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Are Cyberbullies really bullies? An investigation of reactive and proactive online aggression

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ABSTRACT

Cyberbullying, or online aggression, is an issue of increasing concern, however little research has been conducted on the motivations underlying this form of aggression. Using a mixed-method approach, by means of survey and interview data, we explored whether online aggressive acts were motivated by proactive (intentionally aggressing to obtain a resource or a goal), and/or reactive (aggression that occurs in reaction to provocation) reasons. Participants for the survey portion of the study included 733 adolescents between the ages of 10 and 18, while a subset of 15 adolescents participated in semi-structured interviews. Factor analysis revealed that, in contrast to traditional forms of bullying, adolescents do not identify themselves according to the role they played in an internet aggressive situation (i.e. bully, victim, witness), but according to the method of aggression they used (i.e. sending mean messages, posting embarrassing photos, and developing hostile websites). More interestingly, regression analyses demonstrated that motivations for aggressing online also varied according to *method* of aggression rather than *role*. For example, adolescents who chose to aggress by posting mean messages or posting embarrassing photos were more likely to do so for reactive reasons, while adolescents who spent time creating hostile websites did so for proactive reasons.

1. Introduction

The escalating number of aggressive acts occurring via the internet, cell phone, and/or other Information Communication Technologies (ICTs) has become an issue of increasing concern for parents, adolescents and school communities. To date, the prevalence of aggression in schools has been well-documented (see Rubin, Bukowski, & Parke (2006), Tremblay, Hartup, & Archer (2005) for reviews). Current work in this area has established that the implications of aggressive acts can be detrimental to both the victim's and the perpetrator's socio-emotional wellbeing and their academic success (e.g. Boivin, Hymel, & Bukowski, 1995; Crick, Grotpeter, & Rockhill, 1999; Swearer, Song, Cary, Eagle, & Mickelson, 2001). Despite the wealth of existing research on schoolyard aggression and bullying, there remains a paucity of systematic research on aggression that occurs over the internet.

1.1. What is online aggression?

Online aggression is often referred to as online aggression or cyberbullying. Cyberbullying has been defined as involving "the use of Information and Communication Technologies (ICTs) to support deliberate, repeated, and hostile behaviour by an individual or group, that is intended to harm others" (Belsey, 2005, p. 8). Such communication tools include Instant Messaging (IM) and other chat tools, cell phone pictures, websites, text-messaging, blogs, and emails. Cyberbullying incidents can include anything from the sending of private messages to the posting of public messages, photos, or videos about a targeted individual.

Although referred to as cyberbullying, previous work on bullying and aggression has stipulated certain critical differences between bullying and aggression. Specifically, bullying involves, (a) intention to harm, (b) repetition, and (c) a power differential (Hoover, Oliver, & Hazler, 1992; Olweus, 1991, Pellegrini & Bartini, 2001; Smith & Boulton, 1990). Most researchers agree that aggression includes behaviours that are conducted with the intention to harm others (e.g., Berkowitz, 1993; Crick & Grotpeter, 1995; Underwood, Scott, Galperin, Bjornstad, & Sexton, 2004). Cyberbullying certainly appears to fit this criterion, however, research has yet to confirm this speculation and to demonstrate that aggression that occurs online includes the intentionality, repetition, and power differences that define *bullying* per se. Particularly problematic is the issue of power, which ceases to exist in traditional ways in an online situation. For example, traditionally, more popular or physically larger adolescents tend to hold the balance of power, but online this is not necessarily the case. Using a single label to

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refer to all online aggressive acts may lead people to believe that the motivations underlying all of these types of aggressive acts are the same. This belief could misguide the development of intervention and prevention programs. As such, it is imperative to investigate the motivations behind the online aggressive acts to determine if they are, in fact, acts of bullying.

1.2. Motivation for aggression

Research on aggression has examined the underlying motivations for engaging in aggressive acts. The current study attempted to determine whether the motivations underlying online aggression were reactive or proactive (Dodge & Coie, 1987).

1.2.1. Proactive versus reactive aggression

Proactive aggression refers to aggression that is used to intentionally obtain a resource or a goal (Crick & Dodge, 1996; Dodge & Coie, 1987). Bullying behaviours fall under this domain because people who bully do so in an attempt to demonstrate power and authority over the target (Atlas & Pepler, 1998; Olweus, 1991). Bullying behaviours can involve either physical or direct forms of aggression, such as kicking and punching (Olweus, 1991; Pellegrini & Bartini, 2001; Smith & Boulton, 1990) or relational aggression, such as rumour spreading, gossiping, and social isolation (Bosworth, Espelage, & Simon, 1999; Underwood, Galen, & Paquette, 2001). As noted above, the key differences between bullying and other forms of aggression are intentionality, repetition, and the power differential between bully and victim. That is, in a bullying situation, the individual intentionally chooses to inflict harm on another, and does so repeatedly over time in order to dominate or impress power over the victim (Olweus, 1991). With this in mind, it is important to note that there are many acts of proactive aggression that do not include all three of these components, and are therefore not considered bullying. For example, a proactive aggressive incident might include pushing someone in order to be first in line for lunch. This would not be considered bullying because the intention was not to harm the other person and it was presumably a one time event.

