as a major use pattern of ever-popular social media sites—needs more attention in future research.

Use Time, Use History, RU, and IU combine in a linear model to explain 33% of the variance in New Media Dependency (NMD). As hypothesized, RU is the strongest predictor of NMD. Previous studies of media addiction reported disappointing findings when studying dependency and the temporal dimension of media use and other psychological factors. However, the behavioral pattern of new media has been linked to dependency here and proves to be productive concept for future research. The current study provides empirical support to the hypothesis that dependency can be related to patterns of media use, such as in an instrumental fashion to gratify needs or provide motives such as orientation and social utility (Rubin & Windahl, 1986). The current approach to dependency as a relational outcome of communicative behavioral patterns, rather than a pathological outcome, was a fruitful direction explored here in both the focus group study and the survey.

Third, NMD also predicts 32% and 26% of CBI and PBI variance respectively. NMD measurement was proved to be a reliable measurement that captures "new" dependency relationships that may evolve from using any new media in a ritualized fashion to gratify habitual, time consumption, and diversionary motives (Rubin, 1983, 1984; Windahl & McQuail, 1979). Habitual or "ritualized" browsing is the most influential behavioral pattern of new media and expresses an optimum state of embeddedness. The construct and its properties are ripe for future studies of new media.

Lastly, NMD has proved itself to be a mediator of the outcome variables. Even though NMD increased overall explanatory power to 35% and 30% of the variability of CBI and PBI respectively, it decreased the effect of independent variables, proving its role as a partial mediator. Therefore, the understanding of any new media effects research

should consider inclusion of NMD as a mediating variable. This would allow those studies to create a more complete picture of the relationship between user and media and potential outcomes.

6.3. Discussion

6.3.1. Theoretical Implication

Media Effects

This is the first known empirical research to explore the embeddedness effect assessed with use habit and relationship. This can be compared to studies focusing on persuasive communication effects or media effects. The embeddedness effect is the "live together" effect of the "form" aspect of media, rather than "content." This is comparable to the quote, "the medium is the message" (McLuhan, 2001) and to medium theory (Meyrowitz, 1998). It is a long-term, cumulative effect rather than a short-term effect. The suggested model raises the predictive power for the dependent variables (i.e., consumer and prosocial behavioral intentions) commonly used in media effects research. The attempt here is to call attention to this powerful aspect of the new media use habit and the embeddedness which can be applied to study a totality of "effects" (not only media effects of content) of any "new" media and communication technologies.

Uses and gratification (U&G) theory and media system dependency (MSD) theory

The study suggests a perspective to understanding of the influence of new media uses by brining in the notion of behavioral use patterns and dependency into consideration. It was attempted by combining U&G theory and MSD theory. It is noteworthy that they supplement each other as raising the explanatory power of the overall model for the

outcomes proposed. This represents the first known attempt to do this compared to related, pertinent research. Previous studies on similar topics have focused predominantly on the temporal dimension of media use as mentioned in this study's literature review. By bringing the behavioral patterns and the measures of new media dependency into focus, this study has not only raised the predictive power of the overall model but it has also attempted to be comprehensive in the conceptualization of a new or emerging media effect model. U&G to MSD was proved to be a successful fusion when including ritualized use (RU), instrumental use (IU), participatory use (PU) as comprehensive behavioral patterns of new media use. The measurement of the three behavioral patterns is expected to help future media research in this area.

New Media Dependency (NMD)

The notion of dependency studied here departed from those investigations viewing it as a pathological pattern. This study saw dependency as a relationship of the inequality in power and control, which is prevalent in the context of new media technology use. By identifying and adding the factors, which are unique to the new media environment and found to be "loading" to the "original" media system dependency, a new measurement of NMD has been suggested. The results support its value as a valid psychological, mediating construct.

6.3.2. Practical Implication

User research for new media and communication technology industry

First, the embeddedness effect and the relationship effect complement current user or audience research as mentioned thus far, and also suggests an important practical

dimension. Considering the appearance of new media and communication technologies everyday, the current study sets a new agenda of a "living together" effect. There have been a number of research studies on a similar topic (Livingstone, 2002, 2004) but their approach was rather descriptive compared to the present study's explanatory/predictive approach. The causal model proposed in the present study provides the research apparatus to predict the possible impact or "effect" of novel technologies.

