

# Deconstructing the Online Grooming of Youth: Toward Improved Information Systems for Detection of Online Sexual Predators

*Completed Research Paper*

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## Abstract

*The aggressive online solicitation of youth by online sexual predators has been established as an unintended consequence of the connectedness afforded individuals through social media. Computer science research that has focused on the detection of online sexual predators is scant and absent behavioral theory. We address this gap through examining what behavioral patterns emerge regarding how online sexual predators use language inside of social media to groom youth. Through a grounded theory analysis of ninety Perverted Justice (PVJ) transcripts, of conversations between convicted online sexual predators and PVJ volunteers who posed as youth, we identified five categories of online predator behavior inside of text during victimization of children. Those categories are: assessment, enticements, cybersexploitation, control and self-preservation. The aim of the research is twofold: (a) to improve pattern recognition programming for automated detection software, and (b) to improve educational tools for youth, parents, guardians, educators, and law enforcement.*

**Keywords:** Social media, social media theory, genre analysis, online sexual predation

## **Introduction**

In a day-to-day sense, social media is becoming embedded in a myriad of aspects in society. Businesses are transitioning to adopting social media practices. Individuals are using social media to share about a multitude of topics: personal, political, environmental, etc. Groups are mobilizing to improve situations around the world from starvation, to political unrest and persecution. “[S]ocial media platforms and applications have transformed ways of interacting, working, creating value and innovating” (Urquhart and Vaast 2012, p. 1). Through information systems (IS) research academicians have an opportunity to rise to the challenge and help build a better world through the study of social media phenomena. There is “a growing opportunity for IS researchers to move beyond describing and towards theorizing these new contexts and associated practices” (Majchrzak 2009). Theorizing about social media is legitimate for IS researchers as the issues are salient for information systems, businesses and society, the research keeps the field informed about those issues and such theorizing can aid in producing strong results (Lyytinen and King 2006). The building of theories to improve the understanding of social-media related phenomena should consider both the technology and social actors (Urquhart and Vaast 2012). The current study aims to be a part of this theory building effort through the study of coercion and victimization of youth within social media by online sexual predators. Due to the fact that social media is impacting how we communicate, researchers should not assume that the theories of sexual grooming of youth in a face-to-face setting also apply in the virtual world. Through the deconstruction of the online grooming of youth we may better understand and thus address sexual aggression experience by minors within social media.

The aggressive online solicitation of youth by sexual predators has been established as an unintended consequence of the connectedness afforded individuals through social media (Whittle et al. 2013; Williams and Hudson 2013; Wolak et al. 2008). Society has come to fear the “Internet child molester who uses trickery and violence to assault children” (Wolak et al. 2008, p. 112). For example, in 2002 Alicia Kozakiewicz chatted with an individual online and agreed to meet him in person only to be abducted, tortured and raped by the man (Jaffe 2007). Another such story hit news media outlets in 2012 when 16-year-old Angela Allen told her parents she was going for a walk and never returned. In reality, she went to meet someone she’d been chatting with online. Her body was found two weeks later buried in the back yard of a registered sex offender (ArkansasOnline.com, 2012). News stories, while providing true accounts of the end results of these types of stories, do not lend to understanding online sexual predators’ behavioral patterns that predicate such heinous acts. Research has found that online sexual predators are most often adult men who target underage youth by encouraging them to engage in sex acts with promises of love and romance. The victims often agree to meet face-to-face knowing that the plan is to engage in some kind of sex act with the adult (Briggs et al. 2011; Craven et al. 2007; Wolak et al. 2008). The implication is that online sexual predators may utilize persuasion, bribery, blackmail, love, etc. as enticements to draw youth into an offline meeting rather than violence. In essence, they develop online relationships with the youth and build trust.

Although researchers have investigated online sexual predators through a focus on sexual aggression (Craven et al. 2006; Elliott and Beech 2009; Singer et al. 1992; Whittle et al. 2013; Williams and Hudson 2013), criminal justice (Craven et al. 2007; Davidson and Martellozzo 2008; Jones and Parkinson 1995; Kierkegaard 2008; Shannon 2008), and computer science (Gupta et al. 2012; McGhee et al. 2011; Thom et al. 2011), “research concerning the online grooming of young people is limited and calls for further study” (Whittle et al. 2013, p. 62). In order to protect youth from online sexual predators we must first understand predator behavioral patterns when grooming youth to meet face-to-face. Social media affords the study of these behaviors through examination of textual conversations between online sexual predators and children. In fact, “[a]rchived text [written] messages capture and preserve the flow of expressed subjectivity that can be retrieved later for careful examination and reflection” (Zhao 2006, p. 462), situating information systems researchers squarely in the domain of the phenomenon.

The research in computer science that has focused on the detection of online sexual predators is absent behavioral theory. The software ChatCoder does integrate luring communication theory (LCT) with computer algorithms (Kontostathis et al. 2009). While an acceptable theory of the methods used by sex offenders, LCT is generated from literature regarding offline child sexual abuse and has not been significantly tested in the online phenomenon to support its use in the virtual setting. A second software,

SafeChat, categorizes texts as potentially predacious based on established algorithmic rules (Thom et al. 2011). A third method was used in the software Negobot and included the application of natural language processing, chatter-box technologies and game theory to create a strategic decision making situation. The goal of the system was to collect the maximum amount of information possible from the conversation for post-conversation analysis (Laorden et al. 2012). Although all of these studies are solid efforts in the work to identify and detect online sexual predators, they are missing the critical aspect of online sexual predator behavioral patterns.

The current study addresses this gap through deconstructing the online grooming of youth. In doing so we focus on the research question: *What behavioral patterns emerge regarding how online sexual predators use language inside of social media to groom youth?* To answer this question we apply a grounded theory approach to ninety Perverted Justice (PVJ) transcripts of conversations between convicted online sexual predators and PVJ volunteers who posed as youth. The aim of the research is twofold: (a) to identify patterns of behavior for use in pattern recognition programming for automated detection software, and (b) to improve educational tools for youth, parents, guardians, educators, law enforcement, etc.

We proceed by first presenting the extant literature regarding online grooming of youth. Next we offer the applied methodology and results. A discussion of the findings, implications and limitations follow, wrapping up with a conclusion.

## Online Sexual Offenders' Grooming of Youth Literature

As previously stated, research regarding the online sexual grooming of youth is scant (Whittle et al. 2013). This section presents an overview of the extant literature regarding the online sexual grooming of youth, none of which are situated in the information systems literature. Table 1 lists the studies and the researchers' definitions of online sexual grooming. Each of these imply the laying of groundwork for impending physical child sexual abuse should the youth decide to meet the sexual predator face-to-face. We will return to the definition of online sexual grooming in the discussion section of this study.