Reactive aggression occurs as a reaction to provocation (Crick & Dodge, 1996; Dodge & Coie, 1987). For example, an individual may interpret the intentions of another as being deliberately hurtful, and so may retaliate in anger (they are reacting to a perceived threat). As with proactive aggression, not all instances of reactive aggression are considered bullying. For example, if an individual interprets someone as failing to say "hello" to them as an intentional snub, and thus, reacts aggressively by snubbing them in return, this instance would not be considered bullying if it is an isolated incident. However, if the receiver of the snub decides to socially exclude and exert aggression through gossip and rumour spreading about the "perpetrator", with the idea that he/she must demonstrate power and strength over him/her, then this could be considered bullying. Regarding online aggression, it is important to determine whether adolescents are aggressing online because they feel they have been wronged in some way or because they are attempting to gain power. Understanding the motivations behind online aggressive acts will help to ensure that appropriate intervention and prevention strategies are developed.

1.3. Adolescents and Information and Communication Technology (ICT)

Using the internet to communicate with others has become a part of every day life, most particularly for adolescents (Bargh, McKenna, & Fitzsimmons, 2002; Gross, Juvonen, & Gable, 2002; Ridout, Roberts, & Foehr, 2005; Wallace, 1999). Research on internet use reveals that 93% of North American youth report going on the internet and 89% access to the Internet from their homes (Pew Internet and American Life Project, 2010). Despite the prevalent use of ICTs amoung adolescents, we know very little about how the internet influences adolescents' communication skills and social relationships. Adolescents use the internet to seek out opportunities to interact with school-based peers (Gross et al., 2002), overcome shyness, and facilitate social relationships (Maczewski, 2002; Peter, Valkenburg, & Schouten, 2005). It also appears that adolescents are using the internet as an arena for demonstrating aggression toward others (Hinduja & Patchin, 2008; Li, 2007; Pew Internet and American Life Project, 2010; Ybarra & Mitchell, 2004). The internet allows social networks to be broadened to include hundreds of people, which may prove to have a profound influence on the impact of an aggressive incident. The current study represents a first step at empirically identifying the motivations for aggressing online, and whether these motivations are akin to those that define bullying.

2. Research questions

Previous research has revealed that aggression is multidimensional, multifaceted, and complex. With this in mind, the overarching purpose of this study was to empirically examine the nature and motivations behind online aggression. Two specific research questions were addressed. The first question sought to determine what factors comprise online aggression. Specifically, exploratory factor analysis was used to determine the factor structure of online aggression. The second research question included two components for exploring adolescents' motivations for engaging in online aggression: (a) whether adolescents were proactive or reactive (using an adapted measure of proactive and reactive aggression, as well as qualitative data from semi-structured interviews), and (b) whether the location of the computer in the home impacted adolescents' engagement in online aggression.

3. Method

Data for this study were drawn from self-report questionnaires and semi-structured interviews conducted with a subset of participants. This study was conducted using a concurrent nested mixed-method research strategy (Creswell, 2009). As such, positivist approaches to interviewing, analysis of interview content, and validation of findings were employed. Survey and interview data were collected concurrently, and findings from each method of data collection were merged and examined together to develop a clearer sense of the predictors and motivations underlining online aggression.

3.1. Participants

Middle and high school-aged students from the Lower Mainland of British Columbia were invited to participate in this study. The final sample for the questionnaire portion of the study was 733 (454 females; 255 males). Participants ranged in age from ten to eighteen ($M = 15$) and were in grades 5–12. In terms of ethnicity, 45% of the participants were of East Asian descent (e.g. Cambodian, Chinese, Japanese, Korean, Taiwanese, Vietnamese, Filipino), whereas 34% were of European descent. The remaining ethnic groups, comprising approximately 2% of the sample each, included Aboriginal, African/Caribbean, South Asian, Latin American, Middle Eastern, and mixed background. A large majority of the students (81%) had access to high speed Internet at home, and approximately 60% of participants had their own cell phone.

3.2. Survey procedures

The questionnaire, *Social Responsibility on the Internet*, was developed specifically for the purpose of this study. In developing this questionnaire, various researchers with expertise in developmental psychology, socio-emotional learning, technology use, and measurement were consulted. After obtaining ethics approval and permission from several local area schools, we visited the classrooms of consenting teachers and explained the study to the students. At this time, letters and accompanying consent forms were distributed to students, to be passed to their parents for parental consent. Students who were given parental consent and who assented themselves were asked to complete the questionnaire. In total, 1487 consent forms were distributed, with a response rate of 49%. Prior to completing the questionnaire, participants were asked whether they would consider participating in an interview. If so, they were invited to provide their contact information.