Second, one of the research tools that would be beneficial for user research is the development of an objective measurement acquired by combining two theories, U&G and MSD. This study only adopted "objective" measurement and avoided self-reflective measures of needs or goals of use, which have been persistently criticized in the field. Instead, a habitual, behavioral use pattern measurement was developed to bypass this criticism and, yet, to better assess the context of use. The notion of embeddedness, as an indicator of the status of dependency and how vulnerable a person is to such influence, can be best described by habitual, behavioral use patterns and use time and frequency. In previous studies, scholars asked "why" people use certain media to explore the context and the level of embeddedness in association with motives (e.g., Chang *et al.*, 2006; Kaye & Johnson, 2004; Ko *et al.*, 2005) . The new measurement of new media use habit is verified for its validity in the current analysis, and, hopefully, it is expected to contribute to future media use research efforts of a similar vein. It is hoped that this can be applied to many "new" technology user studies that would benefit from the research and design (R&D) process employed in this research.

Online journalism

The new media user pattern shed some light on the issue of readership for online journalism. To access the most likely target audience can be achieved through the understanding of their use patterns. In a typical audience readership study, the audiences were asked to "check" their favorite topics in a survey. However, this "favorite topic" approach was an inconsistent predictor of future readership (Cohen, 2002). With the "help" of activity logs, the audience behavioral patterns in their interaction with online news can be recorded categorized into a behavioral pattern. Once the behavioral pattern is identified, it can be subjected to correlation analysis with a variety of outcomes. For example, if the pattern were correlated with advertising effectiveness, it would be helpful information about the consumer behavior of a new media audience.

Another implication of the study for online journalism has to do with the issue of communication channels of online news sites. The fact that participatory use is proved to be a separate and valid behavioral pattern means it can be used to target audiences as encouraging the interaction between journalists and people or even between audiences. The affordance of a new communication channel might provide a chance for traditional media to establish a dependency relationship with the audience which might move the audience relationship to the next level—to be embedded into their daily life. The low dependency for both needs and goals gratified by the use of news content (W. E. Loges & Ball-Rokeach, 1993) partly supports the position that the dependency (reflected in the subsequent readership) is not only about the quality of content itself but also about the affordance to encourage interaction through using a different "form" aspect.

Lastly, the present study tries to focus on new media as a means of mass communication by using control variables to isolate its domain as mass media rather than interpersonal communication media. However, at the same time, it is an extended notion of mass media that it comprises all "searchable" contents and information available on the Web including UGC and some interpersonal messages aggregated by search engines. It is expected that by supplementing content involving participatory or social aspects of Web 2.0, new applications of information architecture can take readership to the next level.

Media Literacy

The major goal of media literacy is to empower the audience or user (Brown, 1998). The current status of inequality in power and control between people and the new media environment (Mansell, 2004) necessitate a media literacy approach to the understanding of dependency. The audiences need to be educated about media use (as interaction) and the emotional or negative outcomes (e.g., lower grade) can ensue. The new media can also promote collaboration and yield positive outcomes. System theory might propose that new media could be manifested in the interaction (behavior) and cognitive and affective outcomes of the interaction. This might be extended by a self-perceived degree of dependency that explains cognitive/affective involvement leading to persistence in creating use and behavioral patterns.

Also, hinting on the fact that the media literacy perspective warns that media educate the next generation of consumers (Patwardhan & Ramaprasad, 2005), it is possible to clarify a path into prosocial behavior, promoting a combination of instrumental use and participatory use. New media can become a new arena for social activism and prosocial behaviors.

6.4. Limitation and Suggestion for Future Research

The limitations of this study include several measurement errors. First, that the temporal dimension was not really influential as predictor could have something to do with the way the data was collected. As pointed out in previous studies with temporal measurement of new media use (e.g., Pinkleton & Austin, 2002; Robinson *et al.*, 2000), the subject's own assessment cannot guarantee its validity. Also, as the concept of a socially desirable answer might explains how measurement error entered into the data (Cook *et al.*, 2000). The subject might feel shame in reporting their heavy new media use. Therefore, for future research might consider collecting data using activity logs or activity timing applications to enable researchers to gather more objective data.

