Examining the roles young people fulfil in five types of cyber bullying

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**Abstract**

The roles that young people fulfil in face-to-face bullying have been well documented and there is some evidence that young people take on similar roles in cyber bullying. A person centred analytical approach was adopted to identify the roles that young people fulfil across five different types of cyber bullying assessed for up to nine media. Four hundred and forty (281 female and 154 male) 16- to 19-year-olds completed measures to assess their involvement in various types of cyber bullying and across the various media. Cluster analysis identified four distinct groups: "not involved", "rarely victim and bully", "typically victim", and "retaliator". Two thirds of the sample reported some involvement in cyber bullying. Distinct patterns emerged for each group according to the type of cyber bullying. The lack of a clear bully group and the presence of the retaliator group strengthens the growing evidence base that young people may cyber bully others as a mechanism of retaliation when they are the victim of cyber bullying.

*Keywords*: cyber bullying, victims, bullies, bully/victims, retaliation, media

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Compared with previous generations, the current generation of young people are experiencing unprecedented levels of connectivity and spend increasing amounts of time using digital technology (Aricak, Suyahhan, Tanrikulu, & Kinay, 2013).  This increased engagement with technology has been demonstrated to have positively impacted on their psychosocial adjustment (Valkenburg & Peter, 2007) and attainment (Jackson, 2011).  However, such benefits are often offset by more adverse outcomes such as involvement in cyber bullying.  Cyber bullying is an: "(a) intentional aggressive behaviour that is, (b) carried out repeatedly, (c) occurs between a perpetrator and victim who are unequal in power, and (d) occurs through electronic technologies" (Kowalski, Giumetti, Schroeder, & Lattanner, 2014).  Previous research has highlighted that young people fulfil different roles during an episode of cyber bullying including: Bully, victim, bully/victim, and not involved (Wachs, 2012).  However, the extent to which these roles are evident in 16- to 19-year-olds across different types of cyber bullying and a range of media remains unclear.  The present study addresses this issue through the use of a person centred analytical approach, incorporating five types of cyber bullying, assessed separately for up to nine media.

**Roles in cyber bullying**

During a face-to-face bullying episode young people adopt one of six roles: Victim, bully, reinforcer of the bully, assistant of the bully, defender of the victim, and outsider (e.g., Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996).  Young people can also occupy multiple roles simultaneously such as the role of bully/victim where they engage in and also experience bullying at the same time.  There is some evidence that young people fulfil similar roles in cyber bullying (e.g., Bayraktar, Machackova, Dedkova, Cerna, & Ševčíková, 2015; Wachs, 2012), with individuals being classified as: Victims, bullies, and bully/victims.  Victims of cyber bullying are those who report they are the target of cyber

bullying whereas bullies are those who engage in cyber bullying behaviours directed towards others. Previous research exploring cyber bullying has tended to focus on whether young people are a victim (e.g., Gahagan, Vaterlus, & Frost, 2016; Gomez-Garbiello, Sharriff, McConnel, & Talwar, 2012) or a bully (e.g., Fletcher et al., 2014; Kokkinos, Balzidis, & Xynogala, 2016). However, some young people who are the target of cyber bullying also simultaneously engage in cyber bullying behaviours resulting in them being classified as bully/victims (e.g., Lam, Cheng, & Liu, 2013; Selkie, Kota, Chan, & Moreno, 2015).

While the reported prevalence rates of cyber bullying tend to converge between 20% and 40% (Dehue, Bolman, & Vollink, 2008), there is some evidence that proportionally the bully/victim role is the largest of all cyber bullying roles amongst university students (Brack & Caltabiano, 2014) and 5th to 8th grade students (Bauman, 2010). A potential explanation for why individuals so frequently occupy the bully/victim role in cyber bullying is that victims of cyber bullying regularly engage in cyber bullying behaviours as a mechanism to retaliate following their experiences as a victim (Frey, Pearson, & Cohen, 2015). This retaliation simultaneously provides a mechanism for individuals to redress negative feelings associated with being a victim (Varjas, Talley, Meyers, Parris, & Cutts, 2010). Further, engaging in retaliation also serves as a protective measure for the individual by highlighting they are not an easy target and guarding them against subsequent cyber victimisation (Frey et al., 2015; König, Gollwitzer, & Steffgen, 2010). Therefore, to fully assess young people's involvement in cyber bullying it is important to concurrently examine experiences as a victim and bully.

Typically, research that has examined the roles that young people fulfil in cyber bullying has done so through creating cut-off scores based on statistical distributions and then assigning participants to a particular group (e.g., Gradinger, Strohmeier, & Spiel, 2010; Kokkinos, Antoniadou, & Markos, 2014). One of the challenges associated with such an

approach is that modifying the cut-off points alters the number of young people that are eligible to belong to a particular group. For example, when more stringent cut-off points are implemented the proportion of young people identified as bullies is reduced (e.g., see Gradinger et al., 2010) suggesting that the cut-off points can be relatively arbitrary. Person centered analytical approaches, such as cluster analysis and latent class analysis, overcome this issue. By applying criteria that is appropriate to the particular sample studied, heterogeneous groups of participants can