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Using Luring Communication Theory to Analyze the Behavior of Online Sexual Offenders

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INTRODUCTION

The prevalence of sexual offenders (SOs) contacting children online attempting to engage in sexual exploitation has increased dramatically in recent years likely due to more potential victims and greater offender anonymity in online environments (Davidson & Gottschalk, 2011; Hernandez, 2000). Since its inception in 1998, the National Center for Missing and Exploited Children has received nearly 28 million complaints submitted to their CyberTipline® concerning the online enticement of children for sexual acts with an increase of 150% within the first four months of 2016 (NCMEC, 2018). This startling statistic illustrates just how dangerous online environments are for children, and it underscores the pressing need to identify online SOs so they can be apprehended and prosecuted.

Online anonymity is an enabler for SOs. Suler (2004) described the effects of anonymity as instances of the *online disinhibition effect*, a phenomenon in which people say or do things via the Internet that they would not normally say or do in person. Three key factors involved in this process are *dissociative anonymity*, *dissociative imagination*, and *invisibility*. Dissociative anonymity is the ability for individuals to separate their online personae from their real identities (Suler, 2004). Dissociative imagination is the

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tendency for people to create separate imaginary online personae, allowing them to avoid responsibility for what happens online because they believe it has nothing to do with offline reality (Suler, 2004). Finally, invisibility is the capability to stay hidden from others on the Internet, which is thought to give people the courage to do things they normally would not do (Suler, 2004).

The problem to be addressed in the present study was to examine the viability of a novel approach to the identification of online SOs despite their attempts to hide behind the curtain of anonymity. Specifically, we tested the hypothesis that Luring Communication Theory (LCT) may provide a useful way to understand and identify the steps SOs utilize in their efforts to exploit children using online communications.

BACKGROUND

Differences in the Etiology of Sexual Offending

Considerable past work has indicated that people become SOs in different ways and for different reasons. Building on the earlier work of Finkelhor and Araji (1986), who provided a comprehensive explanation for sexually deviant behavior, Hall and Hirschman (1991), Ward and Siegert (2002), and Middleton, Elliott, Mandeville-Norden, and Beech (2006) all have proposed models of sexual deviancy based on the influence of specific psychological and physiological contributing factors, such as cognitive distortions, difficulties with emotional regulation, personality problems, deviant triggers for sexual arousal, and intimacy deficits, all of which may lead to a distorted understanding of what defines appropriate sexual behavior, a condition sometimes referred to as having a *deviant sexual script*. According to these models, not all of the same contributing factors necessarily need to be present or even dominant for individuals to become SOs. This variability across individuals in the specific factors that can result in the emergence of sexual deviancy means that there are different etiologies, or experiential pathways, for becoming an SO. However, as noted by Middleton et al. (2006), when multiple factors are present simultaneously in an individual, they may develop the *pure pedophile* deviant sexual script in which there is a strong, if not exclusive, preference for children as sexual partners. These SOs gravitate toward online environments because of the greater number of potential victims and the aforementioned anonymity these situations provide (Davidson & Gottschalk, 2011; Suler, 2004)

A Motivational Dichotomy in Online Sexual Offending

The varied factors and pathways by which individuals become sexual offenders likely imply that not all *pure pedophiles* have the same exact deviant sexual scripts. An important study by Briggs, Simon, and Simonsen (2011) revealed two distinct behavioral patterns of online SOs based on an apparent difference in their motives for initiating contact with potential victims. In one pattern, offenders were motivated by the desire to arrange an in-person meeting in order to engage in an offline sexual relationship. These so-called *contact-driven* offenders engaged in a relatively short online relationship with few sexual behaviors because their focus appeared to be on meeting the child without delay (Briggs et al., 2011). In contrast, a second behavioral pattern was exhibited by offenders who were motivated to develop a purely online sexual relationship with their victims, engaging only in cybersex and exhibitionism. These so-called *fantasy-driven* offenders worked to maintain their online relationships for longer periods of time and were not interested in offline contact (Briggs et al., 2011).

Two recent studies provided further insight into the features that distinguish contact- and fantasy-offenders (Chiu et al., 2018; DeHart et al., 2016). Like the Briggs et al. (2011) study, these investigations found that the interactions between fantasy-offenders and their victims tended to be prolonged, often lasting for months; in comparison, contact offenders engaged in brief interactions sufficient to arrange a *hook up*. One reason that contact offenders kept their interactions short was because of concerns regarding the presence of a monitoring guardian who might terminate the contact or thwart the offender's goal of offline contact (Chiu et al., 2018). DeHart et al. (2016) also found that fantasy offenders were more likely than contact offenders to sexually expose themselves to victims by sending digital images. Additionally, nearly half of the fantasy offenders studied by DeHart et al. (2016) sought sexually explicit photos of their victims, whereas less than a quarter of contact offenders requested such images. Further, the study showed that many fantasy offenders would ask their victims about their genitalia and would often attempt to coach victims in methods of masturbation. In contrast, contact offenders sought to confirm the emotional immaturity of their victims in order to identify the viability of further interaction opportunities both online and in person (DeHart et al., 2016). Finally, Chiu et al. (2018) found that contact offenders oftentimes shared their experiences and emotions with their child victims, encouraging them, in turn, to open up. This strategy helped contact offenders build trust, which made in-person contact with their victims more viable.

