

Examining the Relationships between Perceived Social Presence, Narcissism, Gender and Frequency of Text Messaging

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Abstract

This study investigated the relationship between perceived social presence, narcissism, gender and frequency of text messaging among university undergraduates. A total of 247 volunteers from two universities in southeast Nigeria participated in the study. Their ages ranged from 18-28 years with a mean age of ($M_{age} = 24.79$ years, $SD = 3.10$). Three different instruments were used to elicit information from respondents through survey, while hierarchical regression was used for data analyses. Consistent with stated hypotheses, findings revealed that perceptions of message understanding, affective understanding, emotional interdependence, and behavioral interdependence were significantly related to frequency of text messaging. But contrary to speculations, copresence, attention allocation, and narcissism were not significantly related to frequency of text messaging. More so, contrary to speculation gender was negatively related to frequency of text messaging. We discussed the implications and limitations of the study. Also, suggestions for further studies were highlighted.

Keywords: perceived social presence, narcissism, gender, frequency of text messaging

Introduction

The world is filled with physical and mental burdens and uncertainties. Understanding how our perceptions of the physical world are formed and how other aspects of our lives affect these perceptions shed light on the dynamic relationship among individuals in society, in our environment and in our relationships (Falisi, 2012). In a society that has become increasingly connected through technology, our connections with others are often maintained in the absence of physical presence. From text-messaging to voicemails, to Facebook wall-posts, to Whatsapp, the way in which we conduct our relationships has rapidly changed and there are indications that this change will endure for a long time. Thus, text messaging has become very common in keeping in

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touch with friends, business associates and parents. Text messages are also increasingly being used to interact with automated systems (e.g., buying products, participating in television contests, recruiting voters). Its popularity has sensitized the minds of researchers. Research literature abounds with studies on the social, cultural, linguistic and communicative aspects of mobile text messaging in different socio-cultural contexts in the world, especially in the continents of America, Europe and Asia (e.g., North, Johnston, & Ophoff, 2014; Suominen, Hyrynsalmi, & Knuutila, 2014). Similar study has been carried out in South Africa among low-income youth (Kreutzer, 2009). Related studies have been conducted in Nigeria (e.g., Ajidahun, 2014; Eruvwe, Sambo, & Salami, 2014), but these studies focused mainly on the utility of cell phones for research among students. This current study examined perceived social presence, narcissism and gender in relation to frequency of text messaging, an area of study that has been neglected. Focusing on the dimensions of perceived social presence even makes the study more unique and provides novel insight in literature.

These days, mobile phone can be used to listen to music and play games. Users can download applications for activities such as online banking, booking airline tickets, shopping, making vacation plans, or tracking diet and physical activity (David, Kim, Brickman, Ran, & Curtis, 2014). The versatility of mobile phone allows for seamless integration of different activities into manageable proportion and enriches life in many ways. Although mobile phone has multiple functions, the basic text-based messaging service has continued to dominate. Smith (2011) observed that a typical 18-24 year old cell phone owner sends and receives approximately 50 messages per day. Forgays, Hyman, and Schreiber (2014) observed that older participants and women advocated for more restricted cell phone use in most social situations. Men differed from women in that they viewed cell phone calls as more appropriate in virtually all environments

including intimate settings. Across all age groups in all communication settings, cell phones were used to text. The only exception was that romantic partners were more likely to receive a call than a text. In the younger age groups, texting communication is so normative that over 25% had dumped or were dumped by a romantic partner. According to Walsh, White, and Young (2010), university students were reported to show signs of cognitive salience, whereby students think about their phones when they are not using them, as well as behavioral salience, whereby the students constantly check their mobile phones for missed calls or messages. As the current generation continues to rely heavily on text-messaging as a central method of communication, a deeper understanding of its antecedents is becoming increasingly important.

The Social Penetration Theory (SPT) which explains the differences in communication in relation to the depth of interpersonal relationships could be used to explain the present study. The theory states that relationships begin and deepen through self-disclosure Altman & Taylor (1973). In the beginning, people establish relationships by disclosing many simple, harmless facts through small talk. As relationships grow, the rate of self-disclosure slows while the facts disclosed become increasingly intimate in nature. Intimate self-disclosure allows others to penetrate a person's public persona and discover his or her innermost self. Relationships stagnate when the people involved refuse to self-disclose.

However, SPT is being used in today's modern world to study electronic interactions on the Internet through social media sites and chat rooms. On the one hand, people who meet online are often unable to predict how a person will react to certain types of information, making the cost of self-disclosure difficult to evaluate. On the other hand, the impersonal nature of communicating through a screen may mitigate the cost of sharing intimate information, thus making self-disclosure more likely.