3.3. Measures

3.3.1. Online aggression

Online aggression was assessed using sixteen questions tapping into different aspects of being aggressive online, being aggressed upon online, and witnessing aggressive acts online. The factor structure of these sixteen items was analyzed using unweighted least squares exploratory factor analysis. These analyses are described in the Results section. In terms of content, participants were asked how often they had experience, as a victim ("done to me"), bully ("took part in doing it to others") and witness ("saw or heard about it") with (a) *mean things, rumours, or gossip being said through the internet websites, email, or text messaging* and (b) how often they had experience with *embarrassing pictures or video clips of yourself or people you know being sent or posted on the Internet.* These questions were derived from previous bullying research which has identified three key players in bullying situations; the bully, the victim, and the witness (Craig, Pepler, & Atlas, 2000). In order to examine whether online aggression was similar to offline bullying, questions about the roles adolescents played in online bullying situation were asked.

Adolescents were also asked to explain whether they engaged in online aggressive acts "with friends" or "alone," to explore the possible influence of peer groups on online aggressive situations. Traditional bullying literature has described how group size plays a role in regulating bullying behaviours, and that having peers around can reinforce aggressive behaviours through approval or rumour spreading (O'Connell, Pepler, & Craig, 1999; Salmivalli, Huttunen, & Lagersptz, 1997). As such, it was important to assess whether adolescents are more or less likely to aggress online when they are with peers or alone.

3.3.2. Proactive/reactive aggression

A modified version of Raine and colleagues' (2006) reactive–proactive aggression questionnaire was used to evaluate proactive and reactive aggression (items were modified to specifically focused on online aggression). There were thirteen items and each was responded to on a 3-point scale where 0 = never, 1 = sometimes, and 2 = often. Because this was an adapted measure, a factor analyses was run to determine the factor structure of these adapted items.

Two covariates were included in all regression analyses to control for any pre-existing factors that may have an impact on the results: having a *Computer in the Bedroom* and *Lone parenting*. Having a computer in the bedroom has been linked to increased misbehaviour on the Internet (Ridout et al., 2005); as such, it was considered important to control for this. Adolescents were asked to respond yes or no to the question "*Do you have a computer in your bedroom?*" where 0 = No and 1 = Yes. Research has also revealed an inverse relationship between socio-economic status and lone parenting (Rahkonen, Laaksonen, & Karvonen, 2004). Thus, whether adolescents lived with one parent or both was used as a proxy for determining socio-economic status. Previous research has found that adolescents who come from lower income families might be more prone to engaging in inappropriate behaviours both offline and online (Ridout et al., 2005); as such, it was deemed important to control for this effect. The Lone parenting variable was constructed from a variable which asked, *"Which of these adults do you live with MOST OF THE TIME? Check all the adults you live with"*, into a dummy variable where 0 = not a lone parent and 1 = lone parent.

3.4. Interview procedures

3.4.1. Data collection

Semi-structured interviews were conducted with ten female and five male adolescents, to gain a more thorough understanding of the nature and forms of online aggression. Interview participants were drawn from the pool of students who participated in the questionnaire portion of the study. Four participants chose a face-to-face interview format and eleven chose to be interviewed via Instant Messaging (IM). The face-to-face interviews were conducted at school, typically in their counselor's office. Participants being interviewed over IM did so from their home. Interview times ranged from 15 to 60 min for the face-to-face interviews, and 30–90 min for MSN interviews. Participants were asked to describe times they had been hurt online (e.g., been a target of an aggressive act), that they had hurt others online (e.g., perpetrated an aggressive act), and that they had seen others being hurt online (e.g., witnessed an aggressive act). The focus of the interview was to gain an in-depth understanding of both what had occurred and their perceptions of why each incident occurred.

3.4.2. Data analysis

Prior to analysis, the audio-recorded face-to-face interviews were transcribed and MSN log histories were formatted to match the structure of the face-to-face interview transcripts. All interviews were then coded according to two central themes: (a) proactive aggression, and (b) reactive aggression. These categories were formed on an a priori basis, based on existing literature (e.g., Raine et al., 2006) and the quantitative portion of this study. Coding involved attending to the manifest content of participants' statements to identify information related to the four themes. Relevant statements were then categorized and extracted to formulate a description that, as much as possible, preserved participants' own words. Data from the proactive/reactive themes were used to elaborate the findings from the questionnaires.

A credibility checking process, adapted from the Critical Incident Technique (Butterfield, Borgen, Amundson, & Maglio, 2005; Woolsey, 1986), was conducted to improve the integrity of the analysis. First, the integrity of the coding process was evaluated by having a research assistant independently code 20% of the interviews, to assess for concordance between the codes generated by the two coders. Coding for these two categories yielded a 98% degree of concordance between the coders.

4. Results

4.1. Research question 1: Determining the factor structures of online aggression

4.1.1. Online aggression

Prior to creating the online aggression composite variables, an unweighted least squares exploratory factor analysis was run in

Table 1
Unweighted least squares factor analysis pattern matrix for all online aggression items.

