ONLINE INTERGENERATIONAL COMMUNICATION OF YOUNG ADULTS IN THE UNITED STATES, AUSTRALIA AND GUAM

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Abstract

A survey conducted in the United States, Australia, and Guam examined the frequency of young adults' online intergenerational communication (IGC), their perceptions of online IGC with family and non-family elderly, and potential cultural differences in perceptions of online IGC. Results showed that participants engaged in more online IGC with family elderly than non-family elderly, email was the most frequently used source in online IGC, and little IGC is occurring online. Online IGC with family elderly was perceived as more accommodating, yet requiring more respect/obligation and more avoidant communication than online IGC with non-family elderly. Also, online IGC with non-family elderly was perceived as more non-accommodating than online IGC with family elderly. Finally, Guam participants perceived online IGC differently than the U.S. and Australian participants; no differences were found between the Australian and U.S. participants.

Online Intergenerational Communication of Young Adults in the

United States, Australia, and Guam: Frequency of Engagement and Perceptions

The exponential growth and increased participation of all generational groups in online social networks (Pew Research Center, 2010, 2011, 2012) suggest that online communication between the young and old is an important research agenda. Currently, however, there is a gap in research examining online interactions between differing age groups. Specifically, while online intragroup communication (i.e., communication with people in one's age group) has been found to be beneficial and satisfying (e.g., Barker, 2012; Barker & Ota, 2011), it is not clear whether the online intergenerational climate between the young and elderly would be perceived similarly, or whether it would be characterized as dissatisfying and fraught with potential problems in the same way as offline intergenerational interactions (Williams & Giles, 1996).

Harwood (2000) found that more frequent mediated communication between the young and elderly leads to healthier intergenerational relationships. Additionally, cross-national/cross-cultural IGC research consistently reports that young people hold negative stereotypes of older adults (Harwood, Giles, McCann, Cai, et al., 2001; Ota, Giles, & Gallois, 2002), including stereotypes such as "incompetent," "irritable," and "cognitively deficient" (Giles, Ryan, & Anas, 2008; Nelson, 2002). In light of these negative stereotypes and the potential that online IGC as a form of mediated communication could benefit intergenerational relationships, it seems appropriate and timely to examine the frequency with which young people engage in, and their perceptions of, online IGC.

The present study attempts to extend research in offline IGC to the online context. The purpose of this study is three-fold. First, it examines the frequency with which young adults engage in online intergenerational communication. Second, it analyzes young adults'

perceptions of online IGC with family and non-family elderly. Third, it explores potential

differences in perceptions of online IGC across three cultural contexts. To this end, our study

examines online IGC among young adults living in the United States[1], Australia, and Guam.

While research in offline IGC in the U.S. has accumulated in the past two decades, the online

context has not been addressed—particularly, in other Western countries (e.g., Australia) and

places with traditional cultures strongly adhering to the ethic of filial piety (a general respect for

elderly), yet also strongly influenced by the West (e.g., Guam). Our study seeks to fill these

noted gaps in research.

Literature Review

Internet use in the United States, Australia, and Guam

The need to extend intergenerational communication research to the online context is

important in light of recent reports from the *Pew Internet and American Life Project* (Pew

Research Center, 2010, 2011, 2012a, 2012b) that Internet and online social network use in the

United States among Internet users age 50 and older has nearly doubled (from 22% to 42% in

2010). In addition, as of April 2012, 53% of Americans who are 65 and over use the Internet.

As the Pew report (2012a) notes, "this is the first time that half of seniors are going online."

This is a significant development, considering that Internet use in this age group did not grow

very much during the last few years. Although in the U.S., email remains a primary channel for

communicating with friends, families, and colleagues, older Internet users now also rely on

online social networks to manage their daily communication—including sharing links, videos,

news, and status updates with a growing network of online contacts. According to the Pew

Research Center (2012), 82% of seniors report going online on an average day, and 34% of these

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[1] Note that for this article, we define U.S. as including only the 50 U.S. states. We state this as a note because Guam is also a U.S. territory.

older Internet users are now on online social networks such as Facebook (Pew, 2012). This

figure represents a more than 100% increase since 2009. Communication between the old and

young is now likely to occur more than ever before as the Pew Research Center (2012b) also

reports that about 93% of young adults ages 18 to 29 go online. In the past decade, young adults

together with teens have been the most likely to go online among other age groups.

