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Digital Natives and Digital Immigrants: Exploring Online Harassment Victimization by Generational Age

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Abstract

This exploratory study of online harassment in adult populations uses the sociological concept of generational age to examine theoretical contentions related to the formative effects of early life experiences with computer-mediation technologies on victimization. Utilizing an adaptive online survey, a total of 236 responses were collected through social networking sampling on Facebook and LinkedIn, measuring perceptions of reported incidents and routine online interactions to understand age-based victimization factors. Data were analyzed with a binary generational age macro variable to thematize measures, classifying respondents born on or after 1985 as digital natives and those prior as digital immigrants. Although statistical associative testing revealed that there was little generational division in most measured concepts, psychological stress levels and social networking site use frequency were demonstrated to be significantly related and have verifiable corollaries. Digital immigrants were more likely to report high psychological stress levels in victimizations and less frequent daily usage of social networking than digital natives, suggesting communicational interpretations more defined by proximal, face-to-face messaging. Nevertheless, although there are limitations given the exploratory nature of this study, the findings suggest that generational age and technological familiarity may determine interpretations of online victimization.

Keywords: Anonymity, Cyber bullying, Demographics, Identity, Online Harassment, Perception, Psychological Stress, Social Networking Sites, Victimization.

Introduction

Unlike with any generation before, human interaction is entering a new phase of social evolution as we are confronted by the paradoxical abstractions of telecommunications (Wilson & Peterson, 2002). Online messaging between senders and receivers has become an ever more interpretive process given the disconnection between verbal and nonverbal cues in the symbolic interaction of communication (Nusselder, 2009; Wilson & Peterson, 2002). Yet as technology users live ever more vicariously through digital mediums, it is unclear how this phenomenon affects age-based interpretations of online victimization and antisocial behavior. It has been postulated that the material distance of computer-mediated

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communications (CMC) has reduced the normative social restraints and etiquette rooted in face-to-face (FTF) communications leading to online disinhibition (DeWall et al, 2011; Lapidot-Leffler & Barak, 2012). While the processes by which behavior is augmented by CMC is only partially understood, the emotions imbedded within messages and their psychosomatic harm are quite tangible (Palfrey & Glaser, 2013). As such, the focus of this study is to examine the concept of generational age and technological familiarization as a determinate of victimization.

Literature

Generational Age

While considerable research has been conducted in the field of online harassment, one concept not well accounted for is that of generational age. Although telecommunication modes have been around for decades, most bi-way mediums arguably did not have as great of pervasiveness into human interactions as the internet and social media. These in many regards represent a paradigmatic shift, it a consequence of the interconnectedness and instantaneousness of global information systems (Heverly, 2007). As a result, numerous social theorists contend that there is for the first time a generation of digital natives, individuals who have never known a time before this computing synergy (Bennet et al, 2008; Palfrey & Glaser, 2013). Individuals born since the mid-1980s are generally included in this as they would have socially matured during the introduction of many of these key technologies (Howe & Strauss, 2009). This population is contrasted by the digital immigrants, the antithetical former generations that are technological adopters of CMC. These older generations, following the immigrant analogy, are thought to never parallel the naturalism of the natives who grew up with these digital mediums, their acculturation to online environments and interactions never becoming equivalent (Prensky, 2009).

This notion of a generational gap is not a new conception and has always been a convenient way of explaining the social anxieties about the discontinuance of past traditions (Buckingham, 2006). Such an argument though is not unfounded for age has been one of the greatest demographic factors shown to influence the nature of CMC usage. It has been consistently demonstrated that the progenitors and early adopters of CMC mediums have been concentrated in youth populations, defining normified standards of online interaction. Nevertheless, the negative implications have only been narrowly researched (Palfrey & Glasser, 2013).

Adolescent and Adult Victimization

The nomothetic effects of facilitating communications with digital mediums are not fully known, but it has been routinely thought that youth populations are more susceptible to their harms (Heverly, 2007; Vlacke et al, 2011). While there are no unified standards used to measure online harassment, self-report surveys consistently indicate that the victimization apex coincides with the years puberty, adolescent victimization rates (10-17 years old) ranging consistently (7.0-25.0%) among populations, suggesting a strong correlation of antisocial activities with socioemotional immaturity (Balakrishnan, 2015; DeVoe, & Murphy, 2011; Staude-Muller et al, 2012). As encapsulated in the frequented term cyber bullying, these offenses are often characterized by a juvenile tactlessness, but

this does not fully account for the concept of digital acculturation (Juvonen & Gross, 2008; Ybarra et al, 2007).

Given the prefixation on adolescent victimization, adult victimization rates (18+) are less examined, especially as a relational group, but reduced measures (<10.0%) indicate a decay function (Perreault, 2011; Sevcikova, & Smahel, 2009). In the well controlled Canadian General Social Survey (GSS) that focused on adults (18+), a low figure (7.0%) was yielded, although incidents were jurisdictionally and temporally bounded to better accord with legal enforceability (Perreault, 2011). This persistence has been attributed to a qualitative transformation in the perpetrator-victim paradigm, with the juvenile tactlessness of cyber bullying maturing into the more complex behaviors often associated with online harassment (Perrault, 2011; Privitera & Cambell, 2009). Nevertheless, as adult victimizations include individuals classifiable as digital immigrants, this means that a more longitudinal victimological perspective cannot account for all perpetrators and victims of online harassment, lending to the perceptual differences of the generational gap argument.

Material Distance and Online Disinhibition

Sustained online usage may cause users to adapt to the material distance afforded by CMC, altering perceptions of self and other in communications (Thurlow & Tomic, 2004). The level of interactivity and synchronicity in messaging is seen to effect interpretations of realism and its associated emotional value, increases in sensory stimulation adding to sociomateriality (Dennis & Valacich, 1999). The dilemma is that modern CMC are more instantaneous and sensory fulfilling than in the past by virtue of mobile electronics, data networks, and notification protocols. Victimization surveys though still reveal a consistent trend in online harassment (DeVoe & Murphy, 2011; Perrault, 2009). This must mean the face value and human context being added to CMC mediums does not fully counteract the intrinsic divide between FTF and CMC, the two still representing divergent communication spectrums.

The contended outcome of this material distance is online disinhibition as the perception of self and other is abstracted (Lapidot-Lefler & Barak, 2012). Not having significant obligations to supervise user activities, social media and networking sites often do not have stringent user demographic identification requirements (Madden, 2012; Raine et al, 2013). This, combined with the distal nature of these communications, adds to the anonymizing effects of computer-mediation explaining why cases of online harassment often exhibit the exaggerated behavioral themes of megalomania and egocentrism in user flaming, masquerading, and outing (Wellman & Haythonthwaite, 2008; Whang et al, 2003). These interactions have been interpreted by offenders, victims, and third party investigators to possess less social restraint than in FTF equivalents (Suler, 2004). Although users can defend themselves by creating private social networks with designated audiences complete with tools to block and redact online content, the chances for evading security proscriptions are high and offense repercussions are low (Suler 2004; Wellman & Haythonthwaite, 2008).