Item	Factor		
	1	2	3
Aggressive Messaging			
Replying to mean messages about others online with friends	.774		
Receiving mean messages online alone	.771		
Replying to mean messages about others online alone	.748		
Receiving mean messages online with friends	.729		
Sending mean messages online with friends	.571		
Took part in mean things to others online	.497		
Replying to mean messages about you online with friends	.480		
Replying to mean messages about you online alone	.459		
Sending mean messages online alone	.450		
Hostile Website Development			
Creating websites to embarrass or make fun of people online		.901	
Creating websites to embarrass or make fun of people with friends		.585	
Posting/commenting on Embarrassing Photos or Videos			
Had experiences with embarrassing pictures or clips online about me			.734
Saw embarrassing pictures or clips to others online			.630
Took part in embarrassing pictures or clips to others online			.628

Note: Only factor loadings of .32 or greater are reported here as is consistent with reporting procedures for Factor Analyses (Tabachnick & Fidell, 2001).

Table 2
Summary of important proactive and reactive items according to the Pratt index.

Item	D_j
DV = Aggressive Messaging	
Reactive: Posted mean things when they annoyed you	.262[a]
Reactive: Posted mean things to defend yourself or someone else	.173[a]
Reactive: Said or posted mean things when you were teased	.089[a]
Proactive: Threatened/bullied someone online	.081[a]
Proactive: Gotten others to say or post mean things about someone else	.080[a]
Reactive: Become angry when do not get your way so you take it out online	.062[a]
DV = Hostile websites	
Proactive: Posted mean things to show who was on top	.195[a]
Proactive: Said mean things just for fun	.183[a]
Proactive: gotten others to say or post mean things about someone else	.157[a]
DV = Embarrassing photos	
Reactive: Posted mean things to defend yourself or someone else	.133[a]
Reactive: Posted mean things when they annoyed you	.120[a]

Note: $D_j = (\beta_j^* r_j)/R^2$ where β_j represents the standardized Beta, and r_j is the simple correlations between the explanatory variable and the dependent variable. If $D_j < \frac{1}{2}(p)$, where p is the number of items in the model, the item does not make an important contribution to the model. In this case, $D_j < \frac{1}{2}(p) = .03$.
[a] Important variable.

order to determine the latent structure of the items. All analyses were run using Varimax Rotation. Preliminary factor analysis revealed two items that did not fit well due to cross loadings and/or low factor loadings ("*How often have you had experience with seeing and hearing about mean things...said through the Internet...*" and "*How often have you had experience with mean things... said or done to you through the Internet...*"). In accordance with the literature (Pett, Lackey, & Sullivan, 2003) these items were removed and the analysis was re-run. Kaiser–Meyer–Oklin value was .9, which exceeded the recommended minimum value of .6 (Kaiser, 1970, 1974), and the Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .001$). These results support the factorability of the items. Three factors with eigenvalues greater than 1.0 emerged from the data. Eigenvalues for each of the factors were 5.3, 1.6, and 1.1, respectively. Upon inspection of the screeplot, a clear break after the third factor was revealed, which indicated that three online aggression factors existed. After examining the items in each factor (Table 1), they were labelled: (1) Aggressive Messaging, (2) Developing Hostile Websites, and (3) Posting/Commenting about Embarrassing Photos or Videos.

It is interesting to note that the factor structure did not differentiate amoung aggressors, victims, and witnesses, as is typically found in traditional bullying literature (Craig et al., 2000). In contrast, the factor analyses clearly revealed that for online forms of aggression, adolescents differentiate their experiences according to the method used for the aggressive act, rather than whether one is committing, witnessing, or being a victim of the act. Based on these analyses, three composite variables were created by taking the average of the items for each factor: (1) Aggressive Messaging ($\alpha = .87$), (2) hostile websites ($\alpha = .74$), and (3) Posting/Commenting on Embarrassing Photos ($\alpha = .70$). These composites were used in all subsequent analyses.

4.2. Research question 2: Is online aggression proactive or reactive and what is the influence of computer location on this form of aggression?

Exploratory factor analysis using unweighted least squares and oblimin rotation was employed to construct appropriate proactive and reactive composite variables from the adapted measure. One item crossloaded and was removed, and for the subsequent analysis, the Kaiser–Meyer–Oklin value was .9, exceeding the recommended minimum value of .6 (Kaiser, 1970, 1974), and the Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance ($p < .001$), thus supporting the factorability of the items. The screeplot revealed a clear break after the first factor, which seemed to indicate that all items load on one factor. Two-factor and one-factor solutions were run, and the output confirmed that all the items loaded strongly on one factor. Based on this outcome, a one-factor model was deemed to be the best fit for the data, suggesting that participants did not differentiate between proactive and reactive reasons for being aggressive online.

Instead of creating a composite variable with all thirteen items, it was deemed important to examine the proactive and reactive items individually. Unfortunately, examining all thirteen items was not feasible. As such, a procedure was performed to assess the relative relationship between each of the proactive and reactive items and each of the dependent variables to determine which items made the largest contributions to predicting the three outcomes (Aggressive Messaging, Hostile Website Development, and Commenting/Posting Embarrassing Photos/Videos). Specifically, we examined the Relative Pratt Index (RPI; Thomas, Hughes, & Zumbo, 1998) for each item, which is a simple statistical procedure based on hierarchical regression that determines the relative importance of multiple variables in predicting an outcome variable (See Table 2). It is interesting to note that for Hostile Website Development only the proactive items emerged as important, while for Commenting/Posting Embarrassing Photos/Videos only the reactive items emerged as important. For Aggressive Messaging it appears that both the reactive and proactive items were important.