Literature Review

Text messaging or what is more commonly referred to as Short Message Service (SMS), or simply texting, allow users to send short messages quickly and privately to a specific individual or group of individuals (Ceccucci, Peslak, Kruck, & Sendall, 2013). SMS has become the simplest and easiest means of personalized communication (Ceccucci et al., 2013). The mobile phone service and text messaging have overwhelmingly spread over the past few years (Rafat, Noor, Abdul, & Anne, 2010). SMS is an asynchronous mode of computer-mediated communication (CMC), which does not require communicators to be present online simultaneously (Hårdaf Segerstad, 2002). Text messaging is a very popular technology, particularly used by young generations for a variety of purposes such as trading messages with friends and keeping in touch with them, or staying in contact with family (Ling, 2005; Thurlow, 2003). In their text messages, young people use a specific language which has a set of features that make it different from the language of standard writing. It has features from both the written and spoken forms. It also has a distinct pattern in terms of lexical, syntactic and typographical forms (Doring, 2002) that fulfill young peoples' needs as well as providing new technology. The language of SMS has its own style. It saves time, space and effort. Texters use their own language conventions, so SMS communication is viewed as a code for youth (Doring, 2002). Texters make sure that their messages are as economical as possible by using SMS acronyms, abbreviations or a combination of letters and numbers. For example, they use *LOL* instead of lots of laugh/love; *clas* instead of class; *every1* instead of everyone; *gud* instead of good; *2moro* instead of tomorrow; *luv* instead of love; *u* instead of you; *r* instead of are; *wk* instead of week. Ultimately, text messages can be viewed as a productive relationship-building media; however, text messages are also viewed in terms of imprisonment and entrapment (Vashauun, 2012). Text messages must enable one to be

with (out) someone else in a completely different temporal and spatial world, to find union through strings of words, which, like beads upon a bracelet, constantly loop back upon one another in quiet, satisfying recirculation” (Manghani, 2009, p. 230). Conflict may also be more prevalent in text messages because of the ability to edit and revise the message. Individuals may feel they can express their emotions more freely through a text message than face to face (Vashauun, 2012). The fear of interruptions lessens, and the ability to communicate without inhibition may increase (Frisby & Westerman, 2010).

Social presence is the degree of person-to-person awareness, which occurs in a mediated environment (Tu, 2002). Numerous publications (e.g., McBride & Bazley, 1997; Towell & Towell, 1997) have emphasized that social presence is an important construct for future study. Studies (e.g., Tu & McIsaac, 2002) indicate that social presence is the most important perception that occurs in social context and is an important key to understanding person-to-person telecommunication. Social presence is defined as the degree of awareness of another person in an interaction and the subsequent appreciation of an interpersonal relationship (Rice, 1993). Biocca (1997) declared that, the amount of social presence is the degree to which a user feels access to the intelligence, intentions, and sensory impressions of another. Harm and Biocca (2004) asserted that perceived social presence is composed of six dimensions: copresence, attentional allocation, perceived message understanding, perceived emotional understanding, perceived emotional interdependence, and perceived behavioral interdependence.

Copresence has recently and frequently been appearing in the presence literature, an indication of rising interest among researchers in extending presence technology to the realm of human interaction (Zhao, 2003). Copresence is primarily used to refer to either the sense of being together with other people in a remote physical environment (Slater, Sadagic, & Schroeder, 2000),

or the sense of being together with other people in a technology-generated environment (Schroeder, 2002). Copresence is defined here as a form of human co-location in which individuals become “accessible, available, and subject to one another” (Goffman, 1963: 22). In other words, it is a condition in which instant two-way human interactions can take place. Attentional allocation addresses the amount of attention the user allocates to and receives from an interactant (Harms & Biocca, 2004). Perceived message understanding is the ability of the user to understand the message being received from the interactant as well as their perception of the interactant’s level of message understanding (Harms & Biocca, 2004). Perceived affective understanding is the user’s ability to understand an interactant’s emotional and attitudinal states as well as their perception of the interactant’s ability to understand the user’s emotional and attitudinal states (Harms & Biocca, 2004). Perceived affective interdependence is the extent to which the user’s emotional and attitudinal state affects and is affected by the emotional and attitudinal states of the interactant (Harms & Biocca, 2004). Perceived behavioral interdependence is the extent to which a user’s behavior affects and is affected by the interactant’s behavior (Harms & Biocca, 2004).

Recently, narcissism has got increasing attention from researchers. However, we still know little about what narcissists actually do in their everyday lives (Holtzman, Vazire, & Mehl, 2010) or in their intimate relationships (Määttä, 2009). Furthermore, it is often difficult to recognize the narcissist because they can act all emotional states in a credible way (Ellilä, 2008). Narcissism is recognized in conjunction with the use of personal communication as a method for self-enhancement and self-promotion, inhibiting individuals from establishing lasting intimate connections (Panek, Nardis, & Konrath, 2013). Consequently, this can damage an individual’s ability to shape healthy, mutually beneficial relationships (Alloway, Runac, Qureshi, & Kemp, 2014). Online relationships often appeal to narcissists, who are characteristically not able to, or

unwilling to form meaningful friendships that demand any time or emotional investment (Carpenter, 2012). Narcissism consists of unrealistically high self-esteem in combination with low empathy (Konrath, Bushman, & Grove, 2009). Not surprisingly then, narcissism is associated with a number of interpersonal problems. Although people scoring high in narcissism (“narcissists”) make good first impressions (Paulhus, 1998), narcissists have difficulties maintaining close relationships with others over the long term (Paulhus, 1998; Campbell, Foster, & Finkel, 2002). In addition, when narcissists’ egos are threatened they become hostile and aggressive (Konrath, Bushman, & Campbell, 2006). Narcissists are primarily interested in superficial relationships to gain admiration or to achieve status and also often fail to establish deeper and longer friendships (Back et al., 2010; Carlson, 2013).