   A robust growth in the use of the Internet and social networking sites (SNS) seen in the

U.S. is also evident in Australia. A 2012 Sensis and Australian Interactive Media Industry

Association (AIMIA) report showed that 52% of Australians use the Internet everyday (Sensis,

2012). Internet usage was almost universal across all states and territories at an average of 98%

of participants reporting that they have used the Internet, with only Tasmania reporting a slightly

lower percentage at 94% (Sensis, 2012). In 2010, Nielsen reported that 90% of 16- to 29-year-

olds used the Internet daily (Nielsen, 2010). Two years later, in 2012, that number increased to

100% for the same age group (Sensis, 2012). Furthermore, among Australians who are 65 and

over, there was a 44% increase in time spent using social networks over the period of one year

(Sensis, 2012). Females were more likely than males to use social networking sites and were

also more likely to be frequent users. In terms of use among age groups, 46% of participants

who were 14 to 19 and 20 to 29 reported using social media (Facebook, Twitter, or Linkedin)

daily. Among those age 65 and over, 39% said they use social media. The Australian

Communications and Media Authority (ACMA) (2012) lists activities that older users were less

likely to do. These included general surfing (51% compared with 70% for 14 years and over),

downloading files or pictures (57% compared with 66% on average), and playing video games

(40% compared with 48% on average) (ACMA, 2012). The main drivers for older Australians'

adoption of new means of communication are to ensure connectivity with family and stay

involved with work once they leave the workplace (Consumers' Telecommunications Network, 2008). Popular activities for users age 65 and over include checking banking accounts, paying bills, and accessing news and current affairs.

As a U.S. territory in the Western Pacific, the island of Guam has kept pace with developments in Internet infrastructure. However, it has lagged behind in affordability, and Internet users have to pay significantly more for high-speed access and other services. The Guam Telephone Authority notes that the higher cost is due to the expensive "middle mile" submarine cable transport needed to take traffic back and forth from an Internet peering point over 5,000 miles away (Guam Telephone Authority Public Notice Submission, 2011). With the U.S. Census indicating very dynamic migration patterns in Guam (as of 2000, only 40% of the indigenous Chamorros live on the island compared to 84% in 1970; members of this group have migrated primarily to the U.S. mainland), the distances between family networks, combined with the highly developed sense of filial piety (respect for elderly), may increase the use of online communication channels, despite the costs. In Guam, the number of Internet users in 2010 was estimated at 90,000, which was approximately 49% of the population during that year (Internet World Stats, 2012a). Current online social networking statistics indicate that Facebook penetration in Guam is 34.1% (Social Bakers, 2012) compared to the island's population, and 71.6% in relation to the number of Internet users. As of 2012, the total number of Facebook users in Guam is reaching more than 60,000 and growing by more than 18,000 within a period of six months. Furthermore, the 55 to 64 age group recorded the biggest gain in a period of three months (Social Bakers, 2012).

The adoption of the Internet in the three cultural contexts being studied (U.S., Australia, Guam) is evident in the above literature. Likewise, across the three cultural contexts, data show

that engagement with online social networking is becoming an increasingly important

communication activity. Yet what is not clear is how much of this communication is

intergenerational. Our study, therefore, attempts to fill this gap in research.

IGC

Intergenerational communication can be defined as a type of intergroup communication,

which is "any communicative behavior exhibited by one or more individuals toward one or more

others that is based on individuals' identification of themselves and others as belonging to

different social categories" (Hajek & Giles, 2003, p. 141). In this case, the groups involved are

those who are "young" and "old" as defined by social judgments used as a basis for

categorization and behavioral expectations (Harwood, Giles, & Ryan, 1995). The study of IGC

has spanned several decades and reveals differential views of intragroup (same age) and

intergroup (different ages, particularly, generational groups) interactions.

Perceptions of IGC

For more than two decades now, researchers have examined perceptions of

intergenerational communication. The early work of Williams and colleagues (Williams &

Giles, 1996; Williams et al., 1997) in this area used cross-national/cross-cultural surveys of

young college students to investigate their perceptions of communication with older people. The

tradition of cross-cultural research in young peoples' perceptions of IGC continued through the

early part of the 21st century, notably, by Giles and colleagues (e.g., Giles, Ballard, & McCann,

2002; Giles, Noels, Williams, Ota, et al., 2003).

The contemporary research program on perceptions of IGC is conceptually rooted in

communication accommodation theory (CAT) (Giles, Mulac, Bradac, & Johnson, 1987). CAT is

guided by the assumption that human interactions are "fueled by social stereotypes" (McCann &

Giles, 2006, p. 75) and that people modify their communication behaviors "in order to belong to, or differentiate themselves from, various groups" (McCann et al., 2004, p. 275). In this vein, according to the tenets of CAT, individuals of a younger age group will tend to communicate in a manner that is biased and in favor of their own group; the same can be said for elderly groups and their intra- and intergenerational communicative behaviors. Indeed, research suggests that young people perceive their communication with older people more negatively than their communication with members of their age groups (e.g., McCann at al., 2004).