In order to answer research question two, hierarchical multiple regressions were performed separately for each type of online aggression. Having a computer in their bedroom, coming from a Lone parent family, Sex, and Grade were entered into Block one as covariates. The proactive/reactive items, as determined via the Pratt Index were entered in Block two. The assumptions for each of the three models were largely met, with the exception of minor violations in correlations and normality. It was considered safe to proceed with the analyses because regression analyses are, for

Table 3
Summary of hierarchical multiple regression model for Aggressive Messaging ($N = 198$).

Aggressive Messaging	*B*	*SE B*	*β*
Step 1			
Computer in bedroom	.09	.03	.11**
Grade	.04	.01	.20***
Sex	.08	.03	.12**
Lone parent	.03	.03	.04
Step 2			
Computer in bedroom	.02	.02	.03
Grade	.02	.01	.10**
Sex	.09	.02	.12***
Lone parent	.02	.02	.03
R: Posted mean things when they have annoyed you	.18	.02	.27***
R: Become angry when do not get your way, so take it out online	.14	.03	.12***
R: Threatened/bullied someone online	.15	.04	.13***
R: Posted mean things to defend yourself or someone else	.12	.02	.20***
R: Gotten others to defend you or someone else	.12	.03	.12***
R: Said or posted mean things when you were teased	.11	.03	.13***

Note: $R^2 = .07$ for Step 1; $\Delta R^2 = .41$ for Step 2 ($p < .001$).
R: denotes reactive aggression.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

the most part, robust to these assumption violations (Howell, 1997) and because the sample size was large.

4.2.1. Aggressive Messaging

Upon examination of the covariates, having a computer in the bedroom, grade, and sex significantly predicted whether an individual sent aggressive messages online. As can be seen in Table 3, Lone parenting did not predict this behaviour. In the final main effects model (Block two), grade, sex, and all the proactive/reactive items were found to make significant contributions to the model ($R^2 = .478$, $\Delta R^2 = 410$, $p < .001$). Interactions terms were entered into a third block of the regression, but none of them were found to be significant, so they were not included in the final model.

4.2.2. Hostile websites

As with Aggressive Messaging, having a computer in the bedroom significantly increased the likelihood that an individual would engage in creating hostile websites. However, this did not hold when the proactive/reactive items were added in Block 2. Significant grade differences were found in the final model, with older adolescents engaging in this type of aggressive behaviour more than younger adolescents. Moreover, all of the proactive/reactive items were significant and their addition to the model explained an additional 13% of the variance. Again, the interaction terms were entered but were not found to be significant, so were removed from the model (See Table 4).

4.2.3. Embarrassing photos

For this outcome variable, grade and sex were significant predictors in the model, with students in higher grades and girls participating in this form of aggression more than boys and students in younger grades, respectively. The two reactive items (*Reactive*: "*Posted mean things when they annoyed you*" and *Reactive*: "*Posted mean things to defend yourself or someone else*") also significantly predicted whether an individual would engage in posting and/or making comments about pictures posted online. The interactions were entered, but again were not found to be significant and were removed from the model (Table 5).

Table 4
Summary of hierarchical multiple regression model for hostile websites ($N = 88$).

Hostile website development	*B*	*SE B*	*β*
Step 1			
Computer in bedroom	.06	.02	.10**
Grade	.02	.01	.15***
Sex	−.03	.02	−.05
Lone parent	.02	.02	.04
Step 2			
Computer in bedroom	.03	.02	.05
Grade	.02	.01	.11***
Sex	−.02	.02	−.03
Lone parent	.01	.02	.02
P: Posted mean things to show who was on top	.13	.03	.18***
P: Said mean things just for fun	.12	.03	.16***
P: Had others say or post mean things about someone else	.13	.03	.16***

Note: $R^2 = .04$ for Step 1; $\Delta R^2 = .13$ for Step 2 ($p < .001$).
P: denotes proactive aggression.
*$p < 0.05$, **$p < 0.01$ ***$p < 0.001$.

4.3. Interview findings

Interviews were conducted with a subset of fifteen adolescents (ten females and five males) to shed further light on the issue of proactive versus reactive aggression. During these interviews, 21 separate incidences of online aggression were discussed. Six of the online aggression incidences were solely proactive in nature, one was solely reactive, while the majority (14) included a combination of proactive and reactive aggression. It would appear, therefore, that aggressive interactions in an online setting are simultaneously proactive and reactive, rather than being one or the other.