Hypotheses development

Perceived social presence and frequency of text messaging

Many researchers (Kanuka & Anderson, 1998; McIsaac, Blocher, Mahes, & Vrasidas, 1999) have investigated learner and or instructor perceptions of online courses, only focusing on the interaction dimension. It has recently been found that to increase the level of online interaction, the degree of social presence also must be increased (Tu, 2000). For instance, Tu conducted a study on the dimensions of social presence in the online learning environment found that a high level of social presence was necessary to enhance, foster and increase interaction. Vashauun (2012) found that a relationship exists between social presence and frequency of text messaging and that mobile phones have created this idea of perpetual contact. Mobile phone users are basically accessible at all times, no matter where they are or what they are doing.

A study of the effects of cell phone use in a simulated driving environment (Kass, Cole, & Stanny, 2007) found that cell phone use was distracting to individuals. Researchers attribute the

effects of cell phone use to increased cognitive load that interfere with the ability to maintain situational awareness. However, the brain imaging research (Just, Keller, & Cynkar, 2008; Schweizer, Grahn, Hampshire, Mobbs, & Dalgleish, 2013) suggests that even removing the need to hold or dial the phone will not eliminate all aspects of distraction created by talking on phones. Texting while concentrating in other activities is often very difficult because this behavior greatly impedes attention to other activities. For instance, a study in a simulated driving environment showed that engaging in even very brief texting interfered with driving safety in adult drivers (McKeever, Schultheis, Padmanaban, & Blasco, 2013).

Hypothesis 1: Copresence will be significantly related to frequency of text messaging.

Hypothesis 2: Attentional allocation will be significantly related to frequency of text messaging.

Hypothesis 3: Perceived message understanding will be significantly related to frequency of text messaging.

Hypothesis 4: Perceived affective understanding will be significantly related to frequency of text messaging.

Hypothesis 5: Perceived affective interdependence will be significantly related to frequency of text messaging.

Hypothesis 6: Perceived behavioral interdependence will be significantly related to frequency of text messaging.

Narcissism and Frequency of Text Messaging

Few studies have been conducted on narcissism and none has been conducted on narcissism and text messaging. Wickel (2015) conducted a research on social networking sites and narcissism. Social networking sites, such as Facebook and Twitter, offer an easy way to participate in the attention-seeking, self-important behaviors of narcissists. Previous research suggests that narcissism may be positively related to posting different types of self-promoting content on social networking platforms (Alloway et al., 2014). Mendelson and Papacharissi (2010) looked at the

increasing trends of narcissism developing among adolescents from a visual point of view, and how the amount of narcissistic qualities and traits were increasing due to Social Network Site (SNS) users' display of personal photographs on their home pages.

Hypothesis 7: Narcissism will be significantly related to frequency of text messaging

Gender and frequency of text messaging

A number of studies have found that females spend more time texting and send more messages in a day than do males (Ceccucci et al., 2013). Igarashi, Jiro, and Toshikazu (2005) determined that the volume of text messaging did not vary by gender. Peslak, Ceccucci and Sendall (2010) studied instant messaging usage and found gender differences in how relative advantage influences their intentions to use instant messaging. Balakrishnan and Yeow (2007) looked at the physical aspects of texting, specifically the speed and efficiency of text entry. They found that females were more satisfied than males. Vankatesh and Morris (2000) found that males and females differ in the adoption and use of technology in that women tend to be more open to the technology if it has a certain level of ease of use. Grellhesl and Punyanunt-Carter (2012) found women have more conversation-type text messaging, and more in-depth conversations with good friends. Women also tend to communicate with more text messages for the similar communications because with CMC, the non-verbal cues are missing. Kimbrough, Guadagnob, Muscanelle, and Dilld (2013) found that females, compared to males, are generally more frequent mediated communication users. Compared to men, women prefer and more frequently use text messaging, social media, and online video calls. Women tend to send more text-messages than men, and women's messages are more likely to be longer and more complex (e.g., Rosen, Carrier, & Cheever, 2010). However, research has indicated that the limited evidence as to whether girls and boys differ in their text-messaging behaviour is mixed. For example, Ling (2005) also reported

that teenage girls tend to text more, write longer texts, employ more sophisticated syntax, use less abbreviations, salute and close more, and use more punctuation than males do.