In addition, research on CAT reveals that younger age groups may judge their conversations with older age groups in one of three to four ways (see Williams & Giles, 1996). This is reflected in McCann and colleagues' work (McCann, 2003; McCann et al., 2004) on the Global Perceptions of Intergenerational Communication (GPIC) scale. This scale consists of either three (accommodation, non-accommodation, respectfully avoidant behavior) or four factors (accommodation, non-accommodation, respect/obligation, avoidant communication) intended to measure perceptions of IGC, and confirmatory factor analyses show good fit for both the three- and four-factor models (e.g., see Keaton & McCann, 2011; McCann & Giles, 2007). Our study focuses on examining the four factors of perceptions of IGC.

The first factor we examine is *accommodation*, which is categorized under "perceptions of others' communication" (McCann & Giles, 2006). Accommodation occurs when a young person has a satisfying experience when conversing with an older person (e.g., the young person perceiving the older person as supportive). The second factor is *non-accommodation*, which is also categorized under "perceptions of others' communication," and occurs when the young person is dissatisfied with the conversation experience (e.g., the older person was perceived as not listening).

McCann et al. (2004) have demonstrated that a third and fourth factor make up a second category referred to as "perceptions of one's own communication." Respectively, the two other factors we examine are *respect/obligation*, which occurs when young people feel obligated to act polite during conversations with the elderly (e.g., feeling obliged to be polite to show respect for age), and *avoidant communication*, which occurs when young people feel they need to restrain themselves during conversations with the elderly (e.g., biting one's tongue).

Similarities and differences across cultures. Cross-cultural research in perceptions of IGC reveals both similarities and differences across cultures regarding young peoples' perceptions of IGC (e.g., Ota, Giles, & Somera, 2007). A cross-cultural study conducted by Giles et al. (2003), for instance, found that young people in both Western (Canada, New Zealand, U.S.) and Asian (Japan, Philippines, South Korea) cultures generally perceive their interactions with family elderly as more accommodating than their interactions with non-family elderly. Also, older non-family members are generally perceived as more non-accommodating than older family members. Furthermore, the young tend to perceive that their interactions with non-family elderly require more respect/obligation and avoidant communication than interactions with family elderly. Giles et al. (2003) explained that these findings can be attributed to familial closeness, which attenuates the influence of age in evaluations of intergenerational communication behaviors.

With respect to cross-cultural differences in perceptions of IGC, generally, research shows that communication with the elderly is viewed more negatively by young adults in Asia than in the West (e.g., Williams et al., 1997). These differences in perceptions of IGC are likely attributed to Asian versus Western cultural variations in adherence to the ethic of filial piety, which as we note above, is a general respect for elders. To be more specific, there is a common

understanding that collectivism, hierarchical relations, and filial piety more strongly influence

Asians than Westerners' perceptions of IGC (for a discussion, see Williams et al., 1997). For

instance, Giles et al. (2003) suggested that young adults from Asia tend to perceive IGC with

family and non-family elderly as being less accommodating, and requiring less

respect/obligation, but more avoidant behaviors than young adults in the West. However, young

Asian adults perceive family elderly as more non-accommodating and non-family elderly as less

non-accommodating than do young adults in the West.

In summary, both similarities and differences have been found for how young people in

Asian and Western cultures judge the communicative behaviors of family and non-family

elderly. One goal of the present study is to extend the above findings to the context of online

IGC.

Online IGC

The *Pew Internet and American Life Project* (Pew Research Center, 2010, 2011, 2012a,

2012b) reports cited above seem optimistic about online media's ability to bridge generational

gaps. Online media can provide the opportunity for the sharing of skills across generational

divides. We can also expect that use of the Internet could increase opportunities for young and

old persons to form and maintain relationships online. For instance, a number of studies show

that greater use of SNS increases social capital (e.g., boyd & Ellison, 2007; Ellison, Steinfeld,

Lampe, 2011; Subrahmanyam, Reich, Waechter, & Espinoza, 2008; Valenzuela, Park, Kee,

2009). However, emerging research indicates that there are age differences in the use of SNSs,

and that there is an online social capital divide among the young and old (see Pfeil, Arjan,

Zaphris, 2009).

From a practical standpoint, and focusing on the specific case of Facebook, when that SNS was available only to students from Ivy League universities at its inception, its membership had an aura of exclusivity. As it expanded to groups outside the student population to the current worldwide membership of over 800 million people (Internet World Stats, 2012b), inclusion in a Facebook list of "friends" acquired an intergenerational dimension. Today, some young people may have mixed feelings about including their parents and other older people in their list of friends. This is evident in Web sites such as www.myparentsjoinedfacebook.com, where young people upload examples of their parents' inappropriate Facebook posts. Yet other young adults may also view the refusal of a friend request from an older person, particularly a parent or family member, as disrespectful and contrary to the cultural ethics of respect and filial piety.