Psychological Stress

Psychological stress is the defining factor of online harassment, communications without it remaining benign interchanges (Bottino et al, 2015). Unless acts are self-evident instances of defamation, the emotive value and related psychosomatic harm cannot readily be ascertained to noninvolved parties (Kim, 2009). Thus, in a preponderance of cases,

victimization functionally exists only when a negative emotional response is generated and this may not become expressed by the individual victim (Bottino et al, 2015; Laftman et al, 2013).

Psychological stress created and experienced online is determined by the substantive factor of latency (Jones, 2009; Driskell & Salas, 2013). Using concepts borrowed from medical science, the emotional wound of a communicative act can be understood by determining whether it had a superficial and deep psychological effect. As with physical wounds, depth denotes the severity of the harm and the length of the recovery process (Jantz & McMurray, 2009). With the severity of harassment a negotiated process between victims and the victimizers, the power dynamics of each relation defined by the situational context. This situational context and associated emotive value is greatly contingent upon the prior as well as post communication sequence as it can demonstrate premeditation and reconciliation (Jantz & McMurray, 2009). Although this is all highly subjective and difficult for an external examiner to adjudge, especially when such interchanges are not fully preserved and documented, there nonetheless are trends that have been charted by through similar victimization and in wider psychological health studies (Watzlawick et al, 2011).

In relevant studies, youth populations have been shown to consistently be in general more susceptible to psychological and systemic stress than adult populations, although this is not necessarily reflective of online victimization. This general discrepancy is attributable to factors related directly to the maturation process, but experiential deficits in behavioral appraisals and corresponding coping mechanisms are predominating root causes (Tandon et al, 2013). Victimization can be thought to incur greater emotional wounding if the stress generated is of higher severity and is more protracted (Driskell & Salas, 2013). Although the psychometrics of stress are subjective quantifications, differential scaling between higher and lower values do offer at least comparative benchmark figures for individual victimization histories and in larger cross-population analyses (Nordin & Nordin, 2013).

Social Networking Sites

Online victimizations have become more prevalent for reasons still not fully understood, but the historic development of multi-user domains (MUDs) into social networking sites (SNS) approximates victimization trends (Smith & Kollock, 1999). The related conjunctive increase of active, demographically diverse online users appears to be a formulaic multiplier behind this growth. According to recent projects conducted on behalf of the Pew Research Center (US), the majority of cyber bullying and online harassment is conducted via SNS, although there appear to be differences between the age groups measured: (1) 18–29, (2) 30–49, and (3) 50+ (Duggan & Brenner, 2013; Duggan et al, 2015). Usage of such sites and services has been directly correlated with a higher likelihood of victimization and witnessing antisocial conduct online. When personal identifying information is published, this risk of victimization increases appreciably (Reyns et al., 2011)

Although many of these sites were historically used by youth populations, this is no longer the case (Duggan & Brenner, 2013). With SNS having largely saturated youth populations, adult users now constitute the greatest proportion of new account users (Duggan et al., 2015). These growth trends while difficult to measure globally on a per

nation basis seem to be driven by a universal desire for online expressionism (Diamond, & Plattner, 2012). When global usage figures for the past decade are compared, it is apparent that there has been an appreciable increase in SNS usage, representing permanent adoption of these interactive constructs. With 1.96 billion estimated users globally as of 2015 and a 2.44 billion projection for 2018, it is clear that these have become major social crossroads for online users (Statista, 2015). These aggregate user figures though fail to demonstrate the frequency and length of use by the average online user, but frequent users have been shown to be at a higher risk for victimization (Ybarra & Mitchell, 2008). In analyses of SNS victimization trends, there appear to be clear concentrations and biases across specific demographic groups, particularly with female and minority races (Jones et al., 2013; Reynolds et al., 2011).

Generated Hypotheses

Given pervading generational themes in relation to victimization, theories of technology, and SNS usage, all items measured were made subordinate to a generational age macro variable (GENage). To measure pertinent aspects of focal phenomena, the following hypotheses were generated:

- **H1:** There *will be* generational age differences in the [FACTOR] reported.
- **H0:** There *will not be* generational age differences in [FACTOR] reported.
 - Factor 1) “perpetrator-victim social relationships of incidents”
 - Factor 2) “perpetrator-victim relational age of incidents”
 - Factor 3) “perpetrator gender of incidents”
 - Factor 4) “perpetrator race of incidents”
 - Factor 5) “perpetrator demographic anonymity of incidents”
 - Factor 6) “digital media content usage”
 - Factor 7) “SNS use frequency”
 - Factor 8) “victim stress levels of incidents”
 - Factor 9) “incident durations”
 - Factor 10) “victim stress durations”
 - Factor 11) “peer incident accounts of perpetrator demographics”

Method

Overview

To measure theoretical concepts, primary data were collected as few preexisting studies have specifically focused on age-based victimization. According with topical victimology research, a cross-sectional design was employed utilizing an adaptive online survey focusing on past victimizations and related online behaviors. Responses were collected via a social network sampling technique over a twenty day timeframe through a combined process of researcher recruitment and participant referral on Facebook and LinkedIn. The adjusted macro sample (Msamp, N=236) as well as the self and peer victimization identification subset samples (SVI, N=77 and PVI, N=65) were then subject to generational age hypothetical testing. The binary macro variable for generational age (GENage) used was composed of digital natives (GENcmc) and digital immigrants (GENftf) based on 1985 birth year divide to determine significant statistical associations using chi-squared distributions and linear regressions.

Theoretical Questioning

Governing Constructs

To determine perceptive differences as applicable to the sociological concept of GENage, the preexisting divides found in the Pew Research Center (US) were used, bounding digital natives (GENcmc) to those born on or after 1985 and digital immigrants (GENftf) to those born before 1984 (Duggan et al, 2015; Duggan & Brenner, 2013). While remaining a semi-arbitrary division, this nonetheless allowed for a theoretically relevant inter-group associative testing on online harassment victimization. Thus, to appropriately question such an audience, it was clear concepts needed to be inter-group communicable, avoiding technical terminology. In order to identify cases of online harassment, incidents were required to be victim specific and limited to dyadic variants with one victim and perpetrator in the communicational channel. As this removed the multiplicity element in offending, this brought needed simplification for survey questioning. Similarly, considering the glocalization of online domains, the application of jurisdictional sociolegal definitions of these behaviors was determined to be not only unfeasible but erroneous due to this subjectivity involved in interparty communications. With victimizations a statistically rare phenomenon, it was decided that a series of non-incident specific perception only questions should also be included for survey cross-comparability. The following subsections detail the logic behind the survey schedule.