Author(s)	Definition
O'Connell (2003)	"A course of conduct enacted by a suspected paedophile, which would give a reasonable person cause for concern that any meeting with a child arising from the conduct would be for unlawful purposes" (p. 4)
Davidson and Martellozzo (2008)	"a process of socialisation during which an offender seeks to interact with a child (a young person under 18 in Scotland, England and Wales), possibly sharing their hobbies and interests in an attempt to gain trust in order to prepare them for sexual abuse" (p. 4)
Wachs, Wolf, and Pan (2012)	(referred to as cybergrooming) "establishing a trust-based relationship between minors and usually adults using ICTs [information communication technologies] to systematically solicit and exploit the minors for sexual purposes" (p. 628)
Williams, Elliot and Beech (2013)	"a process by which an individual prepares the child and their environment for abuse to take place, including gaining access to the child, creating compliance and trust, and ensuring secrecy to avoid disclosure" (p. 135)

**Table 1. Definitions of Online Sexual Grooming of Children**

The authors of these studies detail grooming actions. O'Connell (2003) studied online sexual predation through the engagement of a participant observation method, spending over 50 hours over the course of five years in chat rooms posing as an 8, 10 or 12 year old child. Through this method she was able to identify six patterns of sex offender behavior. The friendship forming stage involves non-threatening conversations with a 'get to know you' message. This extends into the relationship forming stage with a predator working to become a child's best friend, learn about his family life, school, etc. The risk assessment stage involves the predator trying to determine the likelihood of his inappropriate

engagement with the child being detected by parents, guardians, etc. Typically following risk assessment is the exclusivity stage in which the predator brings in trust, the idea of secrecy and mutual respect. Once trust is established the predator moves into the sexual stage, amplifying the intensity of the conversation and bringing sexual content into the conversation. The author notes that “the most distinctive differences in conversational patterns occur” (O’Connell, 2003, p. 7) in this stage.

For those adults who intend to maintain a relationship with a child and for whom it seems to be important to maintain the child’s perception of a sense of trust and ‘love’ having been created between child and adult, the sexual stage will be entered gently and the relational framing orchestrated by the adult is for the child to perceive the adult as a mentor or possible future lover. Certainly a child’s boundaries may be pressed but often gentle pressure is applied and the sense of mutuality is maintained intact, or if the child signifies that they are uncomfortable in some way, which implicitly suggests a risk of some sort of breach in the relationship precipitated by the adult pushing too hard for information, typically there is a profound expression of regret by the adult which prompts expressions of forgiveness by the child which tends to re-establish an even deeper sense of mutuality. (O’Connell, 2003, pp. 7–8)

The final stage presented by the author is the cybersexexploitation or fantasy enactment stage, in which the ultimate goal is sexual gratification. She outlines three variations of cybersexexploitation: fantasy enactment based on perception of mutuality, fantasy enactment using overt coercion counterbalanced with intimacy and a cyber-rape fantasy enactment involving overt coercion, control and aggression (O’Connell, 2003).

Davidson and Martellozzo (2008) break online sexual predators into two categories: those who use the Internet to target and groom children, and those who produce and/or download indecent images of children and distribute them to potential victims or other sexual predators. Referring to Krone’s (2005) typology of Internet child sex offenders, they define online groomers as “[o]ffenders who have initiated online contact with a child with the intention of establishing a sexual relationship involving cyber sex or physical sex. These offenders may send indecent images to children as a part of the grooming process” (Davidson & Martellozzo, 2008, pp. 7–8).

Wachs et al. (2012) note three components of online grooming (which they refer to as cybergrooming): repetition, misuse of trust, and the specificity of the relationship between the victim and the cybergroomer. Repetition refers to the reoccurrence of the grooming behaviors with the same child. Misuse of trust refers to the deception used by cybergroomers. The relationship specificity refers to how the predator and child know each other, whether it is purely online, an anonymous type of stranger or it is an offline relationship with an online component (Wachs et al., 2012).

Lastly, Williams et al. (2013) used thematic analysis to identify three main themes/strategies used by Internet sex offenders within the grooming process that takes place within the initial hour of conversation between an online sexual predator and a potential victim. Those three themes included: rapport-building, sexual content, and assessment. Similar to O’Connell (2003), rapport-building involves the sexual predator attempting to develop a friendship/relationship with a child. Sub-themes within rapport-building are identified as coordination, mutuality and positivity. Coordination refers to an offenders attempts to “synchronize their behaviors with the child’s” (William et al., 2013, p. 140). Mutuality occurs when a predator attempts to align his interests, attitudes and/or personal circumstances with those of the child. Positivity involves a predator presenting him/herself to the child as someone who does not pose a threat but rather is friendly and trustworthy.

The second theme, sexual content, is broken into two sub-themes: the introduction and the maintenance/escalation of sexual content in the conversation. Four means of sexual content introduction were identified: as a game, through offering advice, engaging in a mutual fantasy, and through force. Maintenance/escalation occurs through repetition of sexual content and/or the use of force. The third and final theme, assessment, includes the sub-themes of assessment of the child and assessment of the

environment. Assessment of the child encompasses analysis of the child's trust level, vulnerability and receptiveness to interaction. Assessment of the environment involves analysis of obstacles, opportunities and information that could impact the grooming process and hinder secrecy (Williams et al., 2013).

In summary, the research regarding grooming in the online context begins to paint a picture of the behavioral patterns of sexual predators. There seems to be some degree of friendship/relationship building between the online sexual predators and potential victim. Also, research found a misuse of trust and a possible communicative process in which the online predators engage the youth. However, the scant amount of analysis applied directly to archived textual conversations of online sexual predators' leaves significant room for surmising. Thus, as presented in the next section, our study takes a deeper look at the actual conversations in which online sexual predators engaged, making the language itself the unit of analysis.

### ***A Deeper Look at Online Sexual Grooming and Abuse***

As stated above, our study continues a stream of research aimed at improving recognition of patterns within predatory coercion and victimization of children through social media. We take a deeper look at how that solicitation takes place and compare it to the aforementioned extant literature. Table 2 provides a snapshot of the major studies of online sexual grooming/solicitation and how the current study differs from each existing study regarding data set, methodology and focus.