In the case of parent-child online interactions on Facebook, a recent study conducted by Kanter, Afifi, and Robbins (2012) found that having one's parent as a "friend" did not result in heightened perceptions of privacy invasion. However, having a parent as a friend was related to decreased conflict in the parent-child relationship. When conflict was present before the parent became a Facebook friend, closeness with the parent increased.

On the other hand, Barker and Ota (2011) surveyed young women in Japan and the U.S. and found that their main motive for use of online social networking sites was to communicate with peers known offline. In a similar study conducted in the U.S., Barker (2012) found that young adults report using SNSs more frequently for peer communication, or communication with people in their age group, rather than communication with older age groups. All in all, these findings indicate that younger and older people have different perceptions and uses of online communication.

Research questions and hypotheses

As mentioned, we attempt to examine the frequency with which young adults in the U.S., Australia, and Guam engage in online IGC. Therefore, we investigate the following research question:

RQ1: How frequently do young adults engage in online intergenerational communication?

We also examine perceptions of online IGC. Because a young adult's online IGC could include communication with family elderly and non-family elderly, our study specifically analyzes perceptions of online IGC with these two groups. Specifically, we attempt to extend Giles et al.'s (2003) findings regarding perceptions of offline IGC to the online context. To summarize what was noted above, these findings suggest that young adults tend to judge interactions with family elderly as more accommodating than interactions with non-family elderly; communication with non-family elderly is judged as less non-accommodating than communication with family elderly. Also, young adults tend to report more reluctant/obligation and avoidant communication behaviors when they interact with non-family elderly than family elderly. Thus, we propose the following hypotheses:

H1: Young adults will perceive online communication with family elderly as more accommodating than online communication with non-family elderly.

H2: Young adults will perceive online communication with non-family elderly as more non-accommodating than online communication with family elderly.

H3: Young adults will perceive online communication with non-family elderly as requiring more respect/obligation than online communication with family elderly.

H4: Young adults will perceive online communication with non-family elderly as requiring more avoidant behaviors than online communication with family elderly.

In an attempt to explore differences in perceptions of online IGC between two Western (U.S. and Australia) contexts and a third context with a traditional culture that adheres strongly to filial piety, yet has been strongly influenced by the West, we investigate the following research question:

RQ2: Will there be differences in perceptions of online IGC between young adults in the U.S., Australia, and Guam?

Method

Sample and procedure

A sample of $N = 455$ undergraduate students participated in this study. Based on previous studies that have operationalized "young adults" as individuals age 30 and below (e.g., Giles et al., 2003), we did not include surveys of students who were over 30. The students were recruited from three universities: a large university in the Midwestern U.S. ($n = 168$; $n = 124$; 38% or $n = 63$ male, 57% or $n = 95$ female; mean age = 21.85, $SD = 6.97$), a large university in Northeastern Australia ($n = 124$; 26% or $n = 32$ males, 74% or $n = 91$ females; mean age = 23.42, $SD = 9.22$), and a small-sized university in Guam ($n = 163$; mean age = 20.30, $SD = 5.40$, 27% or $n = 44$ male, 70% or $n = 114$ female; mean age = 20.72, $SD = 5.70$). Of the total number of students participating in the survey, 73% were female, while 23% were male, and the mean age was 22.37 ($SD = 6.02$). Admittedly, our sample was skewed with more females than males, although previous similar studies also have had a similar issue (e.g., Giles et al., 2003). Nonetheless, we acknowledge this as a limitation.

Students in the three universities were offered course credit to participate in the online survey. The online survey, which took approximately 10 to 15 minutes to complete, was self-administered using SurveyMonkey.com. The survey contained one set of 25 items measuring

perceptions of online IGC with family elderly, one set of 25 items measuring perceptions of online IGC with non-family elderly, items measuring frequency of engaging in online IGC, and other items relevant to the present study. Participants were required to indicate their electronic consent before completing the survey, following U.S. Institutional Review Board protocols. SPSS Version 18.0 was used to analyze the data.

Measures

Frequency of engaging in online IGC. We measured frequency of engaging in online IGC with three items. The first item asked the participants how often they used specific online media channels to "communicate with individuals 65 years or over." Responses were measured on a five-point Likert scale (1 = *not at all*, 2 = *a few times a month*, 3 = *weekly*, 4 = *several times a week*, 5 = *daily*). The channels included (a) email, (b) Facebook, (c) Twitter, (d) YouTube, (e) instant messaging (on a computer), and (f) Skype.