Online Sexual Offending and a Luring Communication Process

Clearly, the exploitation goals of online sexual offenders depend on communication with their victims (Aslan, 2011; Black, Wollis, Woodworth, & Hancock, 2015; Whittle, Hamilton-Giachritsis, Beech, & Collings, 2013). A pioneering study reported by Olson, Daggs, Ellevold, and Rogers (2007) used published accounts of interactions between offenders and their victims to examine the communication processes offenders employed to entice their victims. The results of this study revealed a five-step communication process: Gaining Access, Developing Deceptive Trust (DDT), Grooming, Isolation, and Approach. This process, which Olson et al. (2007) referred to as *luring communication*, began with steps to obtain contact with a child-victim followed by multiple steps to engender a cycle of entrapment, luring the child into accepting online sexual advances.

As noted by Whittle et al. (2013), self-disclosure is essential for forging the relationship between offender and victim, and this process is a key part of each step in luring communication (Olson et al., 2007). Self-disclosure has implications for the nature of offender's use of DDT and Grooming, as potential victims will be more likely to disclose personal information if preceded by information about the offender (Chiu et al., 2018; Dindia, 2002). Additionally, Dindia (2002) found a causal relationship between the tendency of individuals to self-disclose and positive feelings toward them on the part of those to whom they disclose—self-disclosure increased positive feelings. By sharing information with and soliciting information from potential victims, SOs are thus able to generate a sense of trust and increase their likelihood of maintaining a relationship.

Elaboration of the LCT has involved adding sub-steps within several of the five major steps for the purpose of more accurately capturing the behavior of online SOs (Kontostathis et al., 2009). For example, within the second step, DDT, Kontostathis et al. (2009) added several sub-steps to better reflect the strategies they observed offenders using within this stage of chat communication. Olson et al. (2007) subdivided several of the later steps based on the analysis of the offender-child dialogues they examined. Considering the number of steps and sub-steps proposed to date (12), the LCT consists of

the comprehensive framework shown in Table 1 for understanding the strategies that SOs use when sexually engaging children.

Using Chat Dialogues to Differentiate Offenders and Victims

Most of the luring communications used by online SOs occur in the context of Internet chat rooms or text-based communications. Examination of these communications is a labor-intensive task that must be carefully carried out by Law Enforcement (LE) as part of identifying and prosecuting Internet predators. Researchers have had to devise ways to expedite the process of offender identification through after-the-fact examinations of chat dialogue transcripts using keyword searches and other text analysis strategies (Kajzer et al., 2018). Pendar (2007) used automatic text categorization techniques to discriminate between online SOs and pseudo-children, who were adult volunteers from Perverted Justice (PJ) posing as children online. Through the use of machine learning techniques focusing on specific word-level trigrams (any set of three words within a chat corpus), Pendar (2007) was able to distinguish between offenders and pseudo-children 94.3% of the time. Using a codebook and dictionary based on the steps in the LCT, Kontostathis (2009) and McGhee et al. (2011) conducted studies using a software application called ChatCoder to analyze chat transcripts via eight coding categories. The researchers were able to distinguish between predator and victim, using chat transcripts from PJ. A success rate of 60% correct identification was found suggesting that the LCT was a useful basis for developing offender identification algorithms that could be implemented in text-analysis software (Kontostathis, 2009). Kajzer et al. (2019) reported a greatly enhanced correct identification rate (>90%) both for offenders vs. victims as well as for offender types (contact vs. fantasy offenders) through the use of word-level models based on chat dialogue text.

Table 1. Luring communication Theory: Five main steps and corresponding sub-steps numbered in sequence from 1-12

Main Steps	Sub-steps				
1. Gaining Access Access to victims	No Sub-steps; only main step Gaining access to potential victims				
Development of Deceptive Trust Developing the relationship	2. Activities Non-sexual activities	3. Compliments Offering praise	4. Personal Information Personal details	5. Relationship Details History and attitude towards relationships	6. Gifts Offering or sending gifts
Grooming Preparing for sexual behavior	7. Communicative Desensitization Sexual language used to desensitize the child		8. Reframing Presenting sexual activity as positive and beneficial		
Isolation Isolation from support network	9. Mental Isolation Providing sympathy and support to the child		10.Physical Isolation Encouraging hiding of the relationship		
Approach In-person meeting	11. Verbal Lead Ins Request to meet for sexual activities		12. Physical Contact In-person meeting for sexual activities		

Note: The first step has no sub-steps

THE PRESENT STUDY

The present study represents a novel investigation in several important respects. First, this study considered all 12 steps and sub-steps of the LCT to classify offenders. Previous classification guided by the LCT has employed this theory on a more limited basis (Kontostathis et al., 2009; McGhee et al., 2011). Second, although several papers cite differences between contact- and fantasy-SO's (Chiu, et al., 2018; McCarthy, 2010; McManus, Almond, Cubbon, Boulton, & Mears, 2016; Merdian, et al., 2018), the present study is unique in its utilization of the LCT to further distinguish between the two offender types. Finally, past studies of online SOs have only been able to use transcripts from PJ. The current study utilizes PJ transcripts along with transcripts of chats between offenders and LE officers posing as children. The chat conversations of undercover LE officers are not generally available and, therefore, have not often been used in previously published research. Use of this data in this study will extend the present findings beyond the single source of chat data currently available to most researchers.