Author(s)	Method	Data Set	Current Study
O'Connell (2003)	Participant observation, conversation analysis	50 hours of chat transcripts, Single individual presenting to potential predators as child decoy aged 8, 10 or 12; Chat rooms for children/teenagers	682 hours of chat transcripts; Multiple decoys presenting to potential predators as children aged 12-14; adult predators only
Malesky (2007)	Qualitative analysis	Questionnaire responses, 31 male inmates in Federal Bureau of Prisons' Sex Offender Treatment Program; Questionnaire developed by author	Analysis of direct online behavior
Davidson and Martellozzo (2008)	Case study	Case one: online grooming; Case two: overlapping of online sexually abusive behaviors; Case three: roles that the Internet plays in child sexual abuse	Online child sexual exploitation only
Wachs, Wolf, and Pan (2012)	Quantitative analysis	Questionnaire responses, Self-reports from students at four schools, grades 5-10	Analysis of direct online behavior targeting predator behavior
Whittle, et al. (2013)	Literature Review	Literature containing definitions, prevalence, characteristics of online grooming, child sexual abuse theories and internet behaviours	Analysis of direct online behavior
Williams, Elliott, and Beech (2013)	Thematic analysis	Eight transcripts from Perverted Justice website, Initial communication in transcript lasts for 1-2 hours; no immediate sexual contact or demonstrated aggression	90 transcripts from Perverted Justice website; no time or content communication restrictions

**Table 2. Differentiation of Current Study with Extant Literature**

In addition to a focus on the language used by online sexual predators within archived text, the current study differs from extant literature in depth and breadth of data analyzed, purpose for analysis, and type of data analyzed. While each one of the studies listed informs the current study through theoretical invocation and results, a grounded theory approach applied to a larger number of online transcripts between sexual predators and potential victims could reveal an even clearer picture of how online sexual predators use language to groom and victimize children in social media. In Whittle et al.'s (2013) literature review they included all of the articles from Table 2 except Wachs et al., 2012. After their review of all of the literature they stated, "[t]he review concludes that research concerning the online grooming of young people is limited and calls for further study in this field" (Whittle et al., 2013, p.62). The current study furthers the conversation surrounding online grooming.

## **Research Methodology**

In this study we applied genre analysis to the examination of conversations between online sexual predators and potential victims. Genres can be understood as communicative acts that share purposes and similarities in "structures, stylistic features, content and intended audiences" (Herring et al. 2004, p. 2). They are also named and understood by the community in which they are used (Herring et al. 2004; Orlikowski and Yates 1994; Yates et al. 1999). For example, genres within a business can include memos, letters, dialogue, proposals and ballots (Orlikowski and Yates 1994). In the online environment personal home pages and blogs are examples of genres (Herring et al. 2004). We can therefore, define the dyadic communication within social media between online sexual predators and children as a genre because (a) they are named and understood as conversations by the larger online community; (b) they appear to have common elements of structure and substance, as evidenced in the aforementioned literature. While there is a general understanding of the purpose of an online sexual predator's conversation with a child, clarity of the structure and substance of those conversations has yet to be established. As "a study of situated linguistic behavior" (Bhatia 2002, p.4), genre analysis in the current study is meant to uncover the intrinsic (function and purpose in discourse) and extrinsic (form and structure) features (Kwasnik and Crowston 2005) of conversations between online sexual and youth within social media. Through this applied linguistic technique we examine how online sexual predators manipulate the discourse created in social media and exploit the connectivity afforded by social media to achieve their private intentions of child victimization. Discourse as genre provides a mechanism for going beyond the study of how online sexual predators construct the text. Through examining the discourse as genre we can also discuss how that discourse is used and exploited (Bhatia 2002; Orlikowski and Yates 1994; Yates et al. 1999).

### ***The Corpus***

For this study 90 transcripts were randomly selected from the Perverted Justice data located at the website <http://www.perverted-justice.com/index.php?archive=full>. The transcripts utilized for this study were also used in courts of law to find the adult predators guilty of crimes such as aggravated solicitation of a minor. While the predators were in fact conversing with Perverted Justice volunteers, it was legitimized that their words and actions proved that they believed they were talking to youth. Additionally, other research on the subject of conversations between online sexual predators and children/youth has been conducted utilizing this data set (Bogdanova et al. 2012; Kontostathis et al. 2009; McGhee et al. 2011; Poelmans et al. 2012; Thom et al. 2011). These transcripts were initially downloaded as pdf files for storage in a non-editable format to prevent data corruption of the original files. Each transcript was then transformed into a text file and imported into its own spreadsheet for further analysis. Initial coding was conducted by a single researcher. Explication and refinement of identified genre elements was conducted by both researchers. The unit of analysis in this study is the dyadic conversation between online predator and Perverted Justice volunteer.

### ***The Process***

We operationalized the methodology of genre analysis through the application of content analysis to determine the extrinsic and intrinsic characteristics of the conversations within the corpus. Content analysis was chosen because it allows operationalization "directly on text or transcripts of human communications" (Weber 1990, p.10) and is thus fitting to the corpus of this study. First, to validate the community of users of this genre, we coded for characteristics of the authors. Next we coded for extrinsic characteristics such as length of conversation, use of symbols and/or emoticons, and the use of external links. Lastly we coded for intrinsic characteristics, allowing unique characteristics of the conversations to

emerge through the application of coding techniques from grounded theory (Herring et al. 2004). During this final step of data analysis “concepts are identified and their properties and dimensions are discovered in the data” (Strauss & Corbin, 1998, p. 101). We arranged the codes into categories based upon their relation to each other under a common theme (Strauss and Corbin, 1998), which allowed us to identify and refine constructs and subcategories. We then streamlined the categories through identification of overlaps and gaps in the definitions of the constructs and subcategories. Agreement on the construct definitions and their relation to each other and how they related to each other culminated in the extrinsic characteristic results. In addition to interpretation, frequency counts were captured to gain an understanding of the pervasiveness of each communicative act that is a characteristic of the studied genre.

## Results

### ***Conversation and author characteristics***

The average age of the sex offenders 35 years old, demonstrating that these individuals were old enough to understand that sexual contact with a minor is illegal. The Perverted Justice volunteers presented as an average age of 13 years old, situating themselves within the target age range of youth. The remaining demographics of the studied online sex offenders are shown in Table 3. The total column contains aggregate sums from all 90 of the transcripts in the dataset. Averages are rounded.

<b>Characteristics</b>	<b>Totals</b>	<b>Averages</b>
<b>Contact Hours</b>	682	8
<b>Contact Days</b>	604	7
<b># of lines</b>	101936	1133

**Table 3. Author and Transcripts’ Demographics**

These characteristics allowed us to begin drawing boundaries around the corpus and identifying the distinct definition of the genre based upon its attributes. Further understanding is explored in the findings of extrinsic characteristics.

### ***Extrinsic characteristics***

Extrinsic characteristics of the conversations in the corpus are the structural attributes that bring the genre to form. In the current study these structures include contact days, contact hours and number of lines of text in each conversation. After initial count these were then averaged and are shown in Table 3. Based upon these averages, in this particular corpus it took an online sexual predator eight hours over one week to move the conversation from initial online contact to a face-to-face meeting. Further coding of structural attributes reveals techniques used by online sexual predators through the text of social media conversation. Table 4 includes counts of identified emoticon use, sharing of pictures and hyperlinks to other online content, live video streaming and moving the conversation offline to the telephone. These characteristics are external to conversation, yet impact the content and structure of the conversation. The use of emoticons or symbols inside of the social media conversation constitute over half of the identified extrinsic characteristics (53%). The frequency of an online predator connecting the potential victim to either active content via self exposure or recorded video and exchanging phone numbers was close at 41%. The establishment of offline phone contact is included with displaying genitalia and video porn because it allows the predator another way to engage with the child using active content (spoken words) rather than symbols or static images. In comparison, few predators exposed potential victims to static external content was only 6%.