Hypothesis 8: Gender will be significantly related to frequency in text messaging

Method

Participants and Procedure

Students from two universities in southeast Nigeria were randomly sampled for the study. They consisted a total of ($N = 247$), comprising 127 females (51%) and 120 males (49%). Their ages ranged from 18-28 years, with a mean age ($M = 24.79$ years; $SD = 3.10$). The participants were predominantly Igbo of the southeastern Nigeria. Participation was voluntary. For effective distribution of the 300 copies of the questionnaire, the researchers recruited and trained three research assistants. Out of this number that were distributed two hundred and seventy (270) questionnaires were returned, representing 90% return rate. Out of this number returned, 23 copies were discarded due to improper completion and 247 copies only were properly filled and were used for the data analyses. It took the researchers and the assistants three weeks to distribute the questionnaires and retrieve them.

Instruments

Perceived social presence. Harms and Biocca's (2004), networked minds social presence scale was used. The scale is made up of 36 items, with six (6) sub division. Each sub-division representing a specific component of perceived social presence was evaluated on a seven-point scale. Cronbach's α reliability coefficient tests indicated that the 6 sub scales: copresence, attentional allocation, perceived message understanding, perceived emotional understanding, perceived emotional interdependence, perceived behavioral interdependence items yielded an alpha reliability of .83,.81,.87,.86,.85, and .82 respectively. Sample items include: "I noticed (my

partner)” – copresence and “I was easily distracted from (my partner) when other things were going on.” – attentional allocation.

Narcissism. The NPI-16 Subclinical narcissism scale developed by Ames, Rose, and Anderson (2013) was used. The NPI-16 had an *alpha* of .72. The scale is made up of 16 items designed to elicit information on narcissism. A Cronbach’s α of .83 was established for the present study.

Frequency of text messaging. Frequency of text messaging scale developed by Barnes, Chantry and Oslen, that was adapted by Odoh (2015) that is measured on a five-point Likert scale ranging from (1 = never to (5 = very often) was used to assess the rate at which participants use text message as a medium of communication. It is a paper and pencil test that describes how often one text message to friends, relatives or parents. Cronbach’s α of the scale for the present study was .77.

Results

Table 1: Bivariate statistics and intercorrelations among study variables

S/n	Variables	Mean	SD	1	2	3	4	5	6	7
1.	Freq. of text msg.	23.49	5.11	-						
2.	Age	24.79	3.10	-.16**	-					
3	Marital status	1.22	.41	.18**	.01	-				
4.	Copresence	28.37	7.43	.07	.05	.03	-			
5.	Attent. allocation	24.62	6.25	-.01	.05	-.00	.23***	-		
6.	PMU	25.84	5.98	.02	.03	-.01	.43***	.52***	-	
7.	PAU	24.60	6.06	.41***	-.05	.19**	.32***	.31***	.37***	-
8.	PEI	30.96	8.17	.30***	.02	.09	.30***	.24***	.48***	.20***
9.	PBI	26.08	8.18	.36***	.05	.11*	.25***	.13*	.32***	.28***
10	Narcissism	7.47	2.44	.13*	-.01	.02	-.05	.05	.04	.11*
11	Gender	1.53	.50	-.57***	.43***	-.06	-.111*	-.12*	.02	-.26***

Note: * = $P < .05$; ** = $P < .01$; *** = $P < .001$. PAU = Perceived Affective Understanding, PEI = Perceived Emotional Interdependence, PMU = Perceived Message Understanding, PEI = perceived emotional interdependence, PBI = Perceived Behavioral Interdependence. A total number 247 participants participated in the study. Gender (1 = female, 2= male); marital status (1=single, 2 = marital), narcissism and all the dimensions of perceived social presence were coded such that higher scores indicated higher report of such behavior. Ages were entered as received.

Table 2: Hierarchical regression results

Variables	Step 1	Step 2	Step 3	Step 4
Age	-.16*	-.14*	-.14*	-.05
Marital status	.18*	.05	.05	.05
Copresence		-.06	-.06	-.10
Attention allocation		-.06	-.07	-.07
PMU		-.31***	-.31***	-.20**
PAU		.41***	.41***	.30***
PEI		.32***	.31***	.26***
PBI		.26***	.26***	.21***
Narcissism			.03	-.01
Gender				-.46***
R ²	.05	.36	.36	.51
R ² change	.06	.32***	.00	.15*
F change	7.55	20.54	.40	73.53
F values	7.55	18.20	16.18	26.37

Key: * = $p < .05$; ** = $p < .01$; *** = $p < .001$

The results of the hierarchical regression analyses revealed that the control variables accounted for 5.1% of the variance in the criterion variables (frequency of text messaging). In the regression equation model the two control variables were statistically significant. While age was

negatively related to frequency of text messaging ($\beta = -.16, p < .05$) and marital status was positively related to frequency of text messaging ($\beta = .18, p < .05$).