Victimization Identification

Individuals were only asked incident specific questions based on their identification with either a perceived self or peer victimization. This was done to increase the cumulative number of victimization responses and to compare self to peer victimization perceptions. If a self victimization occurred, this was automatically routed for incident specification as this was seen as having greater perceptive accuracy and topical relevancy than a peer victimization report. Those who did not identify with either victimization type were asked a core question describing why they felt they had not been targeted or experience psychological stress online.

Psychological Stress

Stress created in incidents was determined by analyzing the latency of the emotional wounding. This calculus consisted of the combined measures of the incident length, stress severity, and stress duration. To remain relevant, the majority of these questions were restricted to self or peer identified victimizations. To substantiate and compare answers with those who did not identify with the victimization types, generalized questions on stress created by online user activities or interactions were included as well as hypothetical scenarios dealing with victimization reactions.

Technology Usage

Technology usage patterns were ascertained through a series of simple questions focusing on device types, digital mediums, and communicational content designed to determine the duration and nature of respondents' usage, especially as relevant to SNS. The majority of these were answered by all respondents in order to understand victimization likelihood and concepts of CMC abstraction.

Respondent Demographics

To ensure respondent anonymity, demographic questions were limited only to group identifiers: (1) age, (2) gender, (3) race, and (4) nationality. In order to determine attributes of perpetrators, these questions were asked in a relational context to the victim. Collectively, these attributes were used to constitute identity within dyadic and group network offending paradigms.

Survey Instrument

Online Hosting

It was decided that administration of an online victimization survey was the most logical format to measure key theoretical concepts. This remote sampling mechanism not only allowed for efficient dissemination to a large sampling universe of unlabeled victims, it created added privacy and anonymity known to increase the truthfulness of responses on sensitive and deviant issues. Survey Monkey was selected as the hosting service given its expansive built-in design tools that allowed for sampling through a series of mutually exclusive web links and monitoring of survey data in real-time, increasing the efficiency of the collection process.

Questioning Sequence

The questions were divided into three main sections. The first covered self and peer victimizations, including suspected demographics of the perpetrator, incident content, and psychological stress. The second covered more general online user behaviors and perceptions, targeting technology usage. The third specifically addressed respondent demographics. This order was selected to minimize question suggestion on reported victimizations.

The survey consisted of between 21 and 32 total mandatory questions, with the total growing to 25 and 35 questions when optional sections are considered. The number of responses completed by each respondent was dependent upon the course of their answer selections, the logic structure determined by previously rendered responses. This was instituted to not only increase question relevancy to each respondent by adjusting the question bank sequence programmed into the survey, it reduced completion times by diverting respondents from non-relevant question banks.

Only respondents who identified with either self or peer victimizations were diverted to a series of more expansive question banks specific to memorable incident. Given the victimization experience, it was reasoned that they would have greater intimacy and interest with the topic, thus being more willing to answer additional questions upon incident specificities. The overall total was curtailed to allow for average completion time of five to seven minutes, the time adjudged during piloting.

Piloting

The beta versions of the survey were subject to revision by a demographically diverse audience of 20 individuals in order to prune and focus interrogatory methods. It was during the pilot testing that the logic functions were limited to include only issues appurtenant to self and peer identified victimization, rendering the remainder of the survey identically structured for greater inter-respondent comparison. Additionally, the web architecture of the survey was modified to enhance ergonomics and automatization,

leading to a more naturally self-descriptive questioning process that reduced completion times.

Social Network Sampling

Domain

SNS were recognized as the most theoretically relevant sampling universe. Considering the topical focus, sampling from SNS was seen to increase access to the populations most vulnerable and likely to have undergone victimizations. The lack of physical contact in this protocol additively maximized theoretical parallels embodied in the conceptions of material distance.

Sites

Responses were collected from Facebook (N=125) and LinkedIn (N=101) given the substantial aggregations of users across key age demographics. Facebook was utilized as it represents the most ubiquitous platform and attracts users equally across all age demographics (Duggan & Brenner, 2013). LinkedIn was similarly utilized due to its ubiquity, but its paraprofessional focus attracts more prospective digital immigrant users (Duggan & Brenner, 2013). While the general mode and nature of interaction of these sites is considerably different, this did not directly impact the data retrieved in the victimization survey as identified incidents were not specific to each respective social networking platform.

Network Extrapolation

From a main researcher account on each platform, a onetime personalized survey invitation was made via the private messaging function. These were sent to preexisting contacts and to users within their visible networks. This direct form of respondent outreach is based on commonly practiced electronic mail and physical mail surveying methods used to increase response rates (Kaplowitz et al., 2011). Respondents in the survey invitation were additionally encouraged to share the survey with users in their own social networks, utilizing the concept of member interconnectivity to increase audience size. This participant referral mechanism was designed not only to increase the respondent base, but to add a further degree of randomization to the sample due the snowballing effect. While recruitment was focused on US and UK-based user networks from a London account, due to preexisting network connections and glocalization factors, it was predicted that a large proportion of the sample would consist of individuals outside these countries (Diamond & Plattner, 2012).

Minimal Respondent Criteria

The recruitment and verification process of respondents was limited due to the anonymous nature of the victimization survey. Respondents were only required to be active social media users over the age of 18 to accord with previous research on adult victimization and avert research restrictions on minors. While greater controls would ideally have been instituted on the sample, given the difficulty in ascertaining the legitimate demographic identities of users, the use of minimal criteria seemed to theoretically reflect the anonymous aspects of online interaction. These were controlled

during data analysis through review of the survey collector sources and responses for contradictions.

Data Analysis

Sample Adjustment

The initial raw sample had notable item and unit level missing data, but after spurious responses were removed, review of the missing response subset in comparison to the completed response subset revealed no significant data confounds or discrepancies, seeming to be at random. Although the missing data could have been due to non-response bias, as suggested in past research given the sensitive nature of the topic, this could not be readily confirmed (Groves & Peytcheva, 2008; Guzy & Leitgob, 2015). Rather than alter the missing data through missing data corrective analyses such as multiple imputation and expectation maximization, listwise deletion was used to adjust the main sample (Msamp, N=236) given the sufficient size and general nature of the project (Dong & Peng, 2013). Their removal was seen only as beneficial as it ensured that the retained sample had known parameters and allowed for full respondent cross comparability in the self-victimization (SVI, N=77) and peer-victimization (PVI, N=65) subset analyses (Allison, 2002).