The second item asked the participants how much computer-mediated communication they had in the past six months with persons age 65 and over who were (a) family and (b) non-family. Responses to these questions were measured along a five-point Likert scale (1 = *not at all*, 2 = *a few times a month*, 3 = *weekly*, 4 = *several times a week*, 5 = *daily*).

With the current popularity of Facebook, the third item focused specifically on IGC in this SNS. We used an indirect method of measuring frequency of online IGC by asking our participants what percent of their Facebook friends were in the age range of 65 and over. For comparative purposes, we also asked what percentage of their Facebook friends were within the age range of 17 to 30. Responses were coded along a seven-point scale (1 = 0%, 2 = 1-10%, 3 = 11-30%, 4 = 31-50%, 5 = 51-80%, 6 = 81-90%, 7 = 91-100%).

Perceptions of online IGC. To measure perceptions of online IGC, we used 25 items adapted from the Global Perceptions of Intergenerational Communication (GPIC) Scale (McCann, 2003; Keaton & McCann, 2011; McCann & Giles, 2007). As previously stated, the GPIC scale was designed to measure three to four factors, and the scale's ability to do this has been validated with confirmatory factor analyses (see Keaton & McCann, 2011), showing good fit for three- and four-factor models across four countries (U.S., U.K., Japan, and Taiwan). Our items included measures for the following four factors: accommodation (which includes six items such as "They gave useful advice"), non-accommodation (which includes eight items such as "They spoke as if they were better than me"), respect/obligation (which includes five items such as "I spoke in a respectful manner"), and avoidant communication (which includes six items such as "I avoided certain topics"). We modified the items to measure online IGC by asking participants to report on a five-point scale, the extent to which they disagreed or agreed (1 = *strongly disagree*, 5 = *strongly agree*) with the statements as they related to their "computer-mediated conversations with persons 65 and over" who they considered as (a) family and (b) non-family. Thus, two sets of items measured perceptions of online IGC. One set of 25 items measured perceptions of online IGC with family elderly; the other set of 25 items measured perceptions of online IGC with non-family elderly. The means and standard deviations for the single items and the combined items/factors and their alpha scores are reported in Table 1.

Demographics. We also measured demographic information by asking our participants to report their gender (coded as 1 = female, 2 = male), place of residence (1 = Australia, 2 = Guam, 3 = U.S.), and age.

Results

RQ1 investigated the frequency with which young adults engage in online IGC. As mentioned earlier, we measured frequency of engagement in online IGC with three items.

The first item measured the frequency of engagement in online IGC among various channels. Results of one-sample *t*-tests (*p* < .001) shown in Table 2 indicate that email (*M* = 2.75, *SD* = 1.66) remains the most used channel of the participants' communication with the elderly, followed in descending order by Facebook (*M* = 2.64, *SD* = 1.70), Skype (*M* = 2.23, *SD* = 1.50), YouTube (*M* = 1.90, *SD* = 1.57), Instant messaging (*M* = 1.81, *SD* = 1.42), and Twitter (*M* = 1.34, *SD* = 1.02). Note that responses to this question were measured along a five-point scale (1 = *not at all*, 2 = *a few times a month*, 3 = *weekly*, 4 = *several times a week*, 5 = *daily*), and because all mean scores were below the mid-point of three, they suggest not much online IGC is taking place.

Responses to the second item, which asked how much online IGC took place in the past six months with family and non-family elderly, indicated that the participants engaged in more online IGC with family elderly (*M* = 2.47, *SD* = 1.32) than non-family elderly (*M* = 1.56, *SD* = .87). One-sample *t*-tests showed that these differences in mean scores were significant at *p* < .001. It should be noted that because these means are lower than the mid-point of three, they suggest our participants don't engage in much online IGC.

With respect to the third item, which measured participants' percentage of Facebook friends, the results suggest the participants did not have many friends who were elderly. Specifically, along a seven-point scale measuring percentage of Facebook friends who were 65 and over (where 1 = 0%, 4 = 31-50%, 7 = 91-100%), the mean was 1.54 (*SD* = .88). Also, about 40% (*n* = 173) of the participants reported having no friends within the age range of 65 and over, and about another 40% (*n* = 173) reported that only 10% of their Facebook friends were within

that age range. Comparatively, more than 70% (n = 321) of the participants reported that 81 to 100% of their Facebook friends were between the ages of 17 to 30. These findings confirm the expectation that there is more intra- (young with young) rather than intergenerational (young with old) communication occurring on Facebook.

H1 predicted that young adults will perceive online communication with family elderly as more accommodating than online communication with non-family elderly. The differences in mean scores in perceptions of online IGC shown in Table 2 are all significant at *p* < .001with one-sample *t*-tests. The findings reveal that family elderly were perceived as less accommodating than non-family elderly on two of the single items ("They gave useful advice" and "They were helpful"). However, on the combined measure of accommodation, the results indicate the participants reported their online communication with family elderly as more accommodating (*M* = 3.32, *SD* = .93) than their online communication with non-family elderly (*M* = 3.23, *SD* = .66). Thus, H1 was supported.