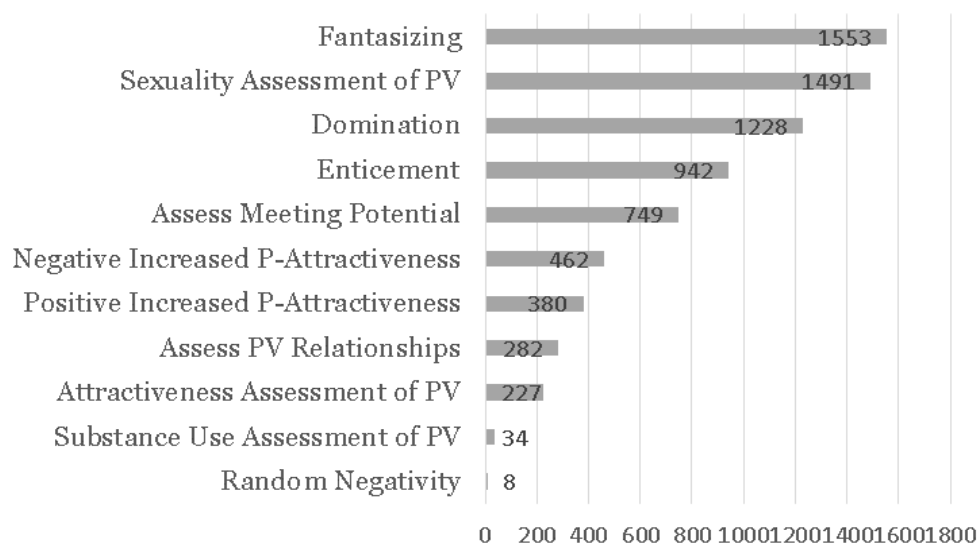
<b>Extrinsic Characteristic</b>	<b>Count</b>
Use of emoticons as symbols or representations of subjects/objects	422
Sharing of pictures and/or hyperlinks to static porn sites through social media	45
Display of genitalia on a webcam and/or hyperlinks to video porn sites through social media, establish offline contact via phone	322

**Table 4. Extrinsic Characteristics Frequencies**

The extrinsic characteristics, combined with the characteristics of the online conversation authors, give shape to the genre of conversations within social media between online sexual predators and children. They create a frame that defines who is involved in the conversation and for how long. Additionally they identify the structure of the content: text, emoticons, hyperlinks, live video streaming, recorded video, and phone number exchanges. Within this framework we can now clarify the function and purpose of the form and structure through examination of the intrinsic characteristics.

### ***Intrinsic characteristics***

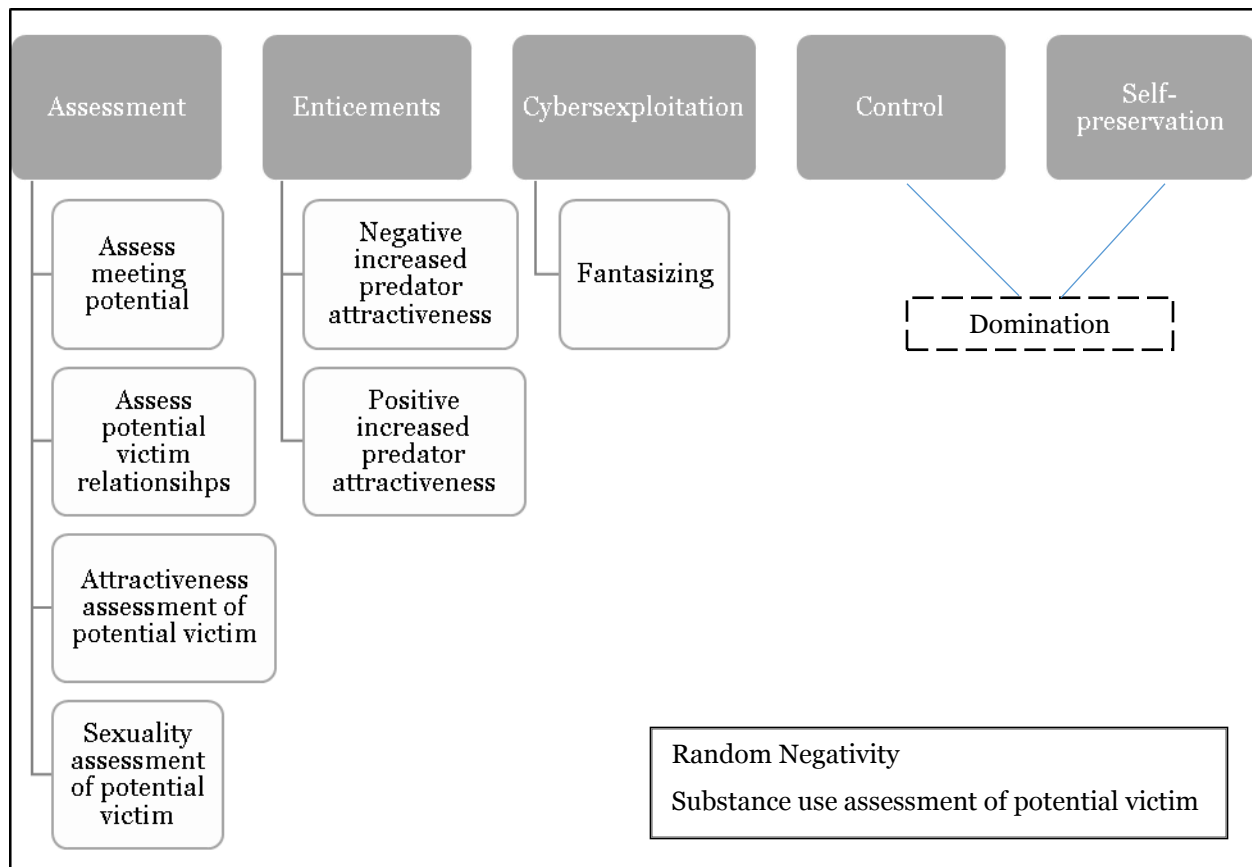
The intrinsic characteristics of a genre serve to define the function and purpose of the discourse. They allow us to “consider how the message functions in the discourse between sender and receiver, and indeed emerges from it” (Kwasnik and Crowston 2005, p. 78). The initial codes that emerged from the data formulated the first level understanding of how the online sexual predators utilized text within social media discourse toward their own intentions. The total number of codes was 40 and frequencies of those totaled 7356. Upon initial coding and examination, the first researcher grouped those forty codes into the categories shown in Figure 1. They are listed in the first grouping based upon common elements of the codes. Text containing cyber-sexual elements was coded as fantasizing. Sexuality assessment contained text that attempted to obtain information about the youth’s sexual prowess. Domination consisted of the online sexual predators’ acts of controlling the youth, protecting themselves and using varying types of pressure to affect the youth’s actions. Assessing meeting potential concentrated on the predators’ trying to determine if there was potential for a face-to-face meeting. Negative increased predator attractiveness was the predators’ use of negative self-representation to play on the potential victims’ empathic emotions. Conversely, positive increased predator attractiveness was the predators’ attempts to build themselves up and make themselves attractive to the potential victim. Online predators also worked to gain knowledge about their relationships with family members and friends, coded as assess potential victim relationships. Of course, predators also tried to gain information about the physical appearance of the potential victims, coded as attractiveness assessment of the potential victim. There were also a few instances of coded substance use assessment of potential victim where the predator gained information about the youth’s drug and alcohol experience. Lastly, there were some random acts of negativity such as a gay and racial slurs. We can see from these initial codes of that fantasizing, sexuality assessment of the potential victim, and domination appear to be the most frequently used functions and purposes of text by online sexual predators within this genre.