Based primarily on the differences between contact- and fantasy-driven SOs reported by Briggs et al. (2011), several predictions can be made about the outcomes of the present study with respect to luring communication. First, if contact-driven offenders are motivated primarily by the desire to make offline personal contact with potential victims, it follows that these predators should engage in more actions related to Physical Isolation (sub-step of Isolation), Verbal Lead-Ins, and Physical Contact (sub-steps of Approach) compared to fantasy-driven SOs. Second, if fantasy-driven offenders aim to fulfill their desires online, then they might engage in more luring communication behaviors related to developing and maintaining an online sexual relationship with the victim, particularly those involving Compliments (sub-step of DDT), Communicative Desensitization, and Reframing (sub-steps of Grooming) compared to contact-driven SOs. Finally, it could be expected that total number of chat sessions, along with the total length of the online contact, might favor fantasy-driven offenders who are not interested in offline relationships and who, therefore, may be motivated to maintain online contact for as long as possible.

Method

Participants

In this study, chat data was analyzed from two separate sources. First, transcripts of offenders who chatted with civilian vigilante volunteers posing as children online were acquired from the website Perverted Justice (www.perverted-justice.com; PJ). Second, chat data was also analyzed from offenders who had engaged online with undercover police officers posing as children obtained from the office of the St. Joseph County, IN, Prosecuting Attorney. From these sources, researchers randomly sampled and downloaded 33 transcripts from PJ (45%) and 40 transcripts from LE (55%) for a total of 73 transcripts. Each transcript contained a full record of the chat conversations between a single offender and a single pseudo-child.

The number of chat sessions for each offender ranged from one to 14 ($M = 3.32$, $SD = 2.94$). All 73 of the offenders (100%) were male. The offender ethnic makeup was comprised of 64 White (88%), four Hispanic (5.5%), four African American (5.5%), and one Asian (1%). Of these 73 offenders, eight had sexual screen names (11%), while 65 did not (89%). This data consisted of digital evidence from Internet crime investigations that were conducted between the dates of January 1, 2003 and December 31, 2008. All of the chats (100%) were done via Yahoo messenger. In the case of LE chats, the LE officer created a profile of a 13-year-old girl and entered a normal Yahoo chat room, such as "Indiana:1."

While in the chatroom, the officer would not actively engage in any conversation. Rather, an offender would see the pseudo-child enter the room and, if interested, initiate contact through Yahoo messenger.

Offender Classification

For each transcript, the offender was classified by human judges as either a contact-driven or a fantasy-driven offender. Experimenters had knowledge of the disposition of the investigation for the LE chats and knew if the offender had met the pseudo-child in person or had maintained a relationship solely on the computer. The validity of these classifications was checked independently by individual coders. At the completion of the coding process for each chat, an experimenter blind to the disposition classified the offender as either a contact-driven or a fantasy-driven offender. These classifications were then verified against the classifications determined from the disposition of the LE investigation. This verification process resulted in no discrepancies between the LE classifications and the coder classifications.

For the PJ chats, each transcript was initially read by two research assistants. Based on the content of the chat, the offender was classified as either a contact-driven or a fantasy-driven offender. Validity for these classifications was checked by comparing the classifications provided by the two experimenters. Throughout this process, there was 100% agreement. Overall, for both the LE chats and the PJ chats, 39 offenders (53%) were classified as contact-driven offenders and 34 offenders (47%) were classified as fantasy-driven offenders.

Procedure

Luring Communication Theory coding entailed categorizing every line of each transcript sent by the offender (each line was a separate communication or utterance in the messaging system) as belonging to one of the 12 sub-steps of the LCT process, or as being unrelated to any of the LCT categories. This coding was done by two separate coders, blind to each other's classifications. After both codings were completed, the separately coded transcripts were compared for purposes of reliability. The total number of ratings as well as the number of agreements and disagreements between coders were calculated, and inter-rater reliability was calculated using Cohen's Kappa. A Kappa of 0.60 is generally considered to be a moderate level of agreement (Cohen, 1960), and this value was used as the minimum threshold for inter-rater agreements in this study. For the 73 transcripts, Cohen's Kappa ranged from 0.61 to 0.98, with a mean inter-rater reliability of 0.83. These transcripts were then coded by an independent third rater who clarified any disparate codes between the first two coders.

After coding was complete, the original transcripts were examined to determine the number of offender utterances (lines) within each of the 12 sub-steps of the LCT, along with a total of the number of utterances (lines) unrelated to the LCT. This process was done by classifying each coded offender utterance with the number of the sub-step it coincided with (1-12). The total number of utterances made by the offender as well as the utterances that were not categorized into any of the sub-steps were also tallied. For verification, the total number of utterances in all 12 sub-steps as well as those in none of the sub-steps were combined to ensure that this sum equaled the total number of utterances tallied. This check confirmed that every offender utterance was classified as either being in one of the 12 steps of the LCT or not contained in a step. Once a count was obtained, a new variable was calculated that reflected the percentage of utterances made by the offender that were contained in each of the steps of the LCT. The resulting variable thus reflected the percentage of messages sent by an offender for each step of the LCT during the sexual solicitation of the pseudo-child.