H2 predicted that adults will perceive online communication with non-family elderly as more non-accommodating than online communication with family elderly. This hypothesis was supported. Results on Table 2 indicate that online communication with non-family elderly was reported to be more non-accommodating (*M* = 2.95, *SD* = .92) than online communication with family elderly (*M* = 2.71, *SD* = 1.03).

H3 predicted that young adults will perceive online communication with non-family elderly as requiring more respect/obligation than online communication with family elderly. This hypothesis was supported. Results shown on Table 2 indicate that participants reported more respect/obligation behaviors when interacting online with non-family elderly (*M* = 3.60, *SD* = 1.03) than when interacting with family elderly (*M* = 3.41, *SD* = 1.32).

H4 predicted that young adults will perceive online communication with non-family elderly as requiring more avoidant behaviors than online communication with family elderly. This hypothesis was supported. As Table 2 shows, participants reported more avoidant communication behaviors with regard to their online interactions with non-family elderly (M = 3.25, SD = .99) than their interactions with family elderly (M = 3.00, SD = 1.06).

RQ2 explored whether there will be differences in perceptions of online IGC between the U.S., Australia, and Guam. To investigate this research question, we conducted eight separate one-way analyses of variances (ANOVA) to compare whether there were statistically significant differences across the three groups for each of the eight perceptions of IGC (4 for family, 4 for non-family). The results for means and standard deviations for perceptions of IGC for each of the three groups are reported on Table 3. All omnibus tests for each of the eight one-way ANOVAs were significant at $p < .001$. Post-hoc Fisher's Least Significant Difference (LSD) tests show that differences in the mean scores for Australia and the U.S. were not statistically significant. However, results revealed statistically significant differences in the mean scores between Guam and Australia and Guam and the U.S.

As shown in the results on Table 3, participants on Guam perceived their online communication with older family members as less accommodating, more non-accommodating, and requiring less respect/obligation and avoidant communication than the U.S. and Australian participants. Moreover, participants on Guam perceived their online communication with older non-family members as being less accommodating and more non-accommodating than the U.S. and Australian participants. Participants on Guam also reported requiring more respect/obligation and avoidant communication when interacting online with non-family elderly than the U.S. and Australian participants.

Discussion

The purpose of this study was to examine the frequency of young adults' engagement in online intergenerational communication (IGC), perceptions of online IGC, and potential cultural differences in perceptions of online IGC. We conducted a survey of young adults in three cultural contexts: U.S., Australia, and Guam. Our findings help contribute to the current literature in three general ways. First, reinforcing the findings of previous surveys conducted in the U.S. (e.g., Pew Research Center, 2011, 2012), we found that email is the most frequently used source of IGC. Use of email was respectively followed by use of Facebook and Skype. Also, with regard to frequency of engaging in online IGC, we confirmed that young adults interact more frequently with family rather than non-family members online. As we noted above, however, the mean scores for frequency of engaging in online IGC were lower than the mid-point of three, suggesting that the young adults do not engage in much online IGC.

Moreover, the results indicate, not surprisingly, that there is more online intragenerational (young adults with young adults) rather than intergenerational (young adults with elderly) communication going on. For instance, the findings show that most of the participants reported having very little or no Facebook friends who were elderly. These findings extend previous studies (e.g., Barker, 2012), which show that young adults report using social networking sites more frequently for peer communication, or communication with people in their age group, than communication with people from other age groups. These findings also imply that online communication may be more focused on meeting social needs through the intragroup (people of the same age) than intergroup (people from different ages) (Barker, 2012; Barker & Ota, 2011). As Stern and Taylor (2007) have pointed out, young adults predominantly use SNSs to keep in touch with their friends and to a lesser extent to meet new ones, and to check on the status of

their romantic relationships. Arguably, online IGC may not necessarily help young adults meet these needs with regard to their communication with the elderly. We recommend that future studies continue this line of research. Indeed, if online IGC has the potential to improve intergenerational relationships, yet not much online IGC is taking place, the challenge for scholars is to develop interventions that might help in fostering more frequent online IGC.

Second, our study found differences in the way that young adults perceive online communication with older family members and older non-family members. Specifically, our participants perceived online communication with family elderly as more accommodating than online communication with non-family elderly. We also found that young adults perceive online communication with non-family elderly as more non-accommodating than online communication with family elderly. Moreover, we found that young adults are more likely to perceive their online communication with non-family elderly as requiring more respect/obligation and more avoidant behaviors than their online communication with family elderly. These findings reinforce those of Giles et al. (2003), who showed that these patterns similarly occur in young adults' perceptions of offline IGC. Our study extends Giles et al.'s findings to the online context.