Variables and Subsets

Due to non-targeted victimization sampling, data were juxtaposed against the binary macro variable of generational age (GENage) as interval age did not allow for complete associative testing on hypothesized phenomena. GENage was divided relatively equally among digital natives (GENcmc=130) and digital immigrants (GENftf=106), it being used against all other micro variables in the macro sample (Msamp) or smaller victimization subset samples (SVIsamp and PVIIsamp).

Quantitative

Closed questions were analyzed on a statistical software package (SPSS) using both descriptive and inferential statistical modeling techniques to test the null and alternative hypotheses. As all data types of the survey instrument were categorical, aside from psychological stress levels, these were tested for levels of association using chi-squared distributions exclusively. To meet the criteria for the proscribed associative testing, all answers were transformed into uniform categorical types for question comparison, with minor responses merged with semantic parallels in binary and ternary forms to meet threshold numeric figures. As psychological stress levels remained as interval values, these were run through a one-variable linear regression.

Results

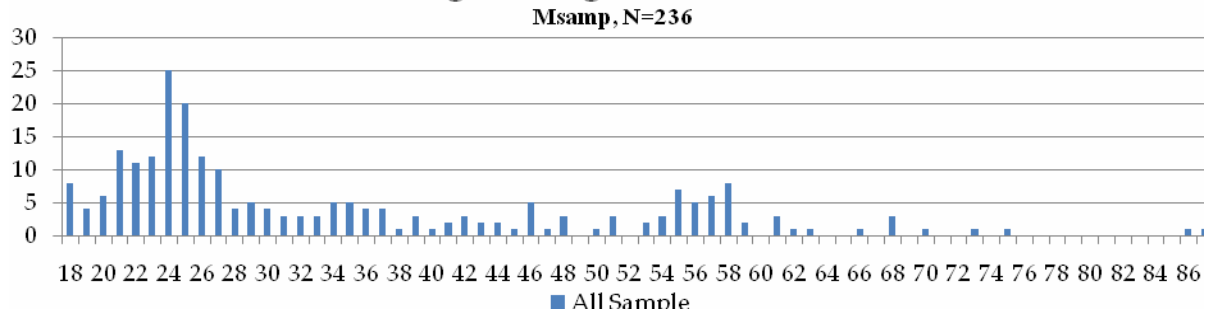
Sample

In the 236 surveys analyzed with GENage, there were notable demographic biases. These were not mathematically compensated in the statistical tests for generational age remained the primary focus of analysis, it examined with the greatest relational scrutiny to the hypothetical factors.

Age

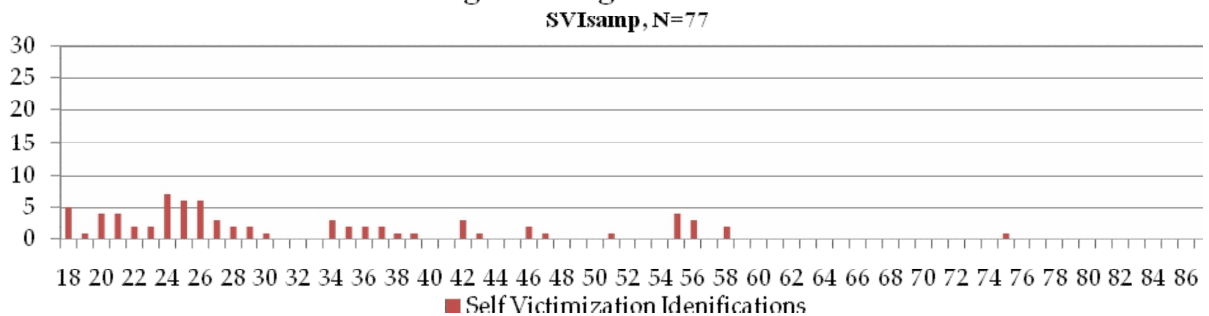
In the macro sample (Msamp, N=236), the age range (69) was considerable between the youngest (Min=18) and oldest (Max=87) respondents [See Figure 1]. The distribution was not consistently spread and highly asymmetric, being negatively skewed (1.066) with mild kurtosis (.243). This is similarly reflected in the centrality measures of age (Mean=35; Median=27; SD=15.064).

Figure 1: Age Distribution



The Self Victimization Identification sub sample (SVIsamp, N=77) had a similar age distribution, but was further exaggerated, being more negatively skewed (1.083) with greater kurtosis (.440) and a lowered age mean (33) [See Figure 2].

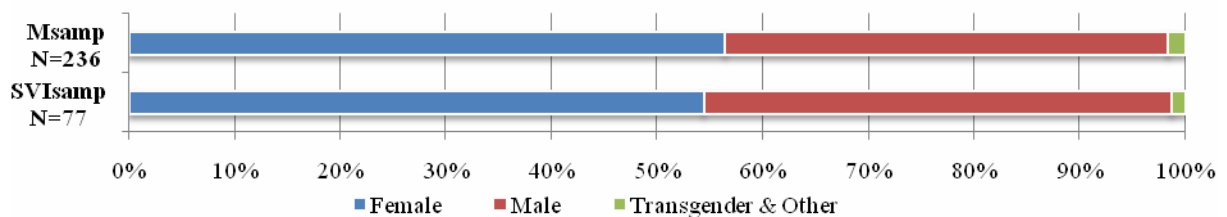
Figure 2: Age Distribution



Gender

Considering past topical victimology research, potential gender bias was another concern. The gender discrepancies in the Msamp (Female=56.4%; Male=41.9%) and SVIsamp (Female=54.2%; Male=44.2%) were notable, but the bias consistency demonstrates a level of inter-sample homogeneity [See Figure 3].

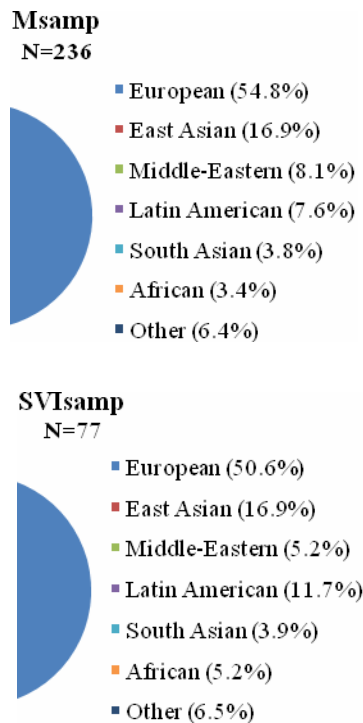
Figure 3: Gender Distribution



Race and Nationality

Europeans and East Asians were more highly represented than other racial groups [See Figure 4]. This is connected to the identified country of domicile or permanent residence identified by respondents, with the US (43.2%), UK (15.3%), and China (7.6%) representing the top nationalities. The makeup is attributable to the transnational nature of the preexisting social network connections and compounded glocalization factor of online communications. Additionally, the ubiquity of the English language makes the international representation not atypical given the usage of London SNS accounts.

