2017

Cyber violence: What do we know and where do we go from here?

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This is the author's pre-print version before review and edits. For the definitive version, please see the Elsevier Version of Record: http://dx.doi.org/10.1016/j.avb.2017.01.012

Is Social Media a Gang?

Toward a Selection, Facilitation, or Enhancement Explanation of Cyber Violence

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Abstract

This paper reviews the existing literature on the relationship between social media and violence. It explores the individual-level correlates and risk factors associated with cyber violence, the group processes involved in cyber violence, and the macro-level context of online aggression. Drawing on gang research, this paper concludes with a framework for reconciling conflicting levels of explanation and presents an agenda for future research that adopts a selection, facilitation, or enhancement framework for thinking about the casual or contingent role of social media in violent offending. Remaining empirical questions and new directions for future research are discussed.

Keywords: Violence; Social Media; Cyber-bullying; Gangs; Selection; Facilitation

Introduction

In a little over a decade, social media has become "a vector for youth violence," and dramatically changed the landscape for aggressive behavior (Patton, Hong, Ranney, Patel, Kelley, et al., 2014). There is a growing body of literature concerned with understanding "electronic aggression", which has been described as an "emerging public health problem" (David-Ferdon & Hertz, 2007). Perpetrators of in-person aggression have begun using social media in the furtherance of violent activity. Research suggests street gangs and drug cartels, for example, use social media to incite violence (Décary-Hétu & Morselli, 2011; Densley, 2013; King, Walpole, & Lamon , 2007; Morselli & Décary-Hétu, 2013; Moule, Pyrooz, & Decker, 2013; Moule, Pyrooz, & Decker, 2014; Pyrooz, Decker, & Moule, 2015; Sela-Shayovitz, 2012; Womer & Bunker, 2010). Terror groups utilize social media to project force (i.e., videos showing assassinations, torture, threats), and recruit into violent extremism (Holt, 2012; Kennedy & Weimann, 2011). Hate groups use online chat-rooms to encourage interracial violence (Glaser, Dixit, & Green, 2002). The customers of prostitutes solicit illicit sexual services online (Holt & Blevins, 2007) and pedophiles and sexual predators access the Internet to gain access to vulnerable potential victims (Goldsmith & Brewer, 2015; Holt, Blevins, & Burkert, 2010; Quayle & Taylor, 2002).

At the same time, social media has introduced new forms of aggression and violence that occur exclusively online. Studies find cyber-bullying and harassment, including threatening or sexual messages delivered via social media, for example, are common among juvenile populations (Hinduja & Patchin, 2008, 2009; Lim, Chan, Vadrevu, & Basnyat, 2013). Despite the above, the scientific fields generally concerned with violent behavior—namely criminology, psychology, and sociology—have produced very little research on the prevalence or etiology of

various forms of cyber violence (Brown, 2015). Some argue the study of "virtual criminality" is merely "old wine in new bottles" (Grabosky, 2001) or a "technological variation of ordinary crime" (McQuade, 2006, p. 6), thus is already explained via existing social science theory (e.g., Choi, 2008; Williams, 2008; Yar, 2005). Yardley and Wilson (2014), for example, found when perpetrators of homicide used social networking sites in their crimes, it was in ways largely typical of general homicide offenders. Others suggest current theories of in-person violence may not apply to the rapidly changing world of cyber violence (e.g., Jaishankar, 2008). Clake (2004, p. 55) argues, for instance, the Internet has created "completely new" opportunities and environments for "traditional crimes" to "take new forms".

This paper aims to review and organize the extant literature on the relationship between social media and violence. In doing so, we offer one of the first comprehensive reviews of a relatively young but burgeoning literature (Patton, Eschmann, & Butler, 2013), but also readily identify the gaps in existing knowledge to advance an agenda that might reconcile the "level of explanation problem" (Short, 1985, 1998) present in research on cyber violence. That is, this paper aims to disentangle (1) the individual-level correlates and risks associated with cyber violence, (2) the group processes involved in cyber violence, and (3) the macro-level context of online aggression.