Second, it is definitely noteworthy that PU is not confirmed in its mediation effect for the path from PU to NMD which was not statistically significant. That participatory use did not show a statistically significant relationship with media dependency might have to do with a measurement problem. The data reduction method, factor analysis, may have reduced the content of the students' responses. Even though it was found to be valid in factor analysis, after all, the measurement is "original" with no track of proven validity. This area needs to be revised and focused on in future research to address the unique aspects of the new media environment and the diversity of the user activities within it.

There are several suggestions that might assist future new media research efforts. First, in formulating a model of new media effects, it should be remembered that media exposure does not alone predetermine effect. New media uses reveal that temporal dimensions and behavioral patterns can predict possible outcomes—consistent with findings in previous research on traditional media effects. Media exposure to certain

content is bound to occur, and it is reflected in what the present study presents as a new media use pattern. New media uses interact with new media dependency to predict possible outcomes. Many attempts have been made to predict the outcome of media use but unless the nature of the relationship built through media use is understood, those attempts may be destined to be incomplete. When the outcome has social implications like prosocial behavior, the stakes gets bigger and the relationship media use promotes will take on increased importance by researchers.

Mediation models are confirmatory models rather than exploratory ones (Hayes *et al.*, 2007). The role of theory is important in explaining and predicting phenomena (Hoyle & Robinson, 2004). Therefore, when designing a predictive model for media effects, hypotheses should be guided by theory which can be defined as the a priori specification of the relationships among constructs. A similar point was realized during the focus group sessions. It can be argued that the traditional media effects research should not focus exclusively on the effects of content but also on the form. This will enhance the understanding of how people interact with new media and may lead to a better comprehension of media effects in this highly charged, technologically advancing area.

It seems to suggest that there are remarkable user differences for all three behavioral patterns given the high correlation between RU and IU. Therefore, the approach to the topic should be rather interpretive. The more the students use new media, the stronger the intensity of all three behavioral patterns. Note however that the approach of the present study has been to address new media in terms of the two aspects: the temporal dimension and the behavioral pattern.

Introducing a theory such as the elaboration likelihood model (ELM) (Morris, Woo & Singh, 2005) might help our understanding here. ELM proposes two routes to attitude change: central and peripheral. The central route emphasizes a high relevance of the message to the individual. In the peripheral route, the individual concentrates on heuristic cues like attractive expert sources and number rather than the content of arguments employed by the message to process the message (Morris, Woo & Singh, 2005). This is consistent with the research direction proposed here.

Future research topics that can use the measurement and theoretical framework developed in the present study may include:

-How new media are changing the nature of journalism as a relation building field of mass communication through interactions with audiences.

-How social networking sites are changing the ways we build knowledge with accumulated information from ordinary people.

-How personal digital media script our daily rituals and needs. After all, the focus could be the relationship people are building with the media itself, rather than with its content. The limitation of a goal-gratifying approach to media use has become clearer with the findings of the current study.

-How new media enable democratic participation and affect social movements and activism.

Appendix A: Focus Group Questions

1. Do you have access to the Internet?
a. How long have you used new media?
b. Why do you need new media?

2. How do you use new media in every day life?
a. How long (on average) do you use new media per day?
b. When do you most frequently use new media in a given day?
c. Why do you use new media?
d. What content or information do you find? How often?
e. What content or information if any, do you find most useful from new media?
f. What content or information do you perceive as unique to new media?

3. What would you say is the common use of new media? What for?

4. How would you describe the effect of new media in general, regarding your own use and/or others' use?

5. Have you seen anyone dependent on new media?
a. How applicable are the goals of Individual Media Dependency (IMD) in the new media environment?
b. What can be added to the list of goals of IMD to better reflect uniqueness of new media environment in terms of "reasons" for depending on it?
c. What are "unique" contents and forms that make them depend on it?

Appendix B: Survey Questionnaire

Questionnaire

Thank you very much for considering participation in this research study. There are 40 questions in this questionnaire, which need your careful attention to your most recent experience before answering. Even if you take your time, it should take no more than 35 minutes of your time. Please try your best to be accurate in your own retrospect. There are no right or wrong answers. Be sure to click on the submit button when you have finished. You will see a confirmation screen after successfully submitting the survey.

Thanks again for participating.

Regards,
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ONLINE INFORMATION USER SURVEY:

Section A
Please answer these demographic questions
1. Gender   1 Male   2 Female

2. Year of Birth ----- (scroll box)

3. How would you rate your academic performance?
1 Excellent   2 Very good   3 Good   4 Fair 5 Poor

Section B through F deals with your interest, goals, satisfaction, importance, and influence of information uses.