Results

Data Exclusions and Analysis Plan

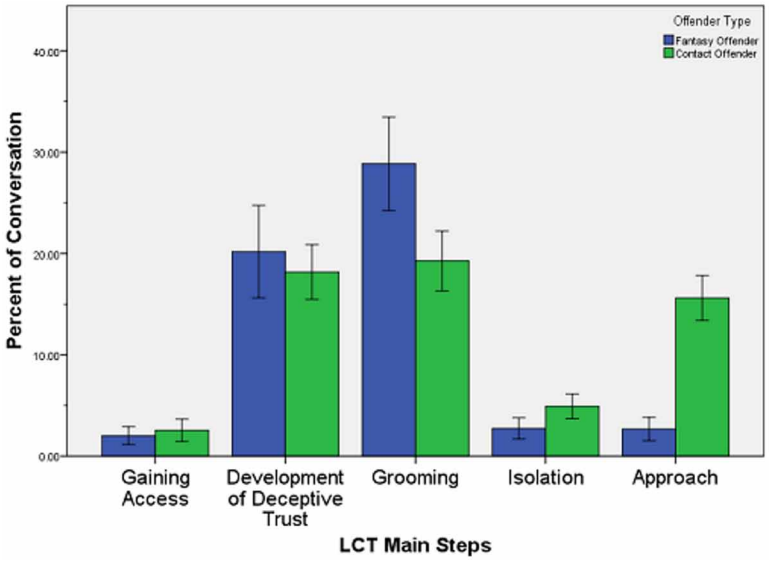
As noted above, each utterance (line) from an offender in each transcript was assigned a code based how the intent of the words in the line related to the steps/sub-steps of the LCT process shown in Table 1. Typically, lines that had relatively few words and/or were not expressing clear thoughts or intentions were coded as unrelated to the LCT. Since the purpose of this study was to examine how the LCT process related to offender communications, lines unrelated to the LCT were excluded from the analyses reported below. While lines unrelated to the LCT accounted for approximately 40% of the total offender *lines* across all chat transcripts, this percentage did not differ across offender types. Moreover, these non-LCT lines represented only a small percentage of the total *words* used by offenders in their communications (approximately 20% of total words). The effects of the independent variables in this study, Offender Type (contact- vs. fantasy-driven) and the LCT main step or sub-step, were assessed by means of mixed-factor ANOVA analyses using Offender Type as a between-subjects factor and the LCT main step or sub-step as a within-subjects factor. Effect sizes were computed as *r* values, where 0.1 is a small effect, 0.3 is a medium effect and 0.5 or above is a large effect (Cohen, 1988). Pooling PJ chats with those from LE was justified in this study by a preliminary analysis involving a Chat Source (PJ vs. LE) by Offender Type by LCT Steps/Sub-steps ANOVA that failed to reveal any significant main effects or interactions of these factors.

The Five Main Steps of LCT

Initially, researchers examined all codes subsumed by the five main steps of the LCT process shown in Table 1. Figure 1 depicts the percentage of offender conversation spent in each of these steps for both contact- and fantasy-driven offenders. It is clear that both types of SOs utilized the steps of DDT and Grooming much more than the steps of Gaining Access and Isolation in their conversations. Offender types differed markedly in their use of Grooming and Approach, but in opposite ways. That is, fantasy-driven offenders used the Grooming step more than contact-driven offenders, whereas the reverse was true for the Approach step.

To confirm these visual impressions, a 2 (Offender Type) X 5 (LCT Category) ANOVA was conducted on the percentage of conversation associated with each main LCT step. The analysis revealed a significant main effect of LCT Category, $F(4,71) = 115.24$, $p < .001$, r = 0.79, but no main effect of Offender Type. However, the interaction between Offender Type and LCT Category emerged significant, $F(1,71) = 20.86$, $p < .001$, $r = 0.47$. Follow-up, between-group tests revealed that the interaction occurred because fantasy-driven offenders engaged in significantly more Grooming, $t(71) = 3.65$, $p < .001$, $r = 0.40$, than contact-driven offenders, but significantly less Isolation, $t(71) = -2.69$, $p < .05$, $r = 0.30$, and Approach, $t(71) = -10.1$, $p < .001$, $r = 0.77$. Pairwise, within-group comparisons across steps within each offender type revealed that, for fantasy-driven offenders, DDT was significantly different from Grooming ($t(33) = 2.54$, $p < .05$, $r = 0.40$), and both of these steps were different from each of the remaining steps, all *p's* < .05, which did not differ from one another. However, for contact-driven offenders, DDT, Grooming, and Approach did not differ, but each differed from both of the remaining steps, all *p's* < .05.

Figure 1. Percentage of the conversation that contact-driven offenders and fantasy-driven offenders spent in each of the five main steps of the luring communication theory



LCT Sub-Steps

Development of Deceptive Trust

Sub-step comparisons were examined separately for main steps 2-5 (i.e. excluding Gaining Access which did not have sub-steps) starting with the five sub-steps of DDT. Examination of the mean percentage of conversation spent in each of these five sub-steps for each offender type revealed that Personal Information was the most prevalent sub-step used in this category by both offender types while Gifts was the sub-step least utilized. Use of each sub-step did not appear to differ by offender type. A 2 (Offender Type) X 5 (Sub-steps) ANOVA provided statistical confirmation of the impressions gained from examination of the means across the five sub-steps of DDT. The only effect to emerge significant from the analysis was the main effect of Sub-steps, $F(1,71) = 25.59$, $p < .001$, $r = 0.51$. Pairwise comparisons revealed that each sub-step was significantly different from all other sub-steps, all $ps < .05$, with the exception of Activities and Compliments, which did not differ from one another. Offender types did not differ for any sub-step.