The result further indicated that the dimensions of perceived social presence additively accounted for 35.9 percent of the variance in frequency of text messaging far and above the control variables. Independently, in the regression equation model, consistent with stated hypotheses, four out of the six dimensions of perceived social presence were statistically significant: perceived message understanding (PMU) ($\beta = -.31, p < .001$), perceived affective understanding (PAU) ($\beta = .41, p < .001$), perceived emotional interdependence (PEI) ($\beta = -.32, p < .001$), perceived behavioral interdependent (PBI) ($\beta = .26, p < .001$). Contrary to speculations copresence and attention allocation was not statistically significant ($p > .05$).

Narcissism accounted for 35.7 percent of the variance in frequency of text messaging far and above the control variables and perceived social presence. In the regression equation, narcissism was not statistically significant ($p > .05$). This is also contrary to stated hypothesis in that narcissism will be significantly related to frequency of text messaging. Furthermore, gender accounted for 50.8 percent of the variance in the criterion variable far and above the control variables, perceived social presence and narcissism. In the regression equation, gender was statistically significant ($\beta = -.46, p < .001$). This is consistent with hypothesis 7 in that gender will be significantly related to frequency of text messaging.

Discussion

The study investigated the relationships between perceived social presence, narcissism, gender and frequency of text messaging. The findings of this study revealed that five out of the eight hypotheses stated yielded a significant outcome. First, copresence, a component of perceived

social presence was not significantly related to frequency of text messaging. This finding implies that copresence is rarely felt when sending text messages. This result was expected in that text messaging is essentially necessitated by the distance between people and as such text messaging becomes the medium of communication. This finding is in line with the findings of Champness (1972) that online users perceive different communication media with different levels of privacy in different circumstances. A factor that may contribute to copresence inability to significantly relate with frequency of text messaging is system privacy; system privacy refers to the actual security of computer-mediated communication (CMC) technologies and considers the likelihood that someone may read, send or resend a message to or from you (Sproull & Kiesler, 1986; Kerr & Hiltz, 1982).

The findings of the study also showed that attentional allocation which is the amount of attention the user allocates to and receives from an interactant (Harms & Biocca, 2004), was found not to be related to frequency of text messaging. In other words, people do not pay attention to interactants during text messages except when the message enters their phone. This result was due to the fact that people tend to be unaware of the activities of interactants until they receive text messages from them. This is contrary to the speculation that attentional allocation will be significantly related to frequency of text messaging.

The third hypothesis, which stated that there will be no statistically significant relationship between perceived message understanding component of perceived social presence and frequency of text messaging, was rejected indicating that perceived message understanding is related to the number of text messages sent. Perceived message understanding is the ability of the user to understand the message being received from the interactant as well as their perception of the interactants level of message understanding (Harms & Biocca, 2004). This hypothesis supports the

theory of planned behaviour developed by Ajen and Fishbein (1975) and uses and Gratification theory that focuses on why consumers turn to technology to satisfy their social and psychological needs (Krishana & Raj, 2012).

The fourth hypothesis stated that there will be no statistically significant relationship between perceived affective understanding and frequency of text messaging. This hypothesis was rejected; implying that a significant relationship exist between perceived affective understanding and frequency of text messaging. Perceived affective understanding is the users' ability to understand an interactant's emotional and attitudinal states as well as their perception of the interactant's ability to understand the users' emotional and attitudinal states (Harms & Biocca, 2004). This indicates that people are prone to understand interactant's emotional and attitudinal states while sending text messages and this agrees with the findings with (Derlega, Metts, Petronio, Hendrick, & Margulis, 1993).

The fifth hypothesis stated that there will be no statistically significant relationship between perceived affective interdependence component of perceived social presence and frequency of text messaging. This hypothesis was rejected, showing that a significant relationship exist between perceived affective interdependence and frequency of text messaging. Perceived affective interdependence is the extent to which the users emotional and attitudinal state affects and is affected by the emotional and attitudinal states of the interactant (Harms & Biocca, 2004).

The sixth hypothesis stated that there will be no statistically significant relationship perceived between behavioural interdependence component of perceived social presence and frequency of text messaging. This hypothesis was rejected, implying that a significant relationship exist between perceived behavioural interdependence and frequency of text messaging. Since four

out of six components of perceived social presence were significant in relation to frequency of text messaging. It can be deduced that this study supports Vashauun (2012), who found that a relationship exist between social presence and frequency of text messaging.

The seventh hypothesis stated that there will be no statistically significant relationship between narcissism and frequency of text messaging. This hypothesis was accepted implying that narcissism has no relationship with the rate at which messages are sent. These findings contradict the findings of Wickel (2015) on social networking sites and narcissism. This might be because text messages is more personal than Facebook and Twitter which Wickel (2015) used for his study; thereby supporting the findings of Maatta, Uusiautti and Maatta (2012) that Narcissists find it difficult to maintain interpersonal relationships.