**Figure 1. Frequencies of First Coding Groups**

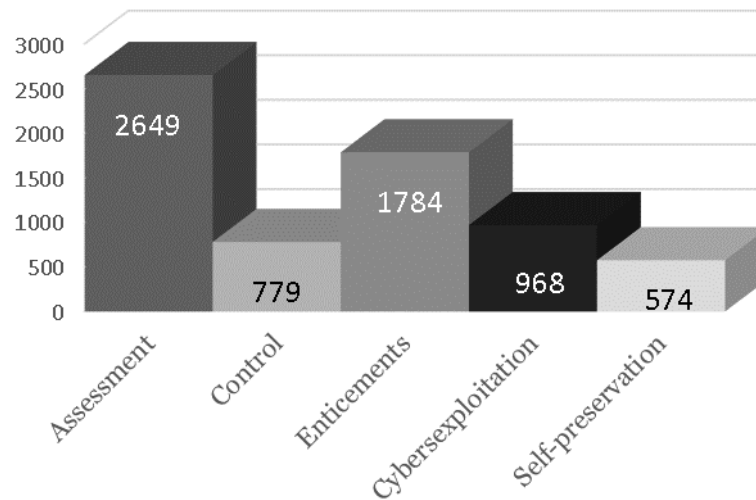


After initial grouping, the researchers met to (a) discuss the original codes and their grouping shown in Figure 1; (b) discuss the relationships between and amongst the original codes; (c) return to the data to gain a deeper understanding of the relationships between the codes and the data. Through this iterative process of content analysis tighter definitions of the codes and their relationships were developed. Figure 2 is a visual representation of the assignment of first coding groups to the final intrinsic characteristics. The infrequency of substance use assessment by potential victims and random negativity were deciding factors in removing them from the coding schema. Evaluation of their role in the conversations was the final reason for removal due to the lack of influence the predators were able to attain with the topics. All remaining assessments were placed in the assessment characteristic. The predators' attempted manipulation of the potential victims' empathy and bragging about themselves were placed in enticements. Fantasizing was renamed to cybersexexploitation due to the direct use of social media placing the phenomenon in cyberspace. Domination was the only first code grouping that we decided to split into two categories. While we understand that the victimization of children by online sexual predators is, at its foundation, about dominance and the power imbalance between the perpetrator and victim, the impact of the text that communicates control and self-preservation were interpreted as impactful enough to warrant their own categories. Further discussion of this split and the other grouping assignments occurs in the following subsections for each intrinsic characteristic.



**Figure 2. Mapping of First Coding Groups to Final Intrinsic Characteristics**

After restructuring the coding schema, we reran the frequencies. The differences between the final categories of intrinsic characteristics are shown in Figure 3. While it might be easy to assume that online sexual predators expend most of their effort into online fantasy with potential victims, the frequency counts tell a different story about this genre. A significant amount of time was spent assessing the victim, his/her environment and sexuality as well as enticing the potential victims towards the predators' overall intention.



**Figure 3. Frequencies of Intrinsic Characteristics**

There are also two major differences between the initial codes and these five categories with regard to the content rather than frequency. First, after review of the content of the transcripts coded as control, it was determined that this could further be broken into feigned affection, age difference, relationship claim, non-sexual actions and sexual actions. These are further explained in the sub-section on control. Additionally, the characteristic of self-preservation also became its own category as the data revealed that predators enact this function through displayed concern for the potential victim and themselves. The remainder of the refinements and knowledge structuring for the intrinsic characteristics are presented in the following sub-sections. Examples from the transcripts are used to demonstrate each intrinsic characteristic and/or sub-characteristic.

### Assessment

The act of assessment involves the scanning of one's situation in order to draw conclusions regarding a point of interest. Three subcategories of assessment emerged from the data: environment, personal attributes, and sexuality. We found that online sexual predators assessed three aspects of a potential victims' environment: where they lived, who they lived with and who they were close to within their circle. Additionally they were concerned with three personal attributes: what they looked like, if they were available to meet face-to-face and if they were willing to meet face-to-face. Three characteristics of the potential victims' sexuality were also assessed by the online sexual predators: the sex acts in which the potential victims had engaged, in which they were willing to engage, and in which they desired to engage. Examples of each of these assessments are shown in Table 6 and discussed further following the table.

Intrinsic Characteristic	Subcategory	Group	Examples
Assessment	Environment	Location	<b>welfare_isforwhitefolks:</b> so where in nc r u <b>zavior01:</b> what part of town are you in
		Family	<b>yankees_gers_dad:</b> your mom would kill you if she knew you were talking to me <b>chrispy967:</b> wheres your parents?
		Relationships	<b>your_lil_nene:</b> ok where is your boyfriend <b>rn_buzzkiller2003:</b> u dating yet?

	Personal Attributes	Physical appearance	<b>bud44800:</b> do you have big tits <b>clitlicker42303:</b> do you shave
		Willingness	<b>solepleaser:</b> want to hang out? <b>ben_taul2000:</b> if u want to meet me i do
		Availability	<b>working_loving_goodman:</b> so you free this weekend <b>va_breitling:</b> so home alone tomorrow?
	Sexuality	Experience	<b>tatooedman73:</b> you ever been with a older guy <b>yp_anthony_louisville_284:</b> have you ever been with a guy sexually before?
		Desire	<b>mikeman7828:</b> r u gonna want to fuck? <b>justinawashcock:</b> what do u like to be done to you
		Willingness	<b>fuddster88:</b> how far u let me go with u <b>notjustanotherneiguy:</b> would you mind a guy touching you there if he did it the right way and all?

**Table 6. Assessment: Transcript Samples**

As noted, the three aspects of youth's environment important to the online sexual predator were location, family and relationships. We identified that when assessing the child's environment the online predators were not only curious about where the children lived, but also who they lived with, if they were ever allowed out on their own, if their parents/grandparents were strict, etc. Additionally we found that online sexual predators' inquiries regarding youths' personal attributes ranged from a discussion of height and weight to eye and hair color as well as breast size and the amount and location of pubic hair on the youth. Availability and willingness refer to the youth's inclination to meet in person an individual who they initially met online. On one level the online predator is curious as to whether the child is even willing to meet. If it is established that yes, in fact, the child would meet in person then the predator questions the child about his availability. It should be noted that this is coded as a non-sexual inquiry. In these cases the online predators suggested meeting to grab a bite to eat, go to a movie and/or just hang out.