Grooming

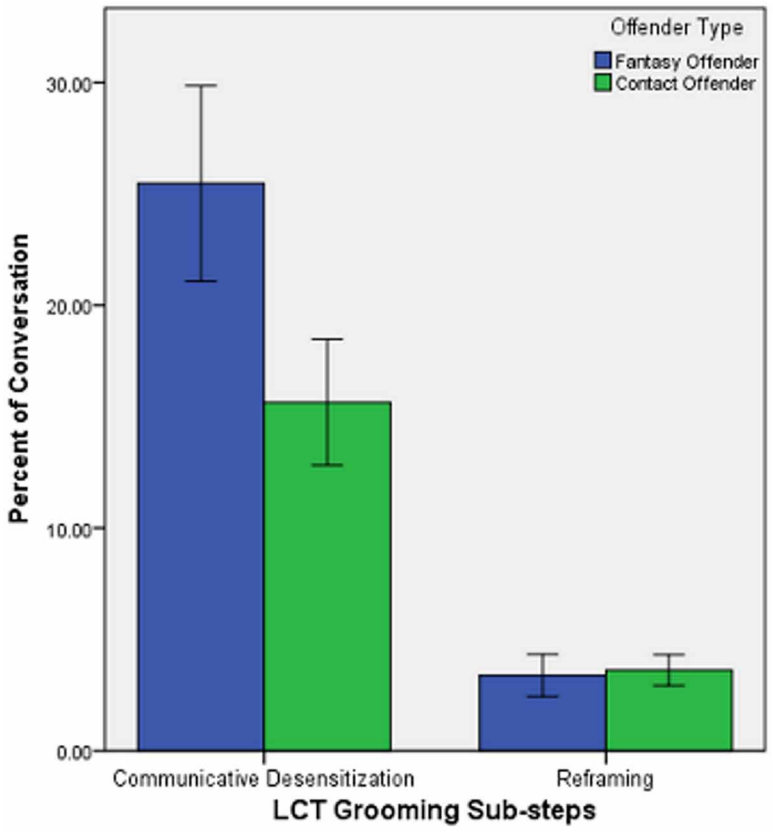
Figure 2 depicts the percentage of conversation spent in each of the two Grooming sub-steps. This figure shows that the first sub-step of Communicative Desensitization (sexual language used to desensitize the child-victim) was used more often during conversations than the second sub-step of Reframing by both offender types. However, fantasy-driven offenders used the first sub-step in this category markedly more than did contact-driven offenders, whereas the two offender types did not appear to differ in their use of the second sub-step. Confirming these visual impressions, a 2 (Offender Type) X 2 (Sub-steps) ANOVA revealed significant main effects of Offender Type, $F(1,71) = 13.34$, $p < .001$, $r = 0.40$, and Sub-steps, $F(1,71) = 183.23$, $p < .001$, $r = 0.85$, along with the interaction between Offender Type and Sub-steps, $F(1,71) = 15.92$, $p < .001$, $r = 0.43$. Follow-up comparisons revealed that the interaction

was due to a significant difference between Offender Type for Communicative Desensitization, $t(71) = 3.91$, $p < .001$, $r = 0.42$, but not for Reframing. Fantasy-driven offenders engaged in significantly more Communicative Desensitization than contact-driven offenders. Moreover, paired comparisons showed that both offender types used the first sub-step more than the second (fantasy-driven offenders, $t(33) = 10.27$, $p < .001$, $r = 0.87$; contact-driven offenders, $t(38) = 8.46$, $p < .001$, $r = 0.81$).

Isolation

Figure 3 depicts the percentage of conversation spent in each of the two Isolation sub-steps. This figure shows that contact-driven offenders used both sub-steps more often than fantasy-driven offenders. Moreover, the difference between offender types in their usage of Mental and Physical Isolation appeared roughly equivalent for both sub-steps. These observations were verified by a 2 (Offender Type) X 2 (Sub-steps) ANOVA showing only a significant main effect of Offender Type, $F(1,71) = 7.26$, $p < .05$, $r = 0.30$. Follow-up comparisons revealed that there were significant differences between Offender Types for Mental Isolation, $t(71) = 2.00$, $p < .05$, $r = 0.23$, and Physical Isolation, $t(71) = 2.57$, $p < .05$, $r = 0.29$. Contact-driven offenders engaged in significantly more Mental Isolation and Physical Isolation than did fantasy-driven offenders.

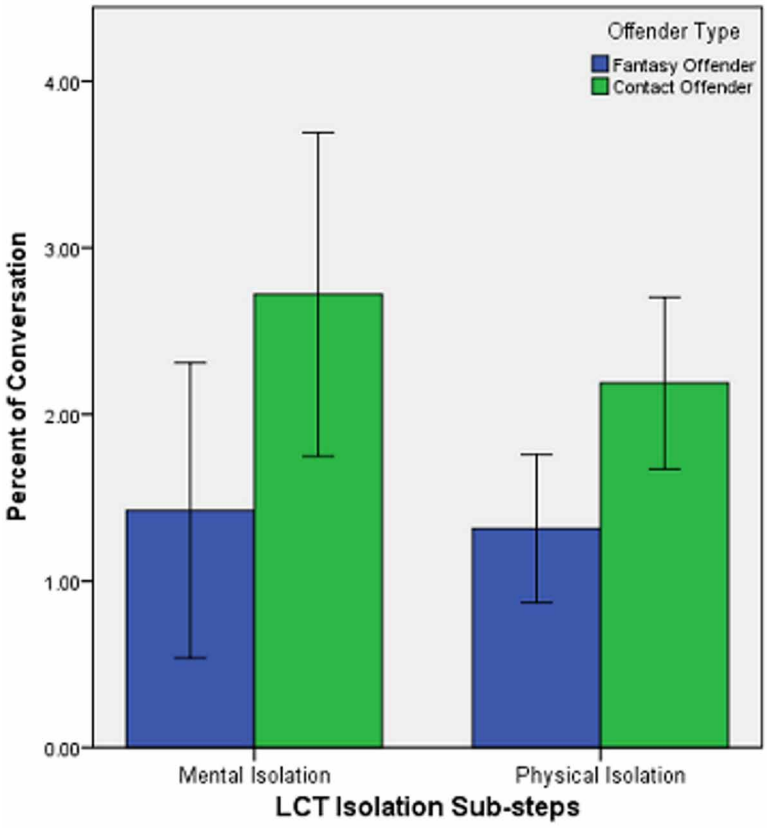
Figure 2. Percentage of the conversation that contact-driven offenders and fantasy-driven offenders spent in each of the two sub-steps of grooming