Figure 4: Race Distribution



Generational Age Testing

The SVIsamp (N=77) represents an unexpected victimization report rate (32.6%) for the Msamp (N=236), the figure unbounded by time. To understand the nature of this victimization subset, incident specifics in these perceived victimizations were analyzed using primarily the GENage variable to look for significant age demarcations and associations. Relational victim-perpetrator demographics were examined within a simplified binary classification framework with the ambiguous answer elements of "I do not remember" and "unable to determine" excluded from the comparison and accounted for separately as ternary Unknowns [See Figures 7 & 9]. This was done in order to satisfy threshold numeric criteria for chi-squared distribution associative testing and find GENage patterns within the descriptive statistical aggregations. It is important to note that SVI as a whole was not overall connected to GENage, meaning that victimization transcends the age divide of GENcmc or GENfff. Nevertheless, other patterns arose.

Perpetrator Demographics

Social Relationship

Within the dyadic offense paradigm, perpetrator social relationship was defined by weak and strong connections. The majority of perpetrators were considered weak connections (GENcmc=59.1%; GENftf=70.7%), consisting of coworkers and school pupils, acquaintances, and strangers. Strangers in particular constituted a high proportion of the responses in both GENcmc (27.3%) and GENftf (21.2%). Strong connections (GENcmc=31.8%; GENftf=26.2%) were exclusively divided between intimate partners and friends as family was not cited in a single case. This familial absence demonstrates the externality of relations in incidents [See Figure 5].

- Perpetrator social relationship was not associated with GENage.

H0 (Factor 1) Not Rejected

Relational Age

Perpetrator relational age was classified by age equivalence and non-equivalence. As distinguished, there was considerable relational age similitude (GENcmc=68.2%; GENftf=45.5%) within the difference span of only +/- 4 years. The remainder was split between the +/- 5 younger and older year vectors (GENcmc=15.9%; GENftf=39.4%) [See Figure 5].

- Perpetrator relational age was mildly associated with GENage ($X^2=4.87$, $N=77$; $DF=1$; $P<.05$). A cross tabulation indicated that victims of GENftf ($N=30$, 81.1%) were more likely to report outside the age equivalence range than GENcmc ($N=15$, 55.6%). This age equivalence range may become less important in mid and late adulthood, but nonetheless represents a standardized peer relational bound.

H0 (Factor 2) Rejected

Gender

Perpetrator gender was predominately male (GENcmc=52.3%; GENftf=51.5%) to female (GENcmc=38.6%; GENftf=39.4%) which is important considering the preexisting female victim bias in the SVIsamp (Female=54.2%). For the gender identifiable offenders ($N=70$), the overall male to female victim ratio for the male perpetrators ($N=40$) was 1:1 while for females perpetrators ($N=30$) it was 2:1. Thus females were equally as likely to be victimized by either gender, while males are more likely to be victimized by another male. The GENcmc and GENftf ratios are unchanged [See Figure 5].

- Perpetrator gender was not associated with GENage.

H0 (Factor 3) Not Rejected

Race

Perpetrator race was distributed between Europeans (GENcmc=36.4%; GENftf=45.5%) and Non-Europeans (GENcmc=47.4%; GENftf=42.4%), again representing an imbalance in generational victim race in the SVIsamp (European=50.6%; Non-European=42.9%), suggesting some racial or racially ambiguous component to offending [See Figure 5].

Perpetrator race was not associated with GENage.

H0 (Factor 4) Not Rejected

Unknowns

In the four aforementioned demographic categories, answers were related with a notable theme of anonymity and uncertainty. In the Unknown ternaries, the largest constituent survey responses were "unable to determine," exemplifying that memory was not a significant dictating factor in the failure to select a demographic identifier [See Figure 5].

- Unknown ternaries of all perpetrator demographics were not associated with GENage.

H0 (Factor 5) Not Rejected

Media Content

The type of content used in incidents was predominately of low media value. It was made up almost exclusively of text (GENcmc=86.4%; GENftf=93.9%) and pictures (GENcmc=38.6%; GENftf=36.6%), with audio (GENcmc=13.6%; GENftf=6.1%) and video (GENcmc=13.6%; GENftf=6.1%) being only minor incorporations into offenses, although their usage by GENcmc was greater. These noncumulative counts indicate that there was a strong use of singular content types with only a low level of overlap. SNS were verified as the largest constituent digital medium used, with its citation in SVI (GENcmc=72.8%; GENftf=66.7%) considerable. This medium supremacy is predictable given the sampling method and it similarly explains the low media valued content.

- Media content used in incidents was not associated with GENage.

H0 (Factor 6) Not Rejected

SNS Use

The frequency of SNS use was extremely high, with most respondents using it once (GENcmc=20.8%; GENftf=18.9%) or multiple times a day (GENcmc=68.5%; GENftf=54.7%). The level of decay over increasing access time periods is quite pronounced, especially for GENcmc, where almost none abstained from regular usage [See Figure 6].

- The frequency of social networking site use was strongly associated with GENage ($X^2=9.98$; $N=236$; $DF=1$; $P<0.01$). Cross tabulation demonstrated evident SNS trends, with the GENcmc using them more everyday ($N=116$ or 89.2%) than GENftf ($N=78$ or 73.6%).