Overview of Cyber Violence

One of the most cited typologies of cybercrime, developed by Wall (2001), suggests four forms of offending that exist in virtual environments: deception/theft, pornography, violence, and cyber-trespass. This paper is concerned primarily with violence, or what Holt (2011) describes as "cyber violence". Further, this review focuses attention on violence via social media and social networking sites, broadly defined as "public mediated spaces" such as Facebook, Twitter,

Snapchat, and Instagram (Boyd, 2014, p. 137). Social media represent a shift toward a more "user-centred" (Van Dijck, 2011) and "user-generated" (Boyd, 2014) Internet, characterized by "spreadable media" (Jenkins, Ford, & Green, 2013) and "participatory" youth culture (Burgess & Green, 2009). Multi-platform or "polymedia" use is common, whereby individuals use different social media platforms for different forms of communication (Madianou & Miller, 2012). Burgess and Green (2009, p. 102) argue even YouTube has evolved into a social networking site, "one in which videos (rather than friending) are the primary media of social connection between participants".

Prevalence of Cyber Violence

Cyber violence is difficult to define, let alone systematically track. As a result, prevalence rates are largely unknown. There have been a number of large-scale, national surveys of youth that examine cyber bullying and cyber dating violence. For example, one study used a large national telephone survey (*N*=4,561) of youth ages 10-17 during 2000, 2005, and 2010 (Jones, Mitchell, & Finkelhorn, 2013). The rate of online harassment nearly doubled in a decade, from 6% in 2000 to 11% in 2010. Girls made up 69% of victims, an increase from 2000, and were more likely to report the incident occurred on a social networking site like Facebook. The reported rates of cyber-bullying in another national survey of 1,588 youth ages 10-15 in 2008 were much higher (Ybarra, Mitchell, & Korchmaros, 2001). This study used a national, online survey of randomly selected households. In the last wave of this study, nearly 40% of the sample reported being victimized at some point and nearly 25% of the sample reported perpetrating harassment online.

Whether or not there is a gender difference in cyber aggression and violence is also largely unclear. Low and Espalogue (2013) posit males typically have higher rates of physical

bullying, but females may actually display higher rates of cyber aggression. Ybarra et al. (2001) found no gender difference in rates of cyber-bullying in their national survey. However, a recent cyber-bullying meta-analysis by Bartlett and Coyne (2014) examined 122 effect sizes to explore whether or not there is a gender difference in prevalence rates. The results showed that girls were more likely to engage in cyber bullying during younger age (mid-adolescence) and boys were more likely to engage in cyber-bullying during later years (late adolescence).

Girls also are more likely to experience cyber-dating violence. In a survey focused on relationship violence among 5,647 youth, over 25% of participants who were in a current or recent relationship experienced a form of cyber dating abuse victimization that year, with higher rates among girls (Zweig, Dank, Yahner, & Lachman, 2013). One out of 10 participants in this study reported perpetrating cyber-dating abuse. Unfortunately, beyond these studies in adolescence, there are virtually no prevalence studies of experiencing or perpetrating cyber aggression and violence in adulthood. Prevalence rates of traditional criminals using social media to facilitate violence (i.e. gang members, terror group members, sex offenders) are few and far between (e.g., Moule, Pyrooz, & Decker, 2013).

Overlap with Traditional Violence

Cyber violence can lead to similar levels of fear and distress as real-world violence (Bocij, 2004; Finn, 2004; Wall, 2001). One important question is whether or not the same individuals who perpetrate traditional forms of aggression and violence perpetrate cyber violence? Is the Internet simply a new place for antisocial individuals to carry out aggressive acts, or do social media attract a new and distinct group of aggressors, who are violent exclusively online? Research in this area is still in its early stages.

One survey of 1,672 middle school students used cluster analysis to examine the overlap between overt, relational, and cyber aggressors (Dempsey, Sulkowski, Dempsey, & Storch, 2011). The data did show three distinct subtypes of aggressive behavior, however further analysis demonstrated that aggressive youth clustered more accurately by frequency of aggression, rather than type of aggression. Alternatively, a survey of 400 middle schoolers found only a small amount of overlap between cyber bullying and traditional bullying (Canada, Bonnano, & Hymel, 2013). Another survey of over 5,000 youth found that traditional and cyber-bullying were likely to co-occur with relationship violence—physical, sexual, psychological, and online (Yahner, Dank, Zweig, & Lachman, 2015). Kowalski and Limber (2007) observe victims of cyber-bullying typically know their bully's name and who they are. Furthermore, a recent study of anti-Muslim hate crime reported to the British government found considerable overlap between being victimized online and in-person, with similar psychological responses (stress, anxiety, and fear; Awan & Zempi, 2015).