Approach

Examination of the mean percentage of conversation spent in each of the two Approach sub-steps revealed that the first sub-step of Verbal Lead-Ins (request to meet for sexual activities) was used more often by both Offender Types than the second sub-step of Physical Contact. However, contact-driven offenders used both of the sub-steps of Approach more often than fantasy-driven offenders. The 2 (Offender Type) X 2 (Sub-steps) ANOVA applied to these data revealed that both the main effects of Offender Type, $F(1,71) = 102.07$, $p < .001$, $r = 0.77$, and Sub-steps, $F(1,71) = 208.17$, $p < .001$, $r = 0.86$, were significant, as was the interaction between Offender Type and Sub-steps, $F(1,71) = 98.45$, $p < .001$, $r = 0.76$. The interaction occurred because the difference between contact-driven and fantasy-driven offenders was much larger for the use of Verbal Lead-Ins than for Physical Contact, but follow-up between group tests revealed that both differences were significant, $t(71) = 10.04$, $p < .001$, $r = 0.77$ and $t(71) = 5.81$, $p < .001$, $r = 0.57$, respectively. Contact-driven offenders used both Verbal Lead-Ins and Physical Contact significantly more than fantasy-driven offenders. Moreover, paired comparisons showed that both offender types used the first sub-step significantly more than the second (fantasy-driven offenders, $t(33) = 4.73$, $p < .001$, $r = 0.64$; contact-driven offenders, $t(38) = 14.57$, $p < .001$, $r = 0.92$).

Figure 3. Percentage of the conversation that contact-driven offenders and fantasy-driven offenders spent in each of the two sub-steps of isolation



Number and Duration of Chats

To assess the possibility of repeat conversations as well as the total time spent engaging with victims, number of chats sessions and chat durations per victim were determined for each offender type. This information was calculated from information contained within the transcripts, such as timestamps associated with each utterance. Independent sample t-tests were used to compare the total number of chat sessions as well as the total length of the chat conversations for contact- versus fantasy-driven offenders. No significant differences were found for either measure. The mean number of chats per offender was 3.32 while the average total chat length was 204 minutes.

Discussion

In this study, a novel approach was used to analyze communications between pseudo-children and child-sexual offenders using the Luring Communication Theory (Olson et al., 2007) as a basis for differentiating between the contact-driven and fantasy-driven offender types described by Briggs et al. (2011). Our approach revealed both similarities and differences between these two groups of offenders in their use of the LCT main steps and sub-steps as they were engaging in dialog with those that they believed to be children. Given that the LCT contained five main steps, four of which contained additional sub-steps, for ease of exposition our findings across all steps and sub-steps have been summarized in Table 2. The results shown in Table 2 can be viewed in the context of the three predicted outcomes of this study described earlier.

See Table 1 for LCT Step Definition

Prediction 1: Contact-driven offenders, who desire to make offline personal contact, should show more use of Physical Isolation (sub-step of Isolation), Verbal Lead-Ins, and Physical Contact (sub-steps of Approach).

The present results were consistent with the first prediction. When compared to the fantasy-driven offenders, contact-driven offenders were found to spend significantly more of their conversations engaged in the Physical Isolation sub-step of the main Isolation step as well as in both sub-steps of Approach step. The Approach sub-steps included Verbal Lead-Ins and Physical Contact. These findings support the idea that the overall goal of contact-driven offenders was to initiate offline contact, which can be facilitated through the use of Physical Isolation and the sub-steps of Approach. However, it was not anticipated that contact-driven offenders would also use Mental Isolation more than fantasy-driven offenders. Rather, it was expected that this tactic would be employed equally by both offender types as part of their persuasion tactics to maintain contact with the child-victim. But, Olson et al. (2007) noted that both of the sub-steps of Isolation involve distancing the victim from others in their lives, such as guardians, siblings, or peers, thereby increasing victim reliance on the offender. Therefore, it may be easier for a contact-driven offender to draw the victim into a physical encounter if the child does not have strong ties with others and instead places trust in the offender. This result is consistent with the finding of Chiu et al. (2018) that contact offenders are especially concerned about the presence of vigilant guardians and may thus explain why contact-driven offenders tend to engage in more overall Mental as well as Physical Isolation tactics than fantasy-driven offenders.