Hypothesis 8 stated that there will be no statistically significant relationship between gender and frequency of text messaging. This hypothesis was rejected, indicating that a significant relationship exist between gender and frequency of text messaging. Specifically, females engage more in text messaging than their male counterparts. This result seems to underscore the notion that males are more restrictive when it comes to communication, especially in the use of SMS. Unlike females, males tend to withhold their thoughts and feelings, whereas the females are more expressive with issues than their male counterparts and this may be the reason females reported better score on text messaging. This was in accordance with the findings of other scholars (Ceccucciet al., 2013; Baron, 2004; Vankatesh & Morris, 2000).The result also seems to be consistent with Peslak et al., 2010) who found gender differences in how relative advantage influences their intentions to use instant messaging. The present study equally contradicted earlier studies (e.g., Igarashi et al., 2005) which found that the volume of text messaging did not vary by gender.

Limitations of the study and suggestions for future study

Like many other studies, the present has obvious limitations. First is the cross-sectional data with its associated shortcomings. Hence the present study could not establish cause-effect relationship. Longitudinal data is needed to address this and future researchers are encouraged to establish this. Another limitation is the single source of data that brings about social desirability bias. Future researchers should endeavour to adopt other (multiple) sources of data to cushion any bogus data that may have resulted from single source. Although anonymity promised and adhered to might have limited such bias but may not have eliminated it. Another limitation is concerned with the sample size. Only 247 participants were sampled for the study; out of myriad of university students in Nigeria. As such, it becomes difficult to generalize the findings of the study. Future studies should sample large number of university students to justify any sense of generalization. Finally, there are other factors that could be related to frequency of text messaging but which were not examined in the present study. Future researchers in this area are expected to look at frequency of text messaging in relation to marital status; and also the two types of narcissism vulnerable and grandiose narcissism.

In conclusion therefore, the present study which explored the relationship between perceived social presence, narcissism, gender and frequency of text messaging is one of the first attempts to expose the antecedents of frequency of text messaging in Nigeria. Therefore the study has added to existing literature in this regard.

References

- Ajidahun, B. (2014). Students' perceptions of cell phones and emotional behaviour of undergraduate in Nigeria universities. *Journal of Educational and Social Research*, 4(6). MCSER. Publishing, Rome-Italy.
- Alloway, T., Runac, R., Qureshi, M., & Kemp, G. (2014). Is Facebook linked to selfishness? Investigating the relationships among social media use, empathy, and narcissism. *Social Networking*, 3, 150-158.
- Altman, I., & Taylor, D. A. (1973). *Social penetration: The development of interpersonal relationships*. Oxford, England: Holt, Rinehart & Winston.
- Ames, D. R., Rose, P., & Anderson, C. P. (2006). The NPI-16 as a short measure of narcissism. *Journal of Research in Personality*, 40, 440-450.
- Back, M. D., Stopfer, J. M., Vazire, S., Gaddis, S., Schmukle, S. C., Egloff, B., & Gosling, S. D. (2010). Facebook profiles reflect actual personality, not self-idealization. *Psychological Science*, 21(3), 372-374.
- Balakrishnan, V., & Yeow, P. H. P. (2007). Texting satisfaction: Does age and gender make a difference? *International Journal of Computer Science and Security*, 1(1), 85-96.
- Balakrishnan, V., & Raj, R. G. (2012). Exploring the relationship between urbanized Malaysian youth and their mobile phones: A quantitative approach. *Telematics and Informatics*, 29(3), 263-272.
- Baron, N. S. (2004). Gender issues in college student use of instant messaging. *Journal of Language and Social Psychology*, 23(4), 397-423.
- Biocca, F. (1997). Cyborg's dilemma: Embodiment in virtual environments. *Journal of Computer-Mediated Communication*, 3(2) (Retrieved November 11, 1998, from <http://www.ascusc.org/jcmc/vol3/issue2/biocca2.html>).
- Campbell, W. K., Foster, C. A., & Finkel, E. J. (2002). Does self-love lead to love for others? A story of narcissistic game playing. *Journal of Personality and Social Psychology*, 83(2), 340-354.
- Carlson, E. N. (2013). Overcoming the barriers to self-knowledge mindfulness as a path to seeing yourself as you really are. *Perspectives on Psychological Sciences*, 8(2), 173-186.
- Carpenter, C. J. (2012). Narcissism on Facebook: Self-promotional and anti-social behavior. *Personality and Individual Differences*, 52(4).
- Ceccucci, W., Peslak, A., Kruck, S., & Sendall, P. (2013). Does Gender Play A Role In Text Messaging? *Issues in Information Systems*, 14(2), 186-194.