In their review of the cyber sexual offender literature, Beech, Elliott, Birgden, and Findlater (2008) posit that there are four types of people who consume child pornography on the internet: impulsive users, those using images to fill sexual desires, people who disseminate images for non-sexual reasons, and those who also sexually offend in real life. Estimates of the percentage of people who use child pornography who also commit sexual offenses against children offline vary widely from 19% (Alexy, Burgess, & Baker, 2005) to 38% (Seto & Eke, 2005). Examining two "pedophile cyberspace rings," Gambetta (2009, p. 62) observes, "in order to join, a would-be member had to possess at least ten thousand photographs [of children] and be prepared to share them with all other members". The fact that photographs were screened to confirm they were "not recycled from other sources already available," suggests *online* members

had to be active offenders *offline*. Still, this is just once case—the phenomenon as a whole is difficulty to study, often relying on arrest records for prior or later incidents (Beech, et al., 2008). Overall, we know very little about the extent to which cyber violence and in-person violence overlap or are distinct phenomena.

In-Person Perpetrators Using Social Media

Social media provides new means to organize, communicate, and feel connected with peers across the county and world. Gangs have begun using social media for their own self-promotion and more effective communication (Décary-Hétu & Morselli, 2011; Densley, 2013; King et al., 2007; Morselli & Décary-Hétu, 2013; Moule, Pyrooz, & Decker, 2013; Moule, Pyrooz, & Decker, 2014; Pyrooz, Decker, & Moule, 2015; Sela-Shayovitz, 2012; Womer & Bunker, 2010). Gang members often post videos, announce activities, incite dares, and display weapons (Patton et al., 2014). 'Internet banging' involves promoting one's gang affiliation, reporting violence participation, and sharing information via social media (Patton, Eschmann, & Butler, 2013). Most gang members are not committing any form of cyber crime, but rather are using social media to facilitate the violence and aggression of their routine gang lives (Sela-Shayovitz, 2012).

In addition to gang usage, there has been increased attention on the way terror groups, such as the self-proclaimed Islamic State, have been using social media to coordinate international acts of violence (Winter, 2015). Terrorists use social media for recruitment around the globe—sending messages on Twitter and YouTube to spread misinformation and gather intelligence about potential targets (Holt, 2012). In an extension of what Sageman (2011) called "leaderless jihad," social media also has brought like-minded or "lone wolf" (see Spaaij, 2010) violent extremists together around online training manuals and video materials (Goldsmith &

Brewer, 2015; Kennedy & Weimann, 2011). Homeland security has been actively developing social media campaigns to combat terrorist recruitment via social media, and monitoring social media accounts as a means to track and prevent terrorist activity (Zaffar, 2015).

School shootings also have a relationship with social media, though mostly anecdotally. Case studies of many shooters demonstrate a common interest in violent social media (Rocque, 2012), and many perpetrators express threats online before actually carrying out an attack (Patton et al., 2014). And, as discussed above, sex offenders use social media to disseminate pornographic images and anonymously network with other pedophiles while remaining undetected (Beech, Elliott, Birgden, & Findlater, 2008; Gambetta, 2009). For individuals who commit crimes offline, therefore, social media is a tool to aid in communication and network with similar offenders on a larger scale.

New Forms of Aggression and Violence

Social media has also introduced new, often anonymous, forms of aggression and violence that take place exclusively online. Cyber-bullying has generated the most research to date. Although there is some debate on the definition, cyber-bullying generally involves using the Internet to threaten, harm, embarrass, or socially exclude others (Ang, 2015). Some of the most common forms of bullying include the simple act of writing a mean comment on someone's photo or posts on social media sites (Jones, Mitchell, & Finkelhor, 2013). Another form of online aggression is "trolling," which involves destructive and deceptive behavior to disrupt a space on the Internet for no apparent purpose (Buckels, Trapnell, & Paulhus, 2014). Social media also facilitates cyber relationship aggression in many forms—from "revenge porn" (Franklin, 2014) to "cyber-stalking" (Beech, Elliott, Birgden, & Findlater, 2008). Unfortunately, data on offenders who commit these relatively new forms of cyber violence is

limited (Holt & Bossler, 2011). As Holt and Bossler (2011) observe, the "usual suspects of many criminal theories—minority, poorly educated offenders from the lower class—are simply priced and skilled out of computer-related crimes" (p. 28). What exist in the literature right now are anecdotal descriptions, with little attention to causes or consequences (Patton et al., 2014). Beyond debating the empirical status of cyber violence, therefore, research must seek to understand its theoretical and practical implications.