The last subcategory in assessment, sexuality, emerged from the data in three groups: experience, desire and willingness. Online sexual predators who ask children about their sexual experience are assessing the child's potential to engage in sex acts based upon what they have done. Experience assessment includes the idea of 'have you ever'. Asking a child about his sexual desires gives the online predator information about what sex acts the child might be willing to engage. Desire assessment includes the idea of 'would you like to'. Lastly, willingness refers to the sex acts in which a child has already decided that he will engage. Willingness assessment includes the idea of 'would you'.

## Enticements

The objects of enticement used by online sexual predators within negotiated cyber-social realities refer to the inducements put forth to tempt the children into a sexual relationship. The transcripts revealed that the online sexual predators used force minimally in the observed cases. There were only thirty-eight combined notations of bargaining, peer pressure, challenging, daring, threatening, and/or using insensitivity and only sixty-eight mentions of alcohol, cigarettes or drugs occurred. Considering we analyzed over one hundred thousand lines of text, these numbers are very low. Instead we found that predators employed four different methods of enticement. Two of these methods focused on the youth and included compliments or making the youth feel that they had power and choice. The other two forms of enticement involved the predators attempting to gain the youths' sympathy by showing their own vulnerabilities or encouraging the youth to like them by bragging about their own strengths. Table 7 provides examples from the transcripts for these forms of enticements with further discussion following.

Intrinsic Characteristic	Subcategory	Group	Examples
Enticements	Potential Victim	Compliments	<b>netbuckeye:</b> you're beautiful without any makeup  <b>badboyssweetheart:</b> youll be a little heart breaker when your older
		Reverse Power	<b>burtoncanyon1732002:</b> if you want to <b>Shelly:</b> yep <b>burtoncanyon1732002:</b> im not forcing u  <b>ProtegeES2002:</b> if you are ready yes, you don't ever have to do anything you are not ready for
	Predator	Vulnerabilities	<b>ericthebig2005:</b> cause im fat, n most chicks doint dig that  <b>notjustanotherncguy:</b> i'm getting lonely now, :(
		Strengths	<b>davekruz2003:</b> I can move my tongue really fast  <b>majordude200:</b> hey i am a kid at heart

**Table 7. Enticements: Transcript Samples**

Some predators enticed their victims by focusing on them. They gave the victims illusions of power through compliments – flirting with them and telling making statements about them being smart, pretty, or mature for their age. Additionally, this illusion of power included the idea of reverse power – presenting a false security for the child through indication that the child was in charge. Predators portrayed themselves as being willing to be controlled by the child when they met, only engaging in sex acts of which the child approved. They also offered a willingness to stop if asked to do so by the child. These behaviors could serve to draw the child deeper into an online relationship. Building up a child's self-esteem through the language of positive reinforcement and being trusted to know what he wants sexually brings the child, figuratively, up to the adult level, closer to the online predator. The child could then feel a stronger sense of belonging with that individual and be more inclined to follow his lead.

In contrast, pointing out their own strengths or exposing their own vulnerabilities were other tactics used by online predators to entice children. Some enacted self-deprecating, self-pitying and insecure behaviors. Others expressed remorse after engaging in cybersex with the child online. These behaviors were meant to play on the child's emotions, get him/her to feel sorry for the predator and encourage nurturing feelings within the child to arise. These predators positioned themselves in need of self-care, hoping the children would want to fill the role of a caretaker.

Another method used by online predators to entice children was to highlight their own perceived strengths. Part of the strategy for some predators was to make themselves desirable to children. Ideas of how and which strengths to highlight varied. For some predators this was accomplished through showing kindness and generosity as strengths. Specific examples include offering relationship advice with boyfriends or parents, and offering to 'teach' children about sexual acts so they will know more than their friends. These techniques positioned the predators as desirable through a positive lens. They became people the children could to turn, look up to and trust. Other predators attempted to entice children through bragging behaviors that adults would likely identify as being egotistical. Some predators talked about how great they were at their job, that no one was better than them. Others boasted about their bedroom skills and the size of their genitals. Although adults would likely classify such behavior as obnoxious, it was obvious that the predators thought such overt arrogance would be appealing to children.

## Cybersexexploitation

In the transcripts, we found acts of fantasy being played out in two main ways: cybersex via text, and the use of webcam to expose the child to the predator's genitals and/or sex acts by the predator. We have adapted the term cybersexexploitation at the category name for these overt acts of child sexual victimization inside of social media. The findings from our data set did not support predators' use of blackmail or force when attempting to persuade a child to engage in online sexual activities. If the predator pushed a child who did not want to engage, often the predator would just leave the conversation. He may try again another day, but anger was not a go-to behavior when attempting to entice a child into cyber-sex. Examples of the two groups of fantasy enactment revealed in this analysis are shown in Table 8.

Intrinsic Characteristic	Subcategory	Examples
Cybersexexploitation	Text-based cybersex	<b>kfrankhouse350z:</b> well so am i, i am thinking about kissing you naked and feeling you against me  <b>banditcap71:</b> I went to bed with a woody thinking about you
	Live webcam	<b>wolfknight30:</b> you like watching me play  <b>daniel_pulido78:</b> u want to see my cum

**Table 8. Cybersexexploitation: Transcript Samples**

Online sexual predators often seek immediate sexual gratification and engaging the youth in text-based fantasy provides a means for sexual release. We add to their results the important category of live webcam. This subcategory brings a distinct behavioral pattern to the understanding of mechanisms used by online sexual predators within social media.

## Control

The results of this application of genre analysis revealed significant attributes of the intrinsic characteristic of control. The transcripts showed that control is not always a direct act of sexual content. Online sexual predators use control as part of the manipulative techniques employed to move children toward sexual content. Some online predators use feigned affection to give the appearance of being enamored with children, to relinquish a bit of control to them. They claim deep love, affection and missing the children when they are absent from chat inside of social media. This technique is used to tighten the trust link between the online predator and the child. Similarly, some online sexual predators work to get the children to agree to be in a boyfriend/girlfriend relationship with the predator. By getting the child to agree, the predator can then impose rules and sanctions regarding what boyfriends and girlfriends do and don't do. Another display of control is in the form of being at the mercy of the age difference between the online predator and the potential victim. They present themselves and the children as being unable to be close due to the age difference. This tests the child to see if he is willing to step up and take control of the situation. Lastly, online predators attempt to control the actions of the children, both sexual and non-sexual. Non-sexual actions may include convincing the child to call the predator on the phone, delete archives of their messages, and sneak out of the house. Sexual actions involve instructing the child to behave sexually. These differ from fantasizing in that the predator is typically giving instructions for the child to masturbate rather than talking of what the two would or could do together. The sexual actions referred to in this section are directly related to the child acting upon him/herself sexually. Table 9 includes examples of the subcategories of behaviors identified within the category of control.