H0 (Factor 7) Rejected

Figure 5: Relational Perpetrator Demographics
SVIsamp, N=77

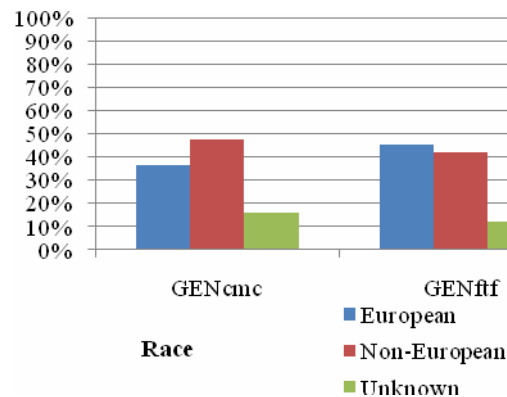
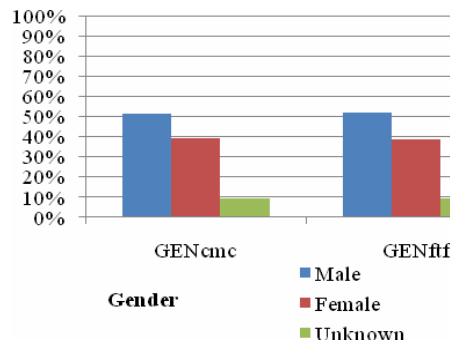
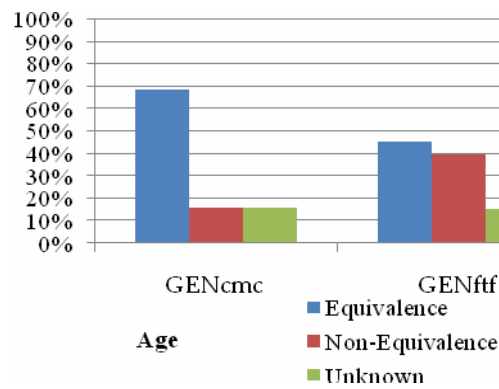
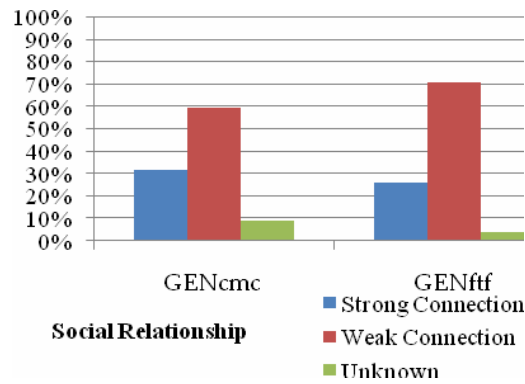
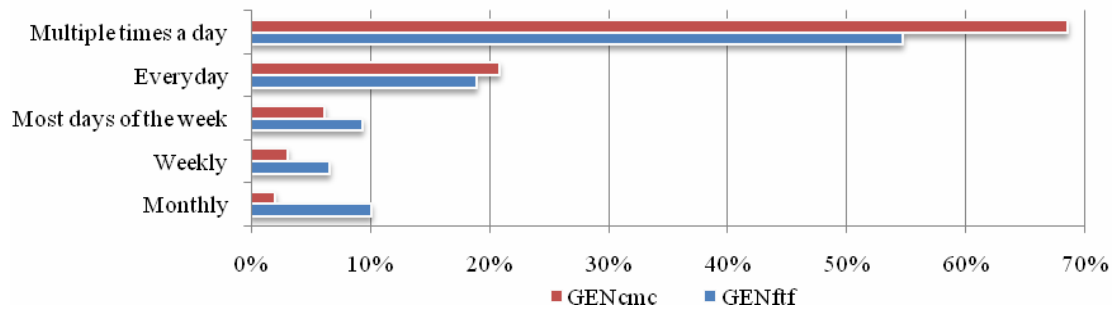


Figure 6: Social Network Site Usage

Msamp, N=236



Incident and Psychological Stress Measures

The incident and stress durations were spread across the timelines of hours to months, with GENcmc more skewed toward hours and days in each. The mean stress level reported differentiated by GENcmc (Mean=2.82; SD=1.167) and GENftf (Mean= 3.70; SD=1.181) on a 0 to 5 point scale, with "0" equaling "virtually none" and "5" equaling "high stress." Cumulatively, this shows that incidents were terse and of moderate intensity with little lingering effects [See Figure 7].

- Incident and stress durations were not associated with GENAge.
- Stress levels of the incidents were very strongly associated with GENAge ($X^2=10.18$; $N=77$; $DF = 1$; $P<.001$). GENftf ($N=21$, 63.6%) was far more likely than GENcmc ($N= 12$, 27.3%) to report high stress level of a "4" or "5." When victim age and stress level of SVI as a whole were then run as interval values in a linear regression, age was shown to directly account for 10.4% of the variation in stress levels and the model was significant ($R=.341$, $R^2=.116$; $F(1, 77)= 9.847$; $P<.01$). By both analyses, age measures were shown to be major determinates of the stress level experienced.

H0 (Factor 8) Rejected
H0 (Factors 9 & 10) Not Rejected

Figure 7: Incident and Stress Durations

GENftf					GENcmc				
Duration	Hours	Days	Weeks	Months or longer	Duration	Hours	Days	Weeks	Months or longer
Incident	34.1%	29.5%	25.0%	11.4%	Incident	27.3%	24.2%	18.2%	30.3%
Stress	36.4%	34.1%	13.6%	15.9%	Stress	21.2%	24.2%	24.4%	30.3%

SVIsamp, N=77

Peer Victimization Identification

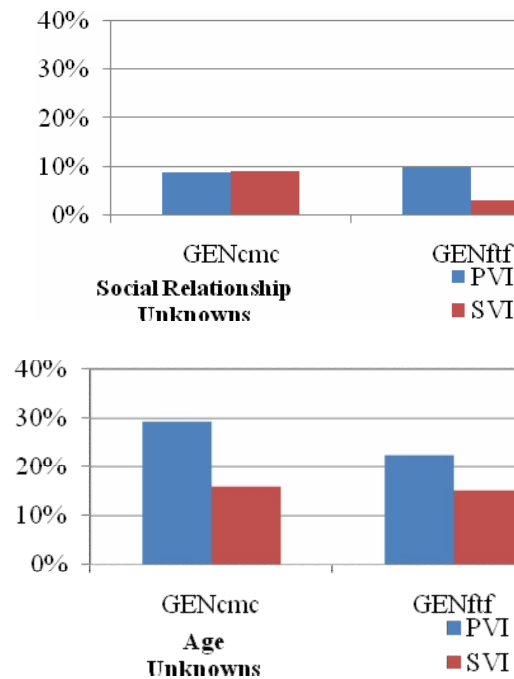
The same degree of GENAge testing was not possible for peer-victimizations (PVI) as self-victimizations (SVI) due to the externality of perspective and lack of an absolute victim age. Nonetheless, most categorical answer trends were mimicked in PVI. Although

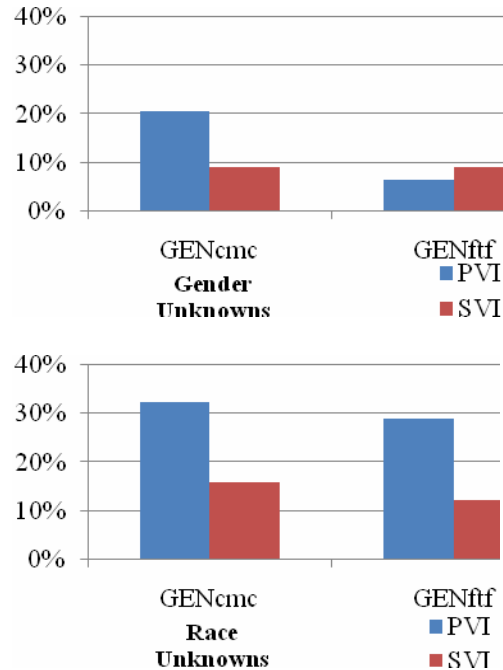
not a part of the original peer victimization hypothesis, the most notable difference was perpetrator relation demographic unknowns generally increased between SVI and PVI, especially with relational age (GENcmc= Δ 13.4%; GENftf= Δ 7.4%) and race (GENcmc= Δ 16.4%; GENftf= Δ 16.9%). This indicates a level of blindness outside the dyadic paradigm for peer reporters and that they were more removed from the antisocial interaction [See Figure 8].