Individual Explanations of Cyber Violence

A few psychological studies have begun examining the characteristics of individuals who engage in cyber aggression and violence, which include both traditional criminal risk factors (i.e., externalizing traits) and potentially new risk factors (i.e., internalizing traits).

Low Self-Control or Impulsivity

Gottfredson and Hirschi's (1990) self-control theory argues that individuals with low self-control will find crime appealing, because they are unable to see the consequences of their actions. This theory maps onto the concept of impulsivity in psychology, which is highly correlated with criminal behavior (Krueger, Markon, Patrick, Benning, & Kramer, 2007), and is well established as one of the strongest predictors of both juvenile and adult offending (White, Moffitt, Bartusch, Needles, & Stouthamer-Loeber, 1994).

In the online context, low self-control is often presented as a risk factor either for piracy (i.e., online copyright infringement) offending (Higgins, Wolfe, & Marcum, 2008) or hacking (i.e., illegal access to computer networks) victimization (Bossler & Buruss, 2011; Bossler, & Holt, 2010). Indeed, in the context of hacking victimization, Wilsem (2013) concludes, "Low self-control can be expected to go together with risky online behavior" (p. 441). Only a couple of studies have examined whether low self-control has a relationship with cyber aggression and

violence. A survey study of nearly 500 undergraduate students found that low self-control predicted online deviance, which included harassing or threatening posts and illegal hacking (Donner, Marcum, Jennings, Higgins, & Banfield, 2014). An additional study of over 25,000 youth in 25 different countries ages 9-16 found associations between online and offline bullying and low self-control, with stronger direct effects on cyberbullying (compared to traditional bullying; Vazsonyi, Machackova, Sevcikova, Smahel, & Cerna, 2012). The small amount of empirical literature available does suggest the relationship between low self-control/impulsivity and violence applies to the cyber world as well, thus may be an important risk factor for cyber aggression and violence.

Psychopathic and Machiavellian Traits

Psychopathic traits (i.e., charming, manipulative, emotionally sallow, callous, deceitful) are highly predictive of criminal and violent activity across a wide range of settings and individuals (Hare, 2003). A handful of studies have begun examining whether these traits are markers for cyber aggressors as well. Although the small collection of empirical evidence is somewhat mixed, the literature supports psychopathic or Machiavellian traits as another potential risk factor for cyber violence.

In one of first studies of personality characteristics of online trolls, for example, Buckels, Trapnell, and Paulhus (2014) examined the relationship between trolling and self-reported sadistic traits, psychopathic traits, and Machiavellian traits (i.e., cynical, emotionally detached, manipulative; Abell & Brewer, 2014). Study one collected online data from 418 U.S. residents, of whom 5.6% reported enjoying trolling behavior online. These individuals scored significantly higher on all measures of sadism, psychopathy, and Machiavellianism. A second, larger study collected online data from 188 Canadian college students and an additional 418 U.S. residents.

Again, results showed a significant relationship between self-reported enjoyment of trolling and sadism, psychopathy and Machiavellianism. Further analysis demonstrated that sadism, specifically, was uniquely related to trolling behavior (as opposed to other, non-aggressive online activities such as chatting or debating).

In one of the only other studies of trolling behavior, Shachaf and Hara (2010) conducted qualitative interviews over email with a small sample of five Wikipedia trolls (who engage in harmful or threatening cyber aggression on Wikipedia). Consistent with Buckels et al.'s (2014) work, these interviews indicated that trolls were motivated by boredom, attention seeking, and revenge—and also found pleasure from causing damage to the Wikipedia community (potentially indicating sadistic or psychopathic traits). Abell and Brewer (2014) examined how Machiavellian traits influence social networking behavior among men and women (N=243) using a series of self-report questionnaires. In this study, women (but not men) who were high in Machiavellianism were more likely to engage in relational aggression with a friend via social media.

One specific trait of psychopathy is a lack of empathy (Hare, 2003), which is the inability to experience the emotions of another person or to comprehend the emotions of another person (Jolliffee & Farringon, 2006). A lack of empathy has been examined in the context of cyberbullying in two European studies. In one study involving online surveys of over 2000 students in Germany, cyberbullies reported significantly less empathy for victims than non-bullies (Steffgen, Konig, Pfetsch, & Melzer, 2011). However, Sticca, Ruggierri, Alsaker, and Perren (2013) surveyed 835 junior high school students in Switzerland, following-up six months later. They found that a lack of empathetic concern did not predict cyberbullying over and above traditional bullying, rule breaking, and frequency of online communication.