Intrinsic Characteristic	Subcategory	Examples
Control	Feigned affection	<b>deaf1_one:</b> miss you  <b>teakadai_pandi:</b> i love you so much..
	Age difference	<b>Chicago_naperville:</b> If u were 23, that wud be great

		<b>wolfknight30:</b> and you are too young to see me nekkid
	Relationship claim	<b>trianglelover:</b> I wish I was your bf....really <b>needafriendtotalkto2005:</b> you want to be come bf and gf
	Non-sexual actions	<b>gmoney301981:</b> then steal his money <b>greeneyed121:</b> Please leave your messenger running so I can contact more easily.
	Sexual actions	<b>zavior01:</b> I want you to see how tight your p....y is <b>deirules83:</b> rub your clit

**Table 9. Control: Transcript Samples**

As previously stated, our findings do not demonstrate the use of force or a dominant violent rape fantasy by the online sexual predators. Rather, our results in this category reveal that online sexual predators exert control over youth through two behavioral aspects within the social media text. One mechanism includes attempts to control the relationship between themselves and the potential victims, professing love, establishing a boyfriend/girlfriend agreement and expressing a wish that the youth was not younger than eighteen. The second mechanism is to control the actions of the youth with regard to how/when they contact each other, meet each other and what will be done sexually.

### Self-preservation

Our analysis revealed that there is a direct side to the notion of self-preservation. Online sexual predators engage in acts of self-preservation through two methods: expressing concern for the youth and expressing concern for themselves. Concern for the youth included expressions of protection, of not wanting the child to get caught and/or get in trouble. In contrast, concern for self-included instructions for the children to delete online messages, directly asking the children if they are with law enforcement, and explicitly stating how much trouble he could get into if law enforcement found out they were soliciting a child. Each of these techniques provided the online predators with a way to determine their level of safety. Table 10 includes examples of the subcategories of behaviors identified within the category of self-preservation.

Category	Subcategory	Examples
Self-preservation	Concern for child	<b>samr125:</b> u know what...call me when ur mom is not at home <b>samr125:</b> i don't want u to get into trouble  <b>teakadai_pandi:</b> emi.. don't get yourself into trouble.. i think i can wait till you get a chance..
	Concern for self	<b>hardenedsteel2003:</b> it wouldnt be cool if your mom got in here and seen my phone #  <b>toddb39:</b> yeah, but who is to say there aren't cops there waiting for me

**Table 10. Self-preservation: Transcript Samples**

In summary, the results of our analysis clarified the behavioral patterns of online sexual predators. Within this study we found that online sexual predators assess potential victims environment (location, family, relationships), personal attributes (physical appearance, willingness to meet, availability) and sexuality (experience, willingness and desire). They entice potential victims through focus on either the youth (compliments, reverse power) or themselves (vulnerabilities, strengths). They enact fantasies in social media with youth through text-based cybersex and live webcam. Additionally they attempt to control the relationship with the youth (feigned affection, age difference, relationship claim) and the actions of the youth (sexual and non-sexual). Lastly, they engaged in self-preservation behaviors through expressed concern for the youth and themselves.

## Discussion

The focus of this study was to address the question: *What behavioral patterns emerge regarding how online sexual predators use language inside of social media to groom youth?* To this end we endeavored to identify patterns and or communicative techniques employed by online sexual predators during the grooming of youth. A genre analysis was applied to the data set allowing frequency counts and concepts to emerge. The analysis revealed support for some previous findings in extant literature, expanded upon others and revealed additional behavioral patterns not previously identified. Regarding the intrinsic genre characteristic of assessment we found that, in alignment with O'Connell (2003) and Williams et al. (2013), online sexual predators do assess the youths' environment, seeking to identify where they live, who they live with and how strong their relationships are with those around them. Going further into assessment we identified that online sexual predators assess youths' physical attributes of appearance, willingness and availability to meet face-to-face in a non-sexual encounter. In contrast to O'Connell (2003) and Williams et al. (2013) we found that online sexual predators conducted a sexuality assessment that did not just introduce instruction of sexual themes or progress a conversation toward maintenance of a relationship. Rather, online sexual predators specifically assessed the sexual acts in which youth had engaged, were willing to engage and desired to engage.

Regarding the intrinsic genre characteristic of enticements our findings relate to O'Connell's (2003) discussion of the friendship forming, relationship forming and exclusivity stages. Many online sexual predators present the façade of desire to be a friend to their potential victims and draw them in with compliments and the guise of reverse power. The results of our analysis build upon O'Connell's (2003) findings and align with Williams et al. (2013) findings of positivity and negativity. Williams et al. (2013) describe this negatively as "negative and impatient traits" (p. 143) that would sometimes show up as "a passive-aggressive approach to achieve a response from the child" (p. 143). However, through the identification of language mechanisms used by the online predators during these behaviors we break the negative and positive down further to apply in both youth and predator focused behaviors. This break down allows the detection of more specific patterns of behavior within the text. Also to note, we refrain from presenting them as 'stages' due to the fact that the conversations we analyzed did not demonstrate a linear progression of topics or behaviors.

Additionally, O'Connell (2003) refers to this cybersexexploitation or fantasy enactment as the acts of predators who "fluctuate between inviting and emotionally blackmailing a child into engaging in cyber sex" (O'Connell, 2003, p. 9). Williams et al. (2013) refer to this as the 'sexual content' of the conversation. In their discussions of both the introduction and maintenance/escalation of sexual content they mention force as a finding. However, as previously mentioned, this concept of sexual force was not demonstrated in the text conversations within this genre. Continuing with the intrinsic characteristics of the genre, both O'Connell (2003) and Williams et al. (2013) roll control into the descriptions of other behaviors. For O'Connell (2003) there is an implication of control in what she refers to as the 'exclusivity stage' in which the predator tries to get the child to a place in the relationship where he professes to "trust the adult implicitly" (p. 7). Similarly, Williams et al. (2013) address control within the coordination effort of the online predator and described it as what we previously defined reverse power. Furthermore, O'Connell (2003) mentions control in the cyber-rape fantasy enactment of cybersexexploitation. Supporting this idea, Williams et al. (2013) discuss forceful techniques in the online predators' attempts to maintain and escalate the sexual content of the conversations. The current study's data set, however, revealed that the movement of the online predator from one intrinsic characteristic to another does not necessarily happen in an escalation of behavior pattern. Lastly, Both O'Connell (2003) and Williams et al. (2013) refer to acts of self-preservation as assessing the risk of detection. From their perspective they tie self-preservation in with the online predators' learning about the youths' environment, family situations, etc. In contrast, our findings suggest that self-preservation is in fact a function and purpose of the discourse constructed and manipulated by online sexual predators in the genre of their social media conversations with potential victims. The application of genre analysis affords the opportunity to not simply identify the fact that online sexual predators attempt to avoid detection, but to understand the intrinsic characteristic of the genre that they employ with function and purpose to avoid to detection.