Third, we found that perceptions of online IGC between the Australian and the U.S. participants did not significantly differ. However, there were statistically significant differences in perceptions of online IGC between the participants on Guam and Australia and Guam and the U.S. These findings may be attributed to differing degrees of adherence to the ethic of filial piety, with Guam being more strongly influenced by this ethic due to its traditional, collectivistic culture (see Rogers, 1995). To be specific, we revealed that young adults on Guam judge online IGC with both older family and older non-family members as less accommodating than young

adults in the U.S. and Australia; young adults on Guam judge online IGC with older family members as more non-accommodating than young adults in the U.S. and Australia; and young adults on Guam judge online IGC with older non-family members as requiring less respect/obligation, but more avoidant communication than their U.S. and Australian counterparts. These results on differing perceptions of IGC between Guam and the U.S. and Guam and Australia can be aligned with Giles et al.'s (2003) findings on differing perceptions of offline IGC between Asia and the West. Guam is clearly not a part of Asia, but as noted, it is similar to Asia in that its residents adhere strongly to the ethic of filial piety. In this regard, future studies should be conducted to examine whether these findings can be generalized to Asia.

Limitations and Directions for Future Research

Some limitations need to be addressed and directions for future studies be outlined. First, since this study relied on self-reports of young adults, it would be beneficial to get data from older people themselves. As some previous studies have shown (e.g., Barker, 2012), the relational view afforded by data from both younger and older people provides greater insights into IGC interactions. Further studies in the online context can benefit from such a perspective.

Second, the present sample was restricted to young people who were students in specific universities in the U.S., Australia, and Guam. This might limit the extent that the present findings can be projected to other populations of young adults in other areas of the world. Thus, we recommend that future studies diversify their sample to include more than three cultural groups.

Third, our channels of online media (email, Facebook, Twitter, etc.) were not exhaustive. Thus, we had left out other potential channels in which young adults can use to communicate with the elderly. These other channels may include blogs, news-sharing sites (e.g., Digg,

Reddit), photo-sharing sites (e.g., Pinterest, Instagram), and mobile apps (e.g., Foursquare). With the constantly changing online landscape, we recommend that future studies include a more exhaustive list of commonly used online channels.

Fourth, McCann and Giles (2006) extended the study of IGC to the context of the workplace. Because our study was analyzed general online IGC, it would be interesting for future studies to examine whether our findings can be extended as well to the context of work-related online IGC, such as online leader-member communication. Furthermore, research by Barker (2012; Barker & Ota, 2011) examined how variables such as social identity gratifications and collective self-esteem may play roles in online intergenerational communication. One can particularly expect that these variables could serve as moderators or mediators in online IGC processes. Since our study did not include a wide array of measures, we recommend that future research should examine the potential that these variables can either mediate or moderate the relationships between perceptions of online IGC and frequency of engaging in online IGC.

Conclusion

This initial foray into the online context of intergenerational communication indicates that the global perceptions of IGC, which measure interactions in offline or face-to-face communication contexts, are consistent with perceptions of online IGC. The increasing online presence of older generational groups suggest that more studies of IGC in the computer-mediated context could shed light on other factors that are associated with perceptions of online IGC. In sum, contrary to Barker's (2012) conclusion that social networks may be less "risky" and "potentially very satisfying" (p. 182), online IGC may be inhibited by the same cultural expectancies of respect, politeness, and obligation that influence offline IGC. Unlike offline IGC, however, young adults may take advantage of the asynchronous nature of online

communication and avoid or ignore older people with whom they don't want to communicate. They are also more familiar with techniques to make their presence "invisible" on Skype and control the privacy settings on the social networks. As such, young people may have more control of communication channels, and can potentially use electronic means of avoiding IGC whenever they are so inclined. Whether these developments will result in fewer conflicts in IGC, or diminish the opportunities for more satisfying online IGC interactions, remains to be seen.

Finally, the increasing number of older people who are joining social networks such as Facebook and participating in various online communication platforms suggests that the current state of online IGC may be at the transitional stage. That is, young adults' perceptions of the elderly may change, so that they will be more receptive to "friending" them online and consequently bridge generational and geographical divides. On the other hand, the online channel may be used as a convenient means of getting around the cultural expectations of respectful-obligatory IGC. In the latter case, online IGC would be akin to what sociologists (e.g., Ogburn, 1922) call cultural lag, which is described as a period of maladjustment when the nonmaterial culture is still struggling to adapt to new material conditions. That is, values have not yet shifted as a result of new innovations. Since online communication is a new material condition, that is, a relatively recent communication channel that only became part of our communication ecology a little more than two decades ago, more research needs to examine whether online communication will remain a predominantly intragroup channel or become a more viable intergroup channel.