The present findings with respect to the sub-steps of Approach also are consistent with the different goals of contact- and fantasy-driven offenders as described by Briggs et al. (2011). Contact-driven offenders, who are thought to be focused primarily on initiating an offline relationship, engaged in significantly more Verbal Lead-Ins and Physical Contact strategies than fantasy-driven offenders. Both

Table 2. Summary of findings in main steps and sub-steps

Main Steps	Sub-steps				
Gaining Access *Findings*: Was least used step (< 3% of total offender communication) No difference between offender types here	No Sub-steps; only main step Gaining access to potential victims				
Development of Deceptive Trust *Findings*: Second most used main step (~19% of total communication) No difference between offender types here	Activities *Findings*: 2nd most used sub-step (<4% of total communication) No difference between offender types	Compliments *Findings*: 3rd most used sub-step (>3% of total communication) No difference between offender types	Personal Information *Findings*: Most used sub-step (>10% of total communication) No difference between offender types	Relationship Details *Findings*: 4th most used sub-step (~2% of total communication) No difference between offender types	Gifts *Findings*: Least used sub-step (<1% total communication) No difference between offender types
Grooming *Findings:* Most used main step (>24% of total communications) Fantasy-driven offenders used this step more	Communicative Desensitization *Findings:* Most used sub-step (20% of total communication) Fantasy-driven offenders used this sub-step more		Reframing *Findings:* Second most used sub-step (~4% of total communication) No difference between offender types on this sub-step		
Isolation *Findings:* Second least used main step (~4% of total communication) Contact-driven offenders used this step more	Mental Isolation *Findings:* Sub-step accounting for approximately 2% of total communication Contact-driven offender used this sub-step more		Physical Isolation *Findings:* Sub-step accounting for approximately 2% of total communication Contact-driven offenders used this sub-step more		
Approach *Findings:* Third most used main step (~10% of total communications) Contact-driven offenders used this step more	Verbal Lead Ins *Findings:* Most used sub-step (~9% of total communication) Contact-driven offenders used this sub-step more		Physical Contact *Findings:* Second most used sub-step (~1% of total communication) Contact-driven offenders used this sub-step more		
Chat Numbers/Durations *Findings:* No difference between offender types					

of these sub-steps of Approach likely aid contact-driven offenders in their efforts ultimately to facilitate an in-person meeting with the victim. Since fantasy-driven SOs are only concerned with engaging in online sexual behaviors, they have less reason to engage in these Approach behaviors.

Prediction 2: Fantasy-driven offenders, who desire to maintain an online sexual relationship with the victim, should use more Compliments (sub-step of DDT), Communicative Desensitization, and Reframing (sub-steps of Grooming) than contact-driven offenders.

The findings of this study only partially supported the second prediction. While fantasy-driven SOs were found to use Communicative Desensitization significantly more than contact-driven offenders, these two types of SOs did not differ in their use of Compliments and Reframing. As anticipated, fantasy-driven offenders engaged in significantly more of the Communicative Desensitization sub-step

of Grooming than contact-driven offenders. Since these SOs are presumed to be more concerned with maintaining their online relationship with the victim, it is logical that they would employ Communicative Desensitization. This is a primary tactic by which fantasy offenders increase child receptiveness to sexual content (Lanning, 2010; Olson et al., 2007). Moreover, as Lanning (2010) has noted, Grooming is a *seduction* process that takes time to implement but ultimately facilitates ongoing access to the targeted child, a clear goal of fantasy-driven offenders. In contrast, contact-driven offenders were found in this study to be less likely to prolong the online relationship, consistent with their goals to move on to the steps of Isolation and Approach as quickly as possible in order to secure an in-person meeting with the victim, thus making them less likely to focus on desensitization efforts. In terms of using Compliments and Reframing, while it was thought these strategies might be especially important to the development of an ongoing online relationship for fantasy-driven offenders, in retrospect it makes sense that both types of SOs would make use of both strategies. Compliments help to strengthen relationships with victims, while reframing helps SOs present sexual behavior in a positive light and to normalize the behavior. Both strategies enable SOs to facilitate their deviant interests with victims.

Prediction 3: Fantasy-driven offenders, who are motivated to maintain online contact for as long as possible, would be expected to have a greater number of longer chat sessions than contact-driven offenders, who want to move offline as quickly as possible.

Contrary to this third prediction, it was found that both groups of SOs were similar in the number of chat sessions per victim in which they engaged as well as in the average duration of their chat conversations. Interestingly, neither type of offender dominated the online chats with their victims. Offender utterances accounted for 51% of the conversation while pseudo-children utterances occupied the remaining 49% of the conversation. Given that the presumed goal of fantasy-driven offenders was to cultivate and maintain an online relationship with victims (Briggs et al., 2011), it is not clear why more repeat conversations and/or longer chats did not characterize this offender type in this study, as was found in previous studies (Briggs et al., 2011; Chiu et al., 2018; Dehart et al., 2016). A notable difference between the present study and previous studies using pseudo-children (Briggs et al., 2011; Dehart et al., 2016), however, is the addition of LE pseudo-children. LE pseudo-children may be less likely than PJ vigilante volunteers to take steps to prolong and repeat chat sessions given the focus of LE on prosecutable cases. Also, the present study differed from that of Chiu et al. (2018) who used real children. Future research will be needed to determine the impact of these differences.

SOLUTIONS AND RECOMMENDATIONS

The present results have several important implications for the identification of online SOs. First, the outcomes of this study make a novel contribution to the understanding of the LCT described by Olson et al. (2007), as well as to the classification of offender types proposed by Briggs et al. (2011). This study demonstrates that contact- and fantasy-driven offenders do employ different aspects of luring communication in their online sexual exploitation of victims they believe are children. These outcomes reinforce the utility of the LCT as a general theoretical model for understanding the online communications between the SO and child-victim and underscore the importance of the motivational distinction between offender types proposed by Briggs et al. (2011).