Internalizing Traits

Externalizing traits such as low self-control, impulsivity, psychopathy, and lack of empathy also are strong risk factors for individuals who engage in traditional (i.e., in person) forms of aggression and violence. However, online aggression is distinct from traditional forms of aggression in that the aggressors are invisible to their victims, and often anonymous. This unique form of violence and aggression may, therefore, attract individuals with a distinct set of *internalizing* traits such as depression or shyness.

For example, a study of nearly 400 youth in grades 8-10 in Canada, found symptoms of depression and suicidal ideation were predicted by involvement in cyberbullying (Bonnano & Hymel, 2013). Participating as a cyberbully accounted for a small, but significant amount of the variance in depression and accounted for a larger amount of the variance in suicidality. An additional survey in 2007 of nearly 2,000 middle school students found that cyberbullies were more likely to experience suicidal ideation and attempt suicide than students who had not been involved in online aggression (Hindaju & Patchin, 2010).

Beyond depression and suicidality, a study of over 400 University students in Turkey examined the relationship between "problematic internet use" and narcissism, shyness, loneliness, aggression, and self-perception (Odaci & Celik, 2013). The results of this self-report study demonstrate only aggression and shyness were significantly correlated with problematic Internet use. Although the examination of internalizing traits as predictors of those who engage in cyber-aggression is a relatively new area of study, these preliminary findings highlight these traits as potentially important selection criteria.

Group and Environmental Explanations of Cyber Violence

In addition to individual-level externalizing and internalizing traits, certain group processes and environmental factors may also facilitate cyber violence. Prior research has generally drawn upon popular criminological theories to account for this, as follows.

Social Control and Social Learning Theories

The role of parents and peers is critical in the development and facilitation of traditional forms of aggression and violence (e.g., Akers, 1989). In a recent review of the literature, Ang (2015) found that poor emotional bonds with parents and a lack of parental monitoring related specifically to cyber aggression as well. Holt, Bossler, and Bossler (2010) argue social learning theory may apply specifically to cyber aggression through the association with delinquent peers. Exposure to violence in the media is also associated with concurrent reports of serious violent behavior (Ybarra, et al., 2008).

Hindaju and Patchin (2007) examined 4400 sixth to twelfth grade students, and also found that cyber bullying was related the perceived likelihood of being punished by adults. Additionally, this study found that perceptions of peer behavior (i.e., whether or not one's peers were cyberbullying as well) were related to cyber aggression. This finding is consistent with a recent survey of 850 middle school students, which found that weak attachments to peers was associated with both traditional and cyber bullying (Burton, Florell, & Wygnant, 2012). Another study of relationship cyber aggression in 600 adolescents found that insecure maternal attachments and insecure partner attachments were related to partner-directed cyber aggression (Wright, 2015), again emphasizing the importance of peer and family relationships as selection criteria.

Routine Activities and "Digital Drift"

Offending via social networking sites is most commonly associated with routine activity or lifestyle theories of crime (Bossler & Holt, 2009; Holt & Bossler, 2009; Leukfeldt, 2014; Moule, Pyrooz, & Decker, 2013; Ngo & Paternoster, 2011; Pratt, Holtfreter & Reisig, 2010; Pyrooz, Decker, & Moule, 2015; Reyns, 2013; Reyns, Henson, & Fisher, 2011; Van Wilsem, 2011; Yar, 2005). As first conceptualized by Cohen and Felson (1979), routine activity theory states crime results from the spatial and temporal convergence of motivated offenders and suitable targets in the absence of capable guardianship (i.e., formal or informal social controls). Routine activity theory has intuitive appeal for explaining crime online, not least because connecting to the online world has become so *routine,* or habitual for society (David-Ferdon & Feldman, 2007; Huesmann, 2007). Still, routine activity theory perhaps has more to say about victimization than offending (Sampson & Lauritsen, 1990). People explore new technologies because of the freedom these technologies bring, but new technologies make people vulnerable to online violence. Williams and Guerra (2007) observe, "The Internet has become a new arena for social interactions, allowing children and youth to say and do things with a certain degree of anonymity and limited oversight by adult monitors" (p. S15). Limited oversight speaks to the absence of capable guardianship online.