- Unknown ternaries were not associated with GENage.
- Incident duration in PVI was mildly associated with GENage ($X^2=9.60$; $N=65$; $DF=3$; $P<.05$). GENcmc ($N=20$, 58.8%) was more likely than GENftf ($N=9$; 29.0%) to state incident durations were either highly truncated (i.e. hours) or highly protracted (i.e. months or longer). This seems to demonstrate that cases of online harassment can be either singular events or more episodic and prolonged, showing differing conceptions on victimization events. This is nonetheless a mild association and given the absence of this pattern in SVI, it may be fallacious.

H0 (Factors 5 & 11) Not Rejected

Figure 8: Relational Perpetrator Demographic Unknowns
SVIsamp, N=77 PVI Samp, N=65





Discussion

Overview

Associative testing of the hypothetical factors using the GENAge macro variable revealed great similitude in generational perceptions of victimization and online behaviors, suggesting intergenerational behavioral adaptations to the material distance of CMC. Given the propositioned perceptual divide between digital natives and digital immigrants, such congruency was unexpected using an exploratory methodology designed to maximize subjective interpretations (Laftman et al, 2013). Despite the consistency in most focal research areas, the most significant measures relevant to the generational gap argument were found with reported psychological stress levels ($P < .001$) and SNS use frequency ($P < .01$), with digital immigrants (GENftf) were more likely to report high stress levels and be less frequent (i.e. non-daily) users of social networking than digital natives (GENcmc), suggesting communicational interpretations more similar to those of proximal, face-to-face messaging. Nevertheless, although there are limitations given the exploratory nature of this study, the findings suggest that the element of technological familiarity may have a mild effect on interpretations of victimization and antisocial behavior.

Generational Age in Perspective

Victimization Identification

The self-victimization identification measure (SVI=32.6%) contrasts much topical victimology research, with lower figures (7.0-25.0%) more typified (Balakrishnan, 2015; Perreault, 2011; Staude-Muller et al, 2012). In the most similar project analyzing SNS victimization, a comparable measure was attained (33.0%), but the sample consisted of a

US-based adolescent population aged 10 to 15 (Ybarra & Mitchell, 2008). The other notable outlier measures (49.0–72.0%) can be attributed to low incident reporting criteria and victim targeted (Juvonen & Gross, 2008; Raskauskas & Stoltz, 2007). Considering these other older studies, the elevated self-victimization rate can be explained as an inherent product of the subjective embracement and removal of typical filtration clauses in victimization identification questions. If offenses were bounded by time and jurisdictional legal definitions, as considered in the beta versions, the figure would likely have been considerably lower, with inflation attributable to a wide catchment approach (Walrave & Heirman, 2011). It remains important to recognize though that such a high level of unbounded victimization nevertheless reveals the antisocial potential of online communications and their perceived severity.

Perpetrator Demographics

In reported self-victimizations, perpetrator demographics were largely undifferentiated by generational age. There was a high propensity for perpetrator-victims relations to be defined by weak social connections, age equivalence, male dominance, racial homogeneity, and notable unknown classifiable identifiers across all demographic factors (GENcmc=9.1–15.9%; GENftf=4.0–15.2%), findings that accord with prior research (Perreault, 2011). The fact that such a large proportion of perpetrators were of weak social connection to victims, with strangers representing a quarter (GENcmc=27.3%; GENftf=21.2%) of these responses, and that core perpetrator demographic characteristics were wholly unknown to victims, this suggests the effects of online material distancing (Kim, 2009; Valkenburg & Peter, 2011). The changes in the unknowns within peer-victimizations, especially with relational age (GENcmc=Δ 13.4%; GENftf=Δ 7.4%) and race (GENcmc=Δ16.4%; GENftf=Δ16.9%), also seems to further indicate a blindness to other online users and the creation of digital masks (Nusselder, 2009). While thought to influence generational perceptions, anonymity per se did not have any significantly measurable effects.

For perpetrator demographics, the only item of any GENage statistical significant was perpetrator-victim relational age, though the association was weak ($P < .05$), with digital immigrants (GENftf=81.1%) more likely to report outside the age equivalence range than digital natives (GENcmc=55.6%). As the age equivalence range used (+/- 4 years) represents an arbitrary numeric division intended to measure peer-based victimization, this finding in itself carries little weight given fact that this indicated that older populations, was more likely to have perpetrators not of age equivalence. With digital immigrants composed of a larger range of respondent ages (GENftf, Min=30; Max=87), a population known to have diversity in social relations, this retracts value from this finding (Chayko, 2012). Nevertheless, this was successful in determining a general preponderance of individuals to be of relative peer age even in digital immigrants.

Psychological Stress

The most significant GENage association to victimization incidents were reported stress levels ($P < .001$). Even while all other measured aspects of the victimization calculus are effectively intergenerationally homogenous, including perpetrator demographics, low media content, incident duration, and stress duration, digital immigrants (GENftf=63.6%) were still considerably more likely to report high stress figures of a “4” or “5” than digital natives (GENcmc=27.3%) [See Results 3.2]. This contrasts much research as it normally it

has been understood that stress is greater in adolescence than adulthood (Tandon et al, 2013; Eiland, & Romeo, 2013). The measure does accord though with theorizations related to their status as digital immigrants, being less acculturated to contemporary telecommunication mediums and having less abstracted perceptions of CMC interactions (Prensky 2001; 2009). Nonetheless, as adolescent populations were not included in the sampling, this could not be corroborated relationally within this analysis.

While the questioning upon victimizations was not exhaustive, the psychological stress levels suggest a hyper emotive nature to the offensive messaging. Given that text (GENcmc=86.4%; GENftf=93.9%) and picture (GENcmc=38.6%; GENftf=36.6%) media content were the most used in incidents suggests a low sensory fulfillment, with stress levels rooted in victim specific interpretations given their reduced FTF equivalency (Lengel & Daft, 1989; Otondo et al, 2008; Liu et al, 2009). This indicates additionally that the messages are either more distressing, with perpetrators being more maliciously communicative, or the interpretations are more serious, with victims ascribing more negative connotations (DeLara, 2012; Ybarra & Mitchell, 2008).