In many cases where participants described online aggression experiences that were both proactive and reactive, participants perceived themselves as a target of aggression, and justified their own aggressive behaviours as merely responding to a threat. By contrast, they characterized those who aggressed against them as perpetrators, whose aggression was solely proactive. For example, a grade six girl explained how she was a target of online aggression when she had to suddenly log off MSN because her parents were yelling at her. The friend she was chatting with took this as a slight and started reacting aggressively in the days to follow:

Participant: I had some threats, like, … 'Oh, something bad's gonna happen to you at recess or lunch'. And I stayed with my friends and nothing happened. And one time she is like, 'I am gonna bring a lot of people, a lot of my friends, and we're gonna yell-talk to you'. And I am like, 'Go ahead, I am not scared'. (laughs). And she gave me people's names and then I am like, 'its OK. 'Cause they're all my … friends, too. And I sit next to one of them. I am like, 'Did you agree to come and talk to me?' and she is like, 'No, [name] just made that up'. It was kind of awkward, because, like, a lot of people knew that we were not talking. And it was awkward to be next to each other at times. And we would be on the same team [at school] and we'd talk when we were fighting. Like, if we had to, for class projects or anything….

Interviewer: So … it seems like she was saying those mean things on MSN.

Participant: Yeah … MSN and e-mail. Nothing in person. And she got her friends to say stuff to me too … but not in person. All of them were too scared to say anything in person.

In this example, the aggressive acts started in reaction to a misinterpretation. The person who started making threats did so because she was hurt or insulted that her friend stopped talking to her on MSN and because she did not know the reason behind this abandonment. In reaction to this, the participant started proactively exerting her power over the "target" by making threats,

Table 5
Summary of results from the hierarchical multiple regression model for Embarrassing Photos and/or Videos ($N = 249$).

Embarrassing photos	*B*	*SE B*	*β*
Step 1			
Computer in bedroom	.04	.04	.04
Grade	.09	.01	.31***
Sex	.09	.04	.07
Lone parent	.05	.05	.04
Step 2			
Computer in bedroom	−.00	.04	−.00
Grade	.08	.01	.26***
Sex	.09	.04	.08*
Lone parent	.05	.04	.04
R: Posted mean things when they annoyed you	.19	.04	.18***
R: Posted mean things to defend yourself or someone else	.18	.04	.19***

Note: $R^2 = .11$ for Step 1; $\Delta R^2 = .10$ for Step 2 ($p < .001$).
R: denotes reactive aggression.
*$p < 0.05$, **$p < 0.01$ ***$p < 0.001$.

spreading rumours, and attempting to convince others to "side" with her. In turn, the "target" retaliated by exerting her power, as exemplified when she says "go ahead, I am not scared...its OK, 'Cause they're all my-they were my friends, too". Interestingly, all the aggressive behaviours occurred confrontationally online in that the participants would make threats and speak with hostility openly and directly with each other, but would remain civil in person.

Another example of individuals engaging in both proactive and reactive aggression involved grade 6 students:

Participant: Like ... I know my friend was going out with this guy. And she kinda has glasses and she has braces. And this guy's really, really popular. ... .. a lot of people were, like, talking behind their back and spreading rumours about them, because she kinda, they called her nerdy and all that 'cause she had braces and glasses ... So she was kind of sad about it, upset, 'cause he was more popular ... they were, like, saying that he is gonna ruin his reputation because of her and stuff like that.

Interviewer: So was all of this talk happening online or offline or both?

Participant: Both ... Like, people had their names and personal messages as '[friend]'s a nerd', or ah '[friend and boy] do not go together', stuff like that... Awkward and since she is one of my closest friends, it was kind of sad, too. And this guy ... because of his so-called reputation, he dumped her on Facebook. And a fifth-grader's, like, what kind of person would dump someone on the internet, where, like, over five hundred people can see. The next day after he dumped her ... everybody knew. And my friend was, like, all crying about it still. And everybody was asking her, some people were making fun of her, and some people were even mad at the guy...

Interviewer: Why do you think he did it that way?

Participant: He says that his reason for breaking up with her was um because he never liked her from the beginning ... he said that he was just pretending this whole time... He is like, 'Go tell her not to say hi to me anymore. Tell her not to touch me. Tell her not to even talk to me'. If no one had started the rumour of her being a nerd this would not have happened.

At the beginning of this experience, it seems that the more popular boy had no qualms for dating the less popular girl. However, as his peers proactively informed him that his reputation would be compromised, he reacted aggressively by publicly breaking up with her on Facebook. His own aggression became proactive when he attempted to regain his status on the social totem pole by deliberately avoiding and ignoring her. Moreover, the menacing behaviour of his peers as they continued to gossip and spread rumours about the girl contributed to this proactive aggression.

It must be recognized that, although online aggression usually involves both proactive and reactive elements, this is not always the case. For example, the following description from a grade eight female who was dealing with school rumours about her engaging in self-harm (cutting) behaviour and being "emo" (i.e., emotionally unstable, melodramatic, and engaging in self-harm behaviours) demonstrates that, sometimes, online aggression is only proactive. In this case, the participant perceived herself to be only the recipient, not a contributor, to online aggression:

Participant: It was mostly MSN... but people posted some things on Facebook, too. One kid would just say 'hello emo kid' to me all the time.