Section B
4. Select two of your favorite topics (or sections) of information/news (e.g., entertainment, sports, business, politics, technology, world, U.S., region, education, etc.)
1 ----- (scroll box)   2 ----- (scroll box)

5. (Please fill in the boxes as accurately as possible) I have been using the Internet for _____ years, and on average, I use the **Internet** _____ times per week, spending about _____ hours per week, while I watch **TV** _____ times per week, spending about _____ hours per week, read **newspaper** _____ times per week, spending about _____ hours per week. (I would really appreciate if you double-check the answers for this question)

Section C

"Take a deep breath and imagine yourself sitting in front of computer. You're not writing/reading email or playing computer game."

How do you find information/news on your favorite topic?

6. I visit online "mainstream" media sites (like NY Times, CNN, or Yahoo News)
1 Never   2 Rarely   3 Sometimes 4 Often   5 Always

7. I visit "alternative" media sites (like blog sites, YouTube, or MySpace) filled with contents   generated   by   laypersons   or   non-professionals.
1 All the time 2 Often   3 Sometimes 4 Rarely   5 Never

8. I do not particularly look for information/news and just "surf" habitually.

1 Never   2 Rarely   3 Sometimes 4 Often   5 Always

9. I browse by "going into" specific section to find something to read

1 Never   2 Rarely   3 Sometimes 4 Often   5 Always

10. I read whatever interests me or gets my attention
1 Never   2 Rarely   3 Sometimes 4 Often   5 Always

11. I read "popular" news first from such as "most popular" list
1 Never   2 Rarely   3 Sometimes 4 Often   5 Always

12. I search by typing in specific key words I have interest in
1 Never   2 Rarely   3 Sometimes 4 Often   5 Always

13. I automatically get frequently updated content or feeds of my interest (e.g., RSS, Atom).
1 Never   2 Rarely   3 Sometimes 4 Often   5 Always

14. I get it through someone online (such as through social media or social network)
1 Never   2 Rarely   3 Sometimes 4 Often   5 Always

Section D

"On a typical weekday, you're **just about to read** (online newspaper or a user-generated content) or **watch** (picture or video clip) or **listen** (such thing as Podcasting) any type of information that is available online."

What often do **you do** the following **with** **the information/news you found?**

15. Look for more **information**
1 Never   2 Rarely   3 Sometimes   4 Often   5 Always

16. Share it with others using social media applications like Wikipedia (reference), MySpace (social networking), YouTube (video sharing), Digg (news sharing), Flickr (photo sharing), etc.
1 Never   2 Rarely   3 Sometimes   4 Often   5 Always

17. **Read and comment or write** feedback **(e.g., on the opinion board or my "space" on the web)**
1 Never   2 Rarely   3 Sometimes   4 Often   5 Always

18. Bookmark**, classify, tag, or assign keywords to the information**
1 Never   2 Rarely   3 Sometimes   4 Often   5 Always

19. Send it (or link) to friends or others (via email or any other service)
1 Never   2 Rarely   3 Sometimes   4 Often   5 Always

20. Use it to **socialize** with others online or offline
1 Never   2 Rarely   3 Sometimes   4 Often   5 Always

21. Talk about it with others
1 Never   2 Rarely   3 Sometimes   4 Often   5 Always

22. Share opinions, insights, experiences, and perspectives with others on a similar topic via my "space" online or blog **for social interaction**
1 Never   2 Rarely   3 Sometimes   4 Often   5 Always

23. Expand into looking for another area of information
1 Never   2 Rarely   3 Sometimes   4 Often   5 Always

Section E

How important is the information from the Internet, in fulfilling the following goals?