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Table 1. Means, standard deviations, and reliabilities for items measuring perceptions of online IGC among young adults in the U.S., Australia, and Guam.

	Perceptions of online IGC with family elderly	Perceptions of online IGC with non-family elderly
Perceptions of others' online communication		
Accommodation	*Mean (SD)*	*Mean (SD)*
They were supportive	3.47 (.96)	3.23 (.92)
They had kind words for me	3.43 (.97)	3.31 (.82)
They complimented me	3.37 (.95)	3.25 (.85)
They were considerate	3.39 (.91)	3.33 (.78)
They gave useful advice	3.15 (1.00)	3.31 (.89)
They were helpful	3.10 (.97)	3.28 (.86)
	$\alpha = .90$, $M = 3.32$, $SD = .97$	$\alpha = .86$, $M = 3.23$, $SD = .86$
Non-accommodation		
They spoke as if they were better than me	2.53 (1.02)	2.91 (.89)
They acted superior to me	2.64 (1.04)	3.04 (.93)
They talked as if they knew more than me	2.75 (1.04)	3.21 (.91)
They were closed to my ideas	2.79 (.95)	2.91 (.85)
They were closed-minded	2.79 (.98)	2.95 (.90)
They ordered me to do things	2.87 (1.03)	3.00 (.97)
They did not listen to what I had to say	2.63 (1.05)	2.74 (1.00)
They were uninterested in my comments	2.67 (1.01)	2.82 (.91)
	$\alpha = .86$, $M = 2.71$, $SD = 1.03$	$\alpha = .87$, $M = 2.95$, $SD = .96$
Perceptions of one's own online communication		
Respect/obligation		
I spoke in a respectful manner	3.53 (1.13)	3.69 (1.03)
I felt obliged to be polite	3.33 (1.17)	3.54 (1.04)
I spoke in a polite way	3.49 (1.19)	3.70 (1.05)
I was careful not to embarrass them	3.30 (1.05)	3.48 (1.02)
I did not criticize them	3.44 (1.09)	3.58 (1.00)
	$\alpha = .91$, $M = 3.41$, $SD = 1.15$	$\alpha = .91$, $M = 3.60$, $SD = 1.03$
Avoidant communication		
I avoided certain topics	3.16 (1.07)	3.38 (1.02)
I held back my opinions	2.86 (.95)	3.17 (.96)
I remained silent if my opinion conflicted with theirs	3.01 (.99)	3.30 (.98)
I waited until asked to speak	2.82 (1.03)	3.15 (1.05)
I restrained myself from arguing with them	3.22 (1.03)	3.38 (1.01)
I had to "bite my tongue"	2.94 (1.11)	3.15 (1.08)
	$\alpha = .78$, $M = 3.00$, $SD = 1.06$	$\alpha = .87$, $M = 3.25$, $SD = .99$

Note: One sample *t*-tests show that all means and *SD*s reported above are significant at $p < .001$.

Table 2. Means, standard deviations, and reliabilities for frequency of engaging in online intergenerational communication among young adults in the U.S., Australia, and Guam

	Mean (SD)
Email	2.75 (1.66)
Facebook	2.64 (1.70)
Skype	2.23 (1.50)
YouTube	1.90 (1.57)
Instant messaging (on a computer)	1.81 (1.42)
Twitter	1.34 (1.02)
	$M = 2.43$,
	$SD = 1.55$

Table 3. Means and standard deviations for perceptions of online intergenerational communication of young adults in the U.S., Australia, and Guam.

	U.S. ($n = 123$)	Australia ($n = 163$)	Guam ($n = 158$)
	Mean (SD)	Mean (SD)	Mean (SD)
Accommodation (family elderly)	3.60 (.62)	3.70 (.57)	2.75 (.74)
Non- accommodation (family elderly)	2.57 (.70)	2.48 (.62)	3.02 (.72)
Respect/obligation (family elderly)	3.86 (.68)	3.85 (.60)	2.63 (1.00)
Avoidant communication (family elderly)	3.16 (.69)	3.04 (.67)	2.85 (.73)
Accommodation (non-family elderly)	3.62 (.58)	3.13 (.60)	3.05 (.63)
Non-accommodation (non-family elderly)	2.82 (.62)	2.93 (.60)	3.09 (.68)
Respect/obligation (non-family elderly)	3.30 (.85)	3.42 (.86)	4.02 (.75)
Avoidant communication (non-family elderly)	3.07 (.70)	3.01 (.78)	3.62 (.77)

Note: One one-way ANOVAs show that all omnibus tests are significant reported above are significant at $p < .001$.