Participant: Those kids were always calling me emo, and I was telling them to stop... so we got in some arguments.

Interviewer: What did these arguments look like?

Participant: Them: Hello, emo kid! Why are you so sad? Me: I am not emo, and I do not appreciate you saying that to me. Do you know how that makes me feel? Them: Why don't you go cut yourself, then?

In the one reported incident involving only reactive aggression, a grade ten female explained how she posted aggressive comments and notes about a teacher she did not like at school, explaining that she thought he was racist and unfair. She described how her post online was more of a general post for the purpose of venting her frustrations, and not one to genuinely inflict harm on her teacher. Thus, although she was the one engaging in the online aggression, she perceived what she had done as a response to the teacher's provocation of treating her unfairly.

Overall, the findings from the questionnaire and interview data were consistent with each other. Specifically, both the survey and the interview data revealed that adolescents tended to perceive their own behaviour as reactive. However, the interview data supplemented these findings by demonstrating that adolescents tend to see other people's aggression as proactive.

5. Discussion

The EFA models revealed that while face-to-face forms of aggression and victimization are considered distinct constructs, this distinction is not as clear when the aggression is occurring online. Specifically, adolescents differentiated themselves as individuals who participated in specific forms of online aggression (i.e. sending mean messages, developing hostile websites, or posting embarrassing pictures), rather than as individuals who played a particular role in online aggression (i.e. bully, victim, perpetrator). One explanation is that in an online venue, victims can feel much more comfortable and capable of retaliating to aggressive acts. For example, if an individual said something mean to another online, and the initial "target" responded aggressively in return, both individuals have essentially engaged in aggressive behaviour and have also been the victim of such behaviour. Moreover, it is possible that the initial event and response could expand quite rapidly into a series of aggressive/victimizing incidents between the two individuals, which may increase difficulty in differentiating the original victim from the original aggressor. Further work must be conducted to address these possibilities.

An equivalent situation would be far less likely to occur offline due to the nature of typical face-to-face aggressive situations. The power imbalance that is normally present in traditional physical bullying situations makes it unlikely that victims would immediately respond in kind to the perpetrator, due to personality and physical characteristics (e.g. shyness, introversion, small stature); thus, making it easier to distinguish between the bully and the vic-

tim in offline situations. This possibility is compatible with research showing that individuals are more comfortable saying things online than offline due to the protectiveness of the screen (Peter et al., 2005; Ward & Tracey, 2004).

Adolescents who choose to engage in some form of online aggression primarily take part in sending mean messages online (including gossiping and rumour spreading) and posting/making comments about pictures that are posted online (27% and 34%, respectively). A lower percentage of adolescents engaged in creating hostile websites (12%). Analyses of the questionnaire data revealed that individuals who participate in sending aggressive messages or posting/commenting on embarrassing photos believe they are doing so for reactive reasons, rather than proactive reasons. Interview data confirmed this finding and extrapolated upon it by demonstrating that adolescents often perceived other people's posts as being proactive while perceiving their own actions as reactive. The belief that one's own aggressions are reactive while others' reactions are proactive was particularly evident in the interview data where participants framed themselves as the target of aggression, with seemingly no choice but to retaliate, while the perpetrator was viewed as aggressing proactively towards them.

The conclusion that adolescents view their own online aggression as reactive and others' online aggression as proactive is consistent with research which indicates that individuals tend to aggress online because they want revenge (Hinduja & Patchin, 2008), and because they possess external loci of control. Specifically, research on traditional aggression and bullying has found a positive association between aggression and individuals' beliefs about the causes of that aggression (Osterman, Bjoerkqvist, Lagerspetz, Kaukiainen, Landau, Fraczek, & Caprara, 1998; Slee, 1993). For example, individuals who believe they are in control of the events in their lives and recognize the role they have played in a given situation are said to have an internal locus of control. These individuals have been found to react differently to a given circumstance when compared to individuals who have an external locus of control (i.e., believing that other factors besides themselves control events in their life). The idea that adolescents are sending aggressive messages and posting/commenting on pictures for reactive reasons supports locus of control theories in that they feel justified in retaliating. That is, rather than examining their own behaviours and how their own behaviours may have contributed to the "perpetrator's" aggressive acts, they focus only on the aggressive acts of the "perpetrator" and react aggressively in return. Moreover, the online environment provides more opportunities for retaliation. Individuals who might never retaliate in face-to-face situations, due to small physical stature, shyness, or low self-esteem, might feel quite comfortable doing so online.

Having a computer in the bedroom significantly predicted the likelihood of sending aggressive messages and creating hostile websites. However, this variable became non-significant when the proactive/reactive items were included in the model. This result suggests that when there are motives for aggressing online, individuals are likely to engage in these forms of aggression despite the risk of being caught by an adult (e.g., the location of the computer becomes irrelevant). They may feel more justified in their actions because they are defending themselves or someone else online. They do not feel they are doing anything wrong and, consequently, feel comfortable posting these sorts of things online even when the computer is in a public area of the home.