Guan and Subrahmanyam (2009) looked into the link of online addiction in youth with the likelihood of being harassed, bullied, and sexually exploited and concluded that those who spend more time on the internet are more likely to be approached by online predators. Increased time spent on the Internet by youth also leads to more conflicts with those they are dating, which may lead to damaging emotional and behavioral problems (Hinduja & Patchin, 2012). Overall, the more youth are online, the greater chance there is to become a victim of cyberbullying

considering the background, type of contact, and relationships formed. As an extension of this line of inquiry, Goldsmith and Brewer (2015) draw on Matza (1964) to advance the theory of "digital drift," which accounts for the arbitrary and capricious nature of some cyber violence. Goldsmith and Brewer point to lone wolf terrorism and pedophilia as examples of a new "criminal interaction order" "that is encounter based and that can engage with the Internet as a source as well as facilitator of encounters" that result in criminal outcomes (p. 126). Such a perspective speaks to the "great seduction" (Keen, 2008, p.11) of the Internet and what Katz (1988, p. 53) referred to as "sneaky thrills" of offending.

Anonymity and Conformity

Anonymity may contribute to online aggression and violence beyond a lack of guardianship, due to the "deindividuation" process. People experience reduced inhibition and personal responsibility in situations when they are more anonymous (Zimbardo, 2007). For example, a study of violence in Northern Ireland found a significant relationship between wearing a mask to disguise one's identity and increased aggression (Silke, 2001). The degree of anonymity on social media may be a contributor to the aggressive nature of many users' comments (Thelwall & Sud, 2011). New apps, such as 'Yik Yak', allow users in the same physical area to post anonymous messages to each other. These anonymous group conversation on Yik Yak have turned so threatening and aggressive on college campuses that many Universities are asking their students to avoid the app altogether (Mahner, 2015).

Another important social process that may take place on social media is conformity, which is changing one's behavior because of direct or indirect group pressure, either real or imagined (Asch, 1951), as was famously demonstrated by the Stanford prison experiment in the 1970s (Haney, Banks, & Zimbardo, 1978). For example, a study of over 1200 elementary school

students that examined bullying found that the strongest influence on behavior came from class context and group norms, as opposed to individual attitudes (Salmivalli & Voeten, 2004). Social media expands the peer networks of adolescents, exposing them to new group norms in an online context. Although this phenomenon has not yet been empirically studied, social media may contribute to cyber violence by expanding peer networks that normalize aggressive or violent online behaviors.

Discussion: Reconciling Levels of Explanation

In his 1997 American Society of Criminology Presidential Address, Jim Short (1998) revisited the "level of explanation problem" in criminology, calling for a concerted effort to address the interaction between micro, meso, and macro levels of explanation. As a relatively new field, research on cyber violence is, perhaps predictably, reliving this level of explanation problem. This review has examined the macro context of cyber violence, the individual-level characteristics, and group-level processes that contribute to its perpetration. But, as can be observed, the literature lacks continuity and coherence. The literature has ceded any devotion to the advancement of a comprehensive theoretical model to ground the conversation about cyber aggression and violence and its overall impact on the criminal justice field. Future empirical research is needed to disentangle the causes and correlates of online aggression and reconcile conflicting levels of explanation. To do so, that research needs direction.

Learning from the Gang Literature

To advance the examination of social media and violence, we propose thinking about social media, or *anti-social media*, as a "gang." That gang members partake in delinquent activity, especially violent offenses, more than their non-gang counterparts, is one of the most established findings in the field of criminology (Battin, Hill, Abbott, Catalano, & Hawkins,

1998; Gordon, Lahey, Kawai, Loeber, Stouthamer-Loeber, & Farrington 2014; Esbensen & Huizinga, 1993; Thornberry Krohn, Lizotte and Chard-Wierschem 2003). The relationship between gang membership and delinquency endures even when controlling for numerous confounders and mediators (Curry, Decker, & Pyrooz, 2014; Krohn & Thornberry, 2008). The question is, why? Thornberry, Krohn, Lizotte and Chard-Wierschem (1993) proposed three explanations—selection, facilitation, and enhancement—that over the course of two decades have attracted a great deal of attention (over 550 citations according to Google Scholar) and have been tested employing a diverse set of methodologies (see Krohn & Thornberry, 2008). A recent meta-analysis of 179 empirical studies revealed that the relationship between gang membership and offending is best represented not by pure selection or facilitation perspectives, but by the enhancement model (Pyrooz, Turnovic, Decker, & Wu, 2015). Below we propose adapting this tripartite approach to understanding cyber violence.