Social Networking Site Use

In a similar vein, the significance measure of SNS use frequency ($P < .01$) is also of theoretical note. Although general usage was high among all respondents, this is not unexpected given the technoliteracy of SNS users, this was strongly differentiated by daily and non-daily usage (GENcmc=89.2%; GENftf=73.6%). These trends are predictable given the emergence of SNS as the dominant online social medium and supports other research (Duggan, 2014; Duggan, M., & Brenner, 2013). What is important to note here is that SNS, while becoming ubiquitous to online communications, still favors more youthful populations as a key method of distal communication and is a major component to generational behavior. Additionally, with the sample used more reflective of a definitively more techno-literate digital immigrant group, the fact that this association still yet exists is matter future online victimization research must accommodate.

Relevancy of the Generational Gap Argument

Taking the results cumulatively, the generational gap argument based on digital acculturation and technological familiarization does seem to have some credence for behavioral discrepancies and victimization. Most importantly, the associations of psychological stress in online harassment when considered in conjunction with topical literature indicate that it may not be linked to absolute age or social experience, but rather this familiarity with the interactional context (i.e. CMC). While digital natives and digital immigrants may have had comparatively equal periods to acculturate to differing modes of computer-mediation, technology adoption trends reveal that mature populations have comparatively lagged (Duggan & Brenner, 2013; Duggan et al, 2015). This is similarly reflected in the association of SNS use frequency between daily and non-daily usage which demonstrate the degree of incorporation into routine social exchanges.

The generational gap argument defining the digital native and digital immigrant divide is now considerably dated, yet the measurable variances and significant associations seem to show that the increasing ubiquity of computer-mediation has not displaced all perceptual tendencies. In many senses, this generational gap argument is not so much about technological familiarity, but the ability to understand human behavior distally through telecommunication mediums in relation to proximal, face-to-face based

exchanges (Palfrey & Glaser, 2013; Prensky, 2001). While generational gaps are based on real sociological principles of large populations, the measurement of such social phenomenon is extremely difficult, especially through anonymous responses on an online victimization survey, making the few associations found not untypical.

With cyber crime becoming a greater element to online interaction, understanding the perceptual factors that create psychological stress across age demographics is key to integrating better preventative and proscriptive measures for incidents on messaging platforms. More generally, the development of CMC messaging modes that greater approximate the sensory richness of FTF interchanges with a high synchronicity and multiplicity of sensory cues should serve to reduce these age-based perceptual divides causing dysfunction and emotive interactions (Palfrey & Glaser, 2013; Nock et al, 2004; Sheer & Chen, 2004). In any event, to measure scaled differences in offense severities and the precursory interactions leading to incidents, communications should be archived by either users or service providers for linguistic analysis and creation of legal evidence (Jantz & McMurray, 2009; Menesini et al, 2009; Todd, 2014). It is only with proactive approaches linking traditional harassment with online harassment can mitigation tactics be applied effectively (Todd, 2014; Zande, 2009).

Conclusion

The marginal categorical associations between digital natives and digital immigrants suggest at most only a moderate effect of the generational gap. Although CMC was in general seen as potentially invoking the same semantic and emotive meaning as FTF communication, it was still perceived as less commensurable. Nonetheless, there were distinct divisions in SVI stress levels and SNS use frequencies by generational age, which may determine propensities for some general perceptual aspects of online victimization and antisocial behavior. Cumulatively, the factors seem to denote that the incidents of online harassment have more hyperreal and distressing interpretations than those of digital natives which is the pivotal definitional component to this antisocial behavior. While material distance and abstraction of these communications may be a major causative element of these interpretations, with the inherent disconnection and dehumanization proving distressing, this remains a matter to be tested in cybernetics and experimental psychology. What is certain is that CMC inherently leads to misinterpretation and that distressing messages have hyperreal effects. This research brings to light that online harassment a growing phenomena as more users of computer-mediation become victimized in modes divergent from proximal, FTF communications. Overall, this research is proves to neither rebuke nor confirm the generational gap argument as relevant to online harassment, but to highlight the need for further research in understanding the growing field of cyber crime.

Limitations

The scope of this research project was truncated primarily due to population access constraints. As the generational age divide imposed would normally lead to the automatic inclusion of adolescent groups, where there has been the most research and thus would allow for a higher degree of age specific juxtaposition, no one under 18 years of age was included due the allotted project timeline and prospective period for university ethics approval. Additionally, with no readily accessible sampling universe upon which to source,

the social networking sampling technique was fundamentally reliant on researcher outreach into preexisting and proximal user connections, representing a non-statistical, opportunity based sampling. Although the participant referral mechanism was employed to add further randomization and increase SNS access, a representative sample was not achieved, being biased on several demographic areas.

SNS sampling may not have been the best targeting method, despite its evidenced connection to online harassment, as it is not clear if SNS user correlated victimization is a normalized in terms of generational representativeness. With the purpose of this project to examine differences attributable to generational age, user aggregations demonstrate that mature adult SNS account holding is still incomparable to younger age groups. Thus, the sub sample of GEN_{ff} constituents may represent a non-normative group of more digitally acculturated online users. Additionally, the adjusted macro sample used for statistical analysis using likewise deletion did reduce statistical power and may have been greater subject to the non-response bias given the cases omitted and common themes of social science survey research.

Related to the analysis, the functional bounding of the macro variable GEN_{Age} contains some tautological premises. While there is considerable literature contending a generation gap in regards to digital communications, the actual year divide selected for GEN_{mc} (born on or after 1985) and GEN_{ff} (born before 1984) was made somewhat arbitrarily given that there is no commonly agreed upon date. When the centrality measures are examined of the Msamp (Mean=35, SD=15.064), this shows that there was a significant congregation of individuals near this crucial generational division, reducing the legitimacy and validity of the demarcation. This would have been better compensated by the use of adolescent and larger mature adult populations, which will be incorporated into the design requirements of future research.

Lastly, the measure of victimization contains some potentially fallacious elements. Incidents reported were timeless in their catchment, with all self or peer incidents applicable, even those of considerable historicism. This means that the component of victim age was significantly diminished as there was a considerable breadth of comparison. This ambiguity to victim age was made highly evident in PVI. Although PVI corroborated many of the SVI findings, there were salient differences that could not be fully explained as this exact age of the victim was unknown, representing a survey design flaw. Related to incident questioning, relational perpetrator demographics were limited to dyadic offense models, where there is one main perpetrator and victim, excluding minor offenders and victims, denying elucidation upon phenomenal group offending. Collectively, these items all detract from the value of the finding uncovered and makes it difficult to completely acknowledge or refute the validity of generational gap presuppositions.

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