Overall, fewer adolescents engage in creating hostile websites for the purpose of hurting others (12%), and the adolescents who did so appeared to be a unique group. In particular, adolescents who engaged in this form of online aggression appeared to do so for proactive reasons. This is in contrast to adolescents who engage in sending aggressive messages or posting/commenting on embarrassing photos, who do so for largely reactive reasons. It is important to explore this finding further as this particular group of individuals appear to be intentional in their malicious online behaviour and are willing to invest much time and energy in creating a special website for hurting others. Furthermore, the aggressiveness associated with creating hostile websites is very close to that of traditional bullying, in that the intention is to harm another individual, and the permanence of a website parallels the repeated aggressive behaviour generally associated with bullying behaviour.

The finding that having a computer in the bedroom and coming from a single parent family (all variables that were hypothesize as being linked to irresponsible Internet use) did not emerge as significant factors with respect to creating hostile websites indicates the need for more research in this area. Website creation is a sufficiently technologically sophisticated task that, unlike the use of IM or tools to post material to existing websites, the variance associated with skill at creating websites may be the primary characteristic that this sub-group of adolescents have in common. Future research should examine how this unique group of individuals perceives their friendships and social competence, and the nature of their defining characteristics.

It seems evident that there is a distinction between bullying and aggression in the online context, just as there is for the offline context. For the most part, the descriptions of online aggression provided by the sample suggest that adolescents are engaging in reciprocal banter whereby each participant becomes both the target and the perpetrator. This finding is consistent with the factor structure that emerged from this study (i.e., when online, individuals are no longer categorized as perpetrators, targets, and witnesses). The questionnaire data indicated that most individuals' aggressive acts were retaliatory, whereas the interview data revealed that individuals were both proactive and reactive in their aggressive acts. The results suggest that adolescents are able to justify their aggressive behaviour and, for the most part, felt they were reacting to an incident, rather than because they just wanted power. If we re-examine the definition of bullying, it is characterized by aggressive behaviour that is done to another person with the intention to harm, it is repeated, and it is done in order to gain power (Olweus, 1993; Vaillancourt, Hymel, & McDougall, 2003). A grade ten student also described bullying as "one-sided or, you know, lots of people picking on one person." In contrast, in the online aggression incidences described by participants in this study, actual one-sided bullying incidents occurred in only five of 21 incidences, while the remaining incidences (14) were vicious reciprocal arguments that were exacerbated online. Thus, online aggression appeared to be distinct from traditional bullying in that it appeared to be more reciprocal, with the same individuals being victim and aggressor, than has been found in the traditional bullying literature.

6. Conclusions

Overall, it appeared that online aggression differed according to the type of activity adolescents were using as the instrument of their aggression. When it came to sending aggressive messages or comment/posting embarrassing pictures, adolescents reported engaging in these forms of aggression for reactive reasons. However, it is important to note that although the questionnaire data suggested that most adolescents participated in reactive aggression, interview data also revealed that aggressive situations were a combination of proactive and reactive aggression; many individuals felt justified in their own aggressive acts as a form of retaliation, while interpreting the "perpetrator's" aggression as proactive, with intention to harm. By contrast, when it came to creating hostile websites, questionnaire data showed that adolescents did so for solely proactive reasons, thus demonstrating that this is a un-

ique group of individuals who are intentional in their online harm. Adolescents typically used a combination of non-confrontational and confrontational online aggression. The primary reason for these decisions seemed to lie in the feelings of anonymity when aggressing online and also the feeling that they would not be caught and/or reprimanded for their mean behaviour. These findings are consistent with traditional bullying patterns, where, due to limited adult supervision, aggression and bullying are more likely to occur on the playground (Atlas & Pepler, 1998; Craig et al., 2000). Another important finding from this work was whether the computer was in the adolescent's bedroom. Specifically, having a computer in the bedroom was related to both the sending of aggressive messages and developing hostile websites.

7. Limitations

Despite the strengths of this work, several limitations need to be acknowledged. Although the overall sample size was relatively large ($N = 733$), participants were not evenly distributed across grade, sex, and the form of online aggression that occurred. As a result, the power of the analytical procedures for detecting significant differences was probably weakened by the relatively few cases of some of the online venues (specifically creating hostile websites). Future research should examine differences across these online venues with more evenly distributed sample sizes.

Another limitation of the study is that nobody who engaged in creating hostile websites volunteered for the interview portion of the study. Consequently, we were not able to tease out the motivations behind this form of online aggression. Future work should consider examining this form of aggression in its own right, as it does appear to be unique. Also, although fifteen interviews are within the range of acceptable sample sizes for qualitative research, the analysis would have benefited from a larger data set and a greater number of reported incidences. This may be obtained by either spending more time with the existing participants, or interviewing others.

Despite these limitations, this study expands upon the literature by employing a mixed-method design for examining the construct of online aggression and adolescents' motivations for engaging in it. Most importantly, this work highlights the motivations behind online aggression and that a one-size fits all approach to addressing online aggression cannot be employed since most "Cyberbullies" are not, in fact, bullies.

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