- Champness, B. G. (1972). *Attitudes towards person-person communications media*. University College, London: Unpublished Communications Studies Group Paper No. E/72011/CH.
- David, P., Kim, J-H., Brickman, J. S., Ran, W., & Curtis, C. M. (2014). *Mobile phone distraction while studying*. New Media & Society. <http://dx.doi.org/10.1177/1461444814531692>
- Derlega, V. J., Metts, S., Petronio, S., Hendrick, C., & Margulis, S. T. (1993). *Self-disclosure*. Newbury Park, CA: Sage.
- Doring, N. (2002). *Have you finished work yet?: Communicative functions of text messages (SMS)*. Retrieved May 5, 2014, from www.receiver.vodafone.com
- Ellilä, T. (2008). *Jätä sääli ja pakene, tai narsisti vie sinut hulluuden partaalle [Leave the pity and run – or the narcissist makes you lose your mind]*. Retrieved November 9, 2009 from <http://www.aamulehti.fi/teema/terveys/58260.shtml>
- Eruvwe, U., Sambo, A. S., & Salami, R. (2014). Utilization of cell phone for research among postgraduate students in the University of Nigeria, Nsukka: The study. *Research on Humanities and Social Sciences*, 4(18), 119-124.
- Falisi, A. L. (2012). *Can a text message influence our perceptions of the physical world? Text messaging as a prime for social support*. Honors Thesis Presented to the College of Agriculture and Life Sciences, Department of Communication of Cornell University.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Forgays, D. K., Hyman, I., & Schreiber, J. (2014). Texting everywhere for everything: Gender and age differences in cell phone etiquette and use. *Computers in Human Behavior*, 31, 314–321.
- Frisby, B., & Westerman, D. (2010). Rational actors: Channel selection and rational choices in romantic conflict episodes. *Journal of Social and Personal Relationships*, 27(7), 970-981.
- Goffman, E. (1963). *Behavior in public places*. New York: The Free Press.
- Grellhesl, M., & Punyanunt-Cater, N. M. (2012). Using the uses and gratifications theory to understand gratifications sought through text messaging practices of male and female undergraduate students. *Computers in Human Behavior*, 28(6), 2175–2181.
- Hård af Segerstad, Y. (2002). *Use and adaptation of written language to the conditions of computer-mediated communication*. (Doctoral dissertation, Göteborg University, Göteborg, Sweden). Retrieved April 5, 2009, from http://www.ling.gu.se/%7eylvah/dokument/ylva_diss.pdf

- Harms, C., & Biocca, A. F. (2004). Internal consistency and reliability of the networked minds social presence measure. In M. Alcaniz & B. Rey (Eds.), *Seventh annual international workshop: Presence 2004*. Valencia: Universidad Politecnica de Valencia.
- Holtzman, N. S., Vazire, S., & Mehl, M. R. (2010). Sounds like a narcissist: Behavioral manifestations of narcissism in everyday life. *Journal of Research in Personality*, 44(4), 478-484.
- Igarashi, T., Takai, J., & Yoshida, T. (2005). Gender differences in social network development via mobile phone text messages: A longitudinal study. *Journal of Social and Personal Relationships*, 22, 691-713.
- Just, M. A., Keller, T. A., & Cynkar, J. (2008). A decrease in brain activation associated with driving when listening to someone speak. *Brain Research*, 1205, 70-80.
- Kanuka, H., & Anderson, T. (1998). On-line social interchange, discord, and knowledge construction. *Journal of Distance Education*, 13(1), 57-74.
- Kass, S. J., Cole, K. S., & Stanny, C. (2007). Effects of distraction and experience on situation awareness and simulated driving. *Transportation Research Part F Traffic Psychology and Behaviour* 10(4), 321-329.
- Kerr, E. B., & Hiltz, S. R. (1982). *Computer-mediated communication systems: status and evaluation*. New York: Academic Press.
- Kimbrough, A. M., Guadagno, R. E., Muscanell, N. L., & Dill, J. (2013). Gender differences in mediated communication: Women connect more than do men. *Computers in Human Behavior*, 29, 896-900.
- Konrath, S., Bushman, B. J., & Campbell, W. K. (2006). Attenuating the Link Between Threatened Egotism and Aggression. *Psychological Science*, 17(11), 995-1001.
- Konrath, S., Bushman, B., & Grove, T. (2009). Seeing my world in a million little pieces: narcissism, self-construal, and cognitive-perceptual style. *Journal of Personality*, 77(4), 1197-1228.
- Ling, R. (2005). The Sociolinguistics of SMS: An analysis of SMS use by a random sample of Norwegians. In R. Ling & P. Pederson (Eds.), *Mobile communication and the recognition of the social sphere* (pp. 335-350). London: Springer.
- Määttä, M. (2009). *Now, I'm looking at the evilness of the world in the eye: An intimate relationship in the shadow of narcissism*. Unpublished master thesis, University of Lapland, Rovaniemi, Finland.
- Määttä, M., Uuscaatti, S., & Määttä, K. (2012). *International journal of research studies in psychology*, 1(1), 37-50.