Moreover, these findings expand on earlier work (Kontostathis et al., 2009; McGhee et al., 2011) showing that the LCT steps can be used as a basis for classifying offender versus victim based on chat behavior. While the present study was focused only on offender chats, it does show that the LCT model

is indeed quite relevant to an understanding of SO communications as suggested by Kontostathis et al. (2009) and McGhee et al. (2011). Although Kontostathis et al. (2009) and McGhee et al. (2011) developed coding schemes based on the LCT, they did not differentiate between contact- and fantasy-driven offenders in their populations. Accordingly, their classification accuracy may have been reduced because, as discovered in the present study, the LCT steps are not used equally overall by both offender types. If these researchers had a mixture of offender types in their populations, then variance in the LCT usage attributable to contact- and fantasy-driven offenders may well have influenced their classification accuracy outcomes.

Stemming from previous classification research, a broader implication of the present work is that a much greater predictive power can be achieved in SO classification processes by incorporating knowledge of how the LCT steps are used by these two offender types. The findings of this study strongly suggest that high levels of Communication Desensitization usage likely is indicative of communications from fantasy-driven offenders, whereas high levels of Mental and Physical Isolation, along with Verbal Lead-Ins, likely signifies communications from contact-driven SOs. These types of observations represent a finer-grained diagnostic tool for differentiating offender types, which ultimately may assist in better educating victims and their caregivers about the potential dangers of the Internet. In addition, enhanced predictive power can move the field closer to automating offender identification through the development of software capable of making real-time predictions about the motives of those engaging in sexually explicit chats with children; saving law enforcement agencies time and resources. Most importantly, the results of this study may facilitate efforts to identify online SOs so they can be taken offline and put out of contact with potential victims.

FUTURE RESEARCH DIRECTIONS

Several lines of further research are needed to better understand the present findings and address the limitations of this research. First, although both PJ chats and chats between online SOs and LE officials posing as children were utilized, researchers did not have access to any chats involving online SOs and real children. As such, it is as yet unknown if these results will generalize to online victims other than pseudo-children. Second, the coding scheme used in this research resulted in a large category of offender utterances unrelated to LCT (around 40% of total offender coded lines). As noted above, these utterances represented individual segments of the offenders' conversations that either involved few words, symbols, or abbreviations. In contrast, the LCT codes represented larger individual segments of offender conversations with many more words, symbols, or abbreviations per segment. Thus, in terms of words, the LCT-related codes encompassed about 80% of the offenders' portions of the conversations in the present study. Codes unrelated to the LCT were not parsed carefully in the present study, but should be more closely examined in future work. Third, the Pew Research Center reports that current trends of communication are shifted towards an increased use of SMS messaging and social media on mobile phones versus online instant messaging (Lenhart, 2012). While, it is not clear how this trend would change the nature of SO-victim conversations, this is an issue that needs to be explored in future research. Finally, as noted by many researchers (Aslan, 2011; Kirwan & Power, 2013; Kloess, Beech, & Harkins, 2014; Seto, Wood, Babchishin, & Flynn, 2012), more work is needed to better understand why individuals become online SOs. As this work unfolds, it may inform the process of identifying more specific types of online offenders. Although the present work was guided primarily by the classification of offenders proposed by Briggs et al. (2011), other types of offenders may exist, as suggested by several authors (Aslan, 2011;

Babchishin, Hanson, & VanZuylen, 2015; Kontostathis et al., 2009). If so, it will be important to see how any additional offender types may be similar or different in their use of luring communications.

CONCLUSION

The present study was the first of its kind to investigate the differences between contact- and fantasy-driven offenders using the LCT framework to learn more about their specific motives and behaviors. Clear differences were revealed in how these offender types used luring communications to exploit child victims based on their distinct contact or fantasy motives. Further research in this area is needed, but if this finding proves to be robust, it will provide yet another important way for law enforcement to differentiate these offender types based on samples of their communications with potential victims. However, as noted in several studies (Babchishin et al., 2015; Chiu et al., 2018; Long, Alison, & McManus, 2013; McCarthy, 2010; Merdian et al., 2018), contact- and fantasy-driven SOs may differ in other ways that also will be important to understand, both from the standpoint of identifying these offender types and bringing them to justice. Moreover, as indicated by Hillman, Hooper, and Choo (2014), various significant challenges also will need to be addressed related to the prosecution and remediation of SO's once they are identified and apprehended.

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KEY TERMS AND DEFINITIONS

Approach: LCT step used more by contact-driven offenders to facilitate in-person meeting.

Contact-Driven Offender: Online sexual offenders who seek face-to-face contact with their child victims to engage in physical sexual activity (Briggs et al., 2011).

Fantasy-Driven Offender: Online sexual offenders who seek only online interactions with children; often marked by illicit messages, exhibitionism, and child pornography (Briggs et al., 2011).

Grooming: LCT Step used more by fantasy-driven offenders to preparing for sexual behavior.

Isolation: LCT step used more by contact-driven offenders to separate victim from support network.

Perverted Justice: A grass-roots vigilante organization where volunteers pose as children online in order to expose offenders.

Pseudo-Child: A law enforcement officer or a volunteer posing as a child in a chatroom.