In general, the term grooming is defined as *to prepare or train (someone) for a particular purpose or activity*. As previously mentioned, prior research on the grooming of youth by online sexual predators has defined it as a trust-based course/process that prepares a child (Davidson and Martellozzo

2008; O'Connell 2003; Wachs et al. 2012; Williams and Hudson 2013). The results from the current genre analysis actually diverges from the notion that purpose of the genre of textual communication within social media between online sexual predators and youth lies solely in the preparation for offline victimization. Rather the frequency counts of the extrinsic characteristics of the sharing of pictures and/or hyperlinks to static porn sites through social media and the display of genitalia on a webcam and/or hyperlinks to video porn sites through social media, establish offline contact via phone demonstrate that the victimization is already taking place. Online sexual predators are no longer grooming potential victims, they are creating cyber-victims. They are not desensitizing youth to sexual content, they are attempting to engage them in cyber-victimization through cyber-sex, sexting, and live streaming of sexual content. Thus, we are hesitant to derive a solid definition of online grooming without further research. Tentatively we draw the boundary of grooming by online sexual predators around the assessment, enticement and self-preservation intrinsic characteristics of the genre, and we identify the sexual aspects of control and cybersexexploitation as *cyber-victimization* rather than "grooming".

Qualifying the intrinsic and extrinsic characteristics of the genre of textual communication within social media between online sexual predators and youth establishes a foundation on which text/data mining and sentiment analysis can be conducted. The frequency patterns of the five intrinsic characteristics demonstrate that online sexual predators rely heavily on assessment and enticements as compared to fantasizing, control and self-preservation. Coupled with the frequency of the extrinsic characteristics, they are employing the functional and purposed discourse swiftly, moving the potential victim to a face-to-face meeting in an average of seven days. The implications for these types of findings are discussed further in the next section.

## **Implications and Future Research**

As previously stated, the big picture aim of the research is twofold. First, we look to improve pattern recognition programming for automated detection software. The identification and understanding of the intrinsic and extrinsic characteristics of this genre are the building blocks for the next step in toward this goal. Verification of these characteristics using qualitative analysis software would serve to improve upon the previously identified categories. Additional and more refined categories may then emerge. Tightening the definitions of these genre characteristics would then provide the terminology dictionary for programming pattern recognition algorithms. We would not only have knowledge of the form and structure of the genre, but also the function and purpose of the discourse used by online sexual predators. From this, it could be possible to develop software that could detect online sexual predation during the assessment or enticement functions and then notify the appropriate adults of a potential threat to a youth. This in turn could prevent a face-to-face meeting of a sexual predator and potential victim. Also, further refinement of the characteristics could inform researchers and be a catalyst to theoretical construct development. There is potential for the development of more specific definitions of online grooming and cyber-victimization. It may also be possible to develop a more complete theoretical model through the combination of findings from the current study and O'Connell's (2003) process model. Moreover, online sexual predation is not the only unintended consequence of social media. Cyberbullying, sex trafficking and dating deception are other phenomenon to which these findings might be applied. Typologies of offenders could also be a potential outcome.

Second, we aim to improve educational tools for youth, parents, guardians, educators, law enforcement, etc. Research that delves into the specific text used by online sexual predators to victimize children in social media is sparse (O'Connell, 2003; Quayle & Taylor, 2011; Williams et al., 2013). However, the patterns identified in our research regarding the behaviors and kinds of texts that predators use provide information to parents/guardians and educators that can be used in conversations with children about online grooming. Additionally, law enforcement officials who patrol the online environments could be afforded an increased understanding of the techniques utilized by online predators that may or may not appear as the traditional methods of grooming previously addressed in the literature. Also, mental health professionals' knowledge of the manipulative techniques used by online predators would be expanded. They could provide improved research-based services to children who have been victims of online cyber-victimization.



## **Limitations**

The current study utilizes a dataset from Perverted Justice that is comprised of social media conversations between online sexual predators and potential victims. The potential victims are Perverted Justice volunteers trained in communicating as decoys representing youth. This limitation inhibits theorizing about the communicative responses of children. Researchers should obtain anonymized conversations between online sexual predators and actual youth to conduct further research. Additionally, as previously mentioned, coding of the transcripts was completed manually. The inclusion of additional coders could add to the knowledge identified in the transcripts. Also, while the manual coding provided an indepth review of the conversations, further category refinement through the use of IS, specifically machine learning algorithms, could improve construct development. It is also important to acknowledge that online predators, victims, and the interactions between them are often unique and varied (Whittle et al. 2013). Thus, the categories will need some flexibility and the algorithm terminology dictionary will need to be continuously updated to adapt to changing form and structure of the genre.

## **Conclusion**

Quayle and Taylor (2011) noted that “the empirical research in relation to grooming or online solicitation is still sparse, and has largely focused on the behaviour of the young person as opposed to the offending adult” (p. 46). This study helps to fill that gap and is the first study within information systems to apply a grounded theory approach to the discourse between online sexual predators and potential victims within social media. The application of grounded theory to transcripts between convicted online sexual predators and potential victims resulted in an advanced understanding of how online sexual predators engage children through language within social media text toward a goal of victimization. The analysis and the resulting view of the constructs of social media communication of online sexual predators and potential victims demonstrates, for other information systems researchers, the value in exploring solutions to the unintended consequences of social media usage.

Due to the pervasiveness of social media in the everyday lives of society’s children (Brown 2011), increased focus needs to be placed on the unintended consequences of its use. Unfortunately, there are few theories of social media that can be applied to these types of phenomenon. Urquhart and Vaast (2012) spoke of the urgency with which the IS community needs “to develop ways of building theory for social media because many IS researchers have embraced these environments as contexts for their research (e.g. Ransbotham and Kane 2011; Wattal et al. 2010), and many more have been thinking about doing so” (p. 2). The current study successfully presents the grounded theory approach as one method for building theories for social media.

Recent IS research points to “individuals, groups, and organizations that have been transformed – in intended and unintended ways – by technology” (Dang and Brown 2010, p. 2). Online sexual grooming is one of these unintended consequences. It is executed by sexual predators upon one of society’s most vulnerable populations: youth. The identification of communicative patterns utilized by sexual predators within social media text shines a light of hope on the ability of computer programs to improve detection mechanisms in information systems. Improving information systems to identify sexual predators could potentially prevent both online and face-to-face sexual victimization of children. Thus, there is a critical need for information systems researchers to investigate and understand how sexual predators victimize children online. The knowledge gained could help interested individuals and groups— IS researchers, law enforcement, parents, educators, etc.—to develop interventions to better protect children online from sexual predators. The current study is a necessary brick in the construction of a better world for our children through information systems.

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