Selection. First, the *selection* model is a "kinds of persons" explanation, suggesting that youth with shared individual deficits such as poor self-control select into cyber violence and that any increased delinquency should not be attributed to social media. This is consistent with propensity explanations of delinquency, wherein gangs have no causal influence on criminal behavior (e.g., Gottfredson & Hirschi, 1990). According to the selection model, individuals with certain characteristics are more likely to select into cyber aggression and violence (i.e. the gang). In this view, the Internet is "not a main effect cause of anything" (McKenna & Bargh, 2000, p. 57). Instead, criminal propensity and other individual-level "risk factors" explain the correlation between social media and violence.

Facilitation. Second, the social *facilitation* model is a "kinds of groups" explanation (Akers, 2008; Sutherland, 1947), suggesting that cyber violence is purely attributable to the

influence of the social media, particularly group processes associated with its use. In this model, social media have a causal influence on violence—*but for* anti-social media, an individual would not engage in certain actions. The causal effect of social media extends beyond mere opportunity or lack of guardianship, arising from features of social media itself, such as anonymity or conformity to group norms.

Enhancement. Finally, the *enhancement* model is a "kinds of groups *and* persons" model that combines selection and facilitation effects and is supported when there is evidence of a selection effect—more delinquent youths use anti-social media—*and* a facilitation effect whereby violent offending is increased during social media use relative to social media nonusers with similar violent propensities. With both mechanisms at work, anti-social media attract individuals with propensities toward violence and then group processes associated with social media produce greater offending rates.

Unresolved Questions and Future Directions

Gang research was some 60 years old before the "empirical turn" (Pyrooz & Mitchell, 2015) of which Thornberry et al.'s (1993) tripartite model of gang membership and delinquency is synonymous with changed the trajectory of the field. Since then, there have never been fewer than 150 new contributions to the gang literature on an annual basis (Pyrooz & Mitchell, 2015). This review has exposed a number of unresolved questions in the current literature on cyber aggression and violence and we feel that should efforts going forward examine cyber violence through the lens of selection, facilitation, and enhancement, a similar turning point in the field might be achieved.

Existing research on the psychological characteristics of cyber aggressors is almost exclusively concerned with cyber bullying, yet as this paper demonstrates cyber violence takes

many forms (terrorism, gangs, sexual predictors). Predictably, sociological research is focused more on group processes whereas psychological research is concerned with individual risk and personalities. As a result, there are gaps in the literature where these fields traditionally do not overlap. For instance, there is virtually no research on the psychological profiles or backgrounds of terrorists or gang members who use social media, instead focused only on social processes and how they recruit new colleagues.

It is possible that perpetrators of cyber violence are not a uniform group and are better represented with a typology of behavior. For example, is cyber-bullying perpetuated by teenagers distinctly different than violence perpetuated by adult gang members, terrorists and sex offenders? (i.e., is cyber aggression and violence best represented along a spectrum of behaviors?) Are there habitual versus casual aggressors? Is there a difference between individuals who victimize someone they know (cyber bullying) or someone they don't (trolling)? Is there a difference between individuals who have in-person contact with their victims versus those who do not? Are there personality differences between those who start aggressing online first or in-person first? Does it matter who is the 'initiator' versus who is conforming and following group norms?

Although many questions still need to be explored, we have demonstrated that in many ways the extant literature on the relationship between social media and violence can be organized according to the aforementioned themes of selection and facilitation. Gottfredson and Hirschi's (1990) general theory of crime, Akers' (1998) social learning theory, and Cohen and Felson's (1979) routine activities theory all have received some empirical support for explaining violence in online contexts. However, none of these explanations alone are sufficient, thus the challenge for future research is to advance a research agenda that includes an *enhancement* perspective on

the role of the social media in violent offending. This will likely necessitates longitudinal studies that examine the impact of both individual characteristics and group processes on cyber violence over time, as well as how they interact with each other. If individuals who engage in cyber violence have an elevated violence propensity, for instance, it should be evident across time regardless of social media use. Developing effective prevention and intervention strategies for cyber violence thus requires reconciling how selection, facilitation, and enhancement unfold throughout the life course. To achieve this, future longitudinal studies with young people in general and delinquent youth in particular must include measures of cyber violence and a component addressing social media usage.

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