24. Relax when you are by yourself
not at all important 1 2 3 4 5 very important ----- (scroll box)

25. Find out about society and relevant events
not at all important 1 2 3 4 5 very important ----- (scroll box)

26. Gain insight into why you do some of the things you do
not at all important 1 2 3 4 5 very important ----- (scroll box)

27. Decide where to go for product or service
not at all important 1 2 3 4 5 very important ----- (scroll box)

28. Give **something to talk** (on/offline) and engage in social interaction
not at all important 1 2 3 4 5 very important ----- (scroll box)

29. Get hints on how to handle new or difficult situations
not at all important 1 2 3 4 5 very important ----- (scroll box)

30. How much are you **dependent** on the online information **in fulfilling any of the goals mentioned above** (e.g., relax, find out something, decide something, learn something to talk about, acquire something to engage in online interaction, etc)?
Never dependent –3 –2 –1 0 1 2 3 **very dependent (0, being neutral)**

31. Online information is _____, when compared with the information from other media like TV or newspaper.
Not uniquely **informative** at all –3 –2 –1 0 1 2 3 Uniquely **informative** ----- (scroll box) **(0, being neutral)**

32. The online news is _____, when compared with the news from other media like TV or newspaper.
Not uniquely **entertaining** at all –3 –2 –1 0 1 2 3 Uniquely **entertaining** ----- (scroll box) **(0, being neutral)**

33. Online information is _____, when I need to know **public opinion/social "norm"/trend** on certain issue or affair.
Not uniquely helpful at all –3 –2 –1 0 1 2 3 Uniquely helpful ----- (scroll box)

34. Online information is _____ in helping to **carry out social roles**.
Not uniquely useful at all 1 2 3 4 5 very useful ----- (scroll box)

35. Online information is _____ in gaining a sense of security through knowledge.
Not uniquely useful at all 1 2 3 4 5 very useful ----- (scroll box)

36. Online information is _____ in gaining insight into circumstances of others and identifying with them.
Not uniquely useful at all 1 2 3 4 5 very useful ----- (scroll box)

Section F
37. I'm _____ because I have a sense of control over my digression while using the Internet.
Very unsatisfied –3 –2 –1 0 1 2 3 **very satisfied (0, being neutral)**

38. I'm _____ with my information seeking skill and can find any information I want on the Internet.
Very unsatisfied –3 –2 –1 0 1 2 3 **very satisfied (0, being neutral)**

39. I'm _____ with the representation of "reality" (e.g., what's happening around me with current events and affairs) by the Internet, compared to other media such as TV and newspaper.
Very unsatisfied –3 –2 –1 0 1 2 3 **very satisfied (0, being neutral)**

40. I've done or purchased something based on the information I found online.
1 Never   2 Rarely   3 Sometimes   4 Often   5 Always

Appendix C: Summary of Measures and Descriptive Statistics

Latent Variable [**Participatory Use**: **PU**]	Mean	SD	Cronbach's α
UGC/social information/content/media activeness			.773
I voluntarily share information/contents in soc. media	2.89	1.09	
I provide feedback to others' contents in soc. media	2.35	1.12	
I send "links" to contents to others using soc. media	2.39	1.14	
I create contents in soc. media for others to read	2.70	1.10	

Latent Variables [**Ritualized Use**: **RU**]	Mean	SD	Cronbach's α
Ritualized **information use behavioral pattern**			.730
I habitually surf around information/contents	3.52	0.90	
Just to kill some times, I read online contents	3.36	0.90	
I surf around and click whatever gets my attention	3.93	0.79	
I click whatever claims to be read most	3.41	0.94	
I surf around information just for fun	3.17	0.93	

Latent variables [**Instrumental Use**: **IU**]	Mean	SD	Cronbach's α
Searching/Seeking **information behavioral pattern**			.644
I "search" to find information/contents of my interest	3.54	0.88	
When wondering, I search for information/contents	3.59	0.81	
I seek among UGC sites for hard-to-find information	3.34	0.88	
I visit UGC site 4 info/contents	3.41	0.82	

Latent variables [**Dependency**]	Cronbach's α
New Media System Dependency Measure	.849
Online inf./contents are uniquely important for individual play	
They are important for social understanding	
They are important for individual understanding	
They are important for individual orientation	
They are important for social play	
They are important for social orientation	
They are important for others because of the above	

Latent variable [**Consumer Behavioral Intention**]	Cronbach's α
Possible online behavioral outcome	.693
Seen others buy or do based on information online	
Seen others follow trends based on info online	
Thought about buying after reading UGC info. online	
Talked about products with friends or family	
Sought info. online on product or trend	

Latent variables [**Prosocial Behavioral Intention**]	Cronbach's α
Possible offline behavioral outcome	.697
Influenced by online public opinion on soc. issue	
Voluntarily clicked environmental info online	
Concerned about online environmental issues	
Refer to online social issue	
Read info on prosocial activities (such as environ.)	

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