- Manghani, S. (2009). Love messaging: Mobile phone txting seen through the lens of Tanka Poetry. *Theory, Culture & Society*, 26(2-3), 209-232
- McBride, N. K., & Bazley, M. (1997). Threads of conversation: the life of a public e-mail conference. Paper presented at the 5th European Conference on Information Systems. 316
C.-H. Tu / *Internet and Higher Education* 5 (2002) 293–318
- McIsaac, M.S., Blocher, J. M., Mahes, V., & Vrasidas (1999). Student and teacher perceptions of interaction in online computer-mediated communication. *Educational Media International*, 36, 121-131.
- McKeever, J. D., Schultheis, M. T. Padmanaban, V., & Blasco, A. (2013). Driver performance while texting: Even a little is too much. *Traffic Injury Prevention*, 14(2), 132-137.
- Mendelson, A. & Papacharissi, Z. (2010). Look at Us: Collective Narcissism in College Student Facebook. Photo Galleries. In Z. Papacharissi (Ed.), *A networked self: Identity, community and culture on social network sites* (pp. 251-273). Routledge: London.
- North, D., Johnston, K., & Ophoff, J. (2014). The use of mobile phones by South African university students. *Issues in Informing Science and Information Technology*, 11, 115-138.
- Odoh, P. O. (2015). *The relationship between perceived social presence, narcissism, gender and frequency of text messaging among university undergraduates*. Unpublished B.Sc project, presented to the Department of Psychology and Sociological Studies, Ebonyi State University, Abakaliki, Ebonyi State.
- Panek, E.T., Nardis, Y., & Konrath, S. (2013) Mirror or Megaphone How Relationships between Narcissism and Social Networking Site Use Differ on Facebook and Twitter. *Computers in Human Behavior*, 29, 2004-2012.
- Paulhus, D.L. (1998). Interpersonal and intrapsychic adaptiveness of trait self-enhancement: A mixed blessing? *Journal of Personality and Social Psychology*, 74, 1197–1208.
- Peslak, A. R., Ceccucci, W., & Sendall, P. (2010). An empirical study of text messaging, behavioral intention and usage. *Journal of Information Systems Applied Research*, 3(3). <http://jisar.org/3/3/>.
- Rafat, M., Noor, H., & Christopher, A. (2010). “Where are you?” The communicative functions of Saudi students’ text messaging. *International Journal of English Linguistics*, 4(3), 23-33.
- Rice, R. E. (1993). Media appropriateness: Using social presence theory to compare traditional and new organization media. *Human Communication Research*, 19(4), 451–484.
- Rosen, L.D., Carrier, L. M., & Cheever, N. A. (2010). *Rewired: Understanding the generation and the way they learn*. NY: Palgrave Macmillan.

- Schroeder, R. (2002). Copresence and interaction in virtual environments: An overview of the range of issues. *Conference Proceedings of the 5th Annual International Workshop: Presence 2002*, 274–295.
- Schweizer, S., Grahn, J., Hampshire, A., Mobbs, D., & Dalgleish, T. (2013). Training the emotional brain: Improving affective control through emotional working memory training. *Journal of Neuroscience*, 33, 5301–5311.
- Slater, M., Sadagic, A., & Schroeder, R. (2000). Small-group behavior in a virtual and real environment: A comparative study. *Presence: Teleoperators and Virtual Environments*, 9(1), 37–51.
- Smith, A. (2011). *Americans and text messaging*. Pew Research Center, Pew Internet and American Life Project. Retrieved from <http://pewinternet.org/Reports/2011/Cell-Phone-Texting-2011/Summary-of-Findings.aspx>
- Sproull, L. S., & Kiesler, S. (1986). Reducing social context cues: electronic mail in organizational communication. *Management Science*, 32(11), 1492–1512.
- Suominen, A., Hyrynsalmi, S., & Knuutila, T. (2014). Young mobile users: Radical and individual - Not. *Telematics and Informatics*, 31(2), 266–281.
- Thurlow, C. (2003). Generation txt? The sociolinguistics of young people's text-messaging. *Discourse Analysis Online*, 1(1). Retrieved March 9, 2009, from <http://www.shu.ac.uk/daol/articles/v1/n1/thurlow2002003-paper.html>
- Towell, J., & Towell, E. (1997). Presence in text-based networked virtual environments or “MUDS”. *Presence*, 6(5), 590–595.
- Tu, C. (2002). The relationship between social presence and online privacy. *Internet and Higher Education*, 5, 293–318.
- Tu, C. H. (2000). Critical examination of factors affecting interaction on CMC. *Journal of Network and Computer Applications*, 23(1), 39–58.
- Tu, C. H., & McIsaac, M. S. (2002). An examination of social presence to increase interaction in online classes. *American Journal of Distance Education*, 16(3), 131–150.
- Vashuun M. B. (2012). Relational maintenance: An examination of how gender, relational maintenance strategies and commitment affect the use of text messages in romantic relationships. *Dept of Communication, media and Theatre Arts; Eastern Michigan University*.
- Venkatesh, V., & Morris, M.G. (2000). Why don't men ever stop to ask for directions: Gender, social influence, and their role in technology acceptance and usage behavior. *MIS Quarterly*, 24, 115–39.

- Walsh, S., White, K., & Young, R. (2010). Needing to connect: The effect of self and others on young people's involvement with their mobile phones. *Australian Journal of Psychology*, 62(4), 194–203.
- Wickel, T. M. (2015). Narcissism and social networking sites: The act of taking selfies. *Elon Journal of Undergraduate Research in Communications*, 6(1), 1-2.
- Zhao, S. (2003). Towards a taxonomy of copresence. *Presence*, 12(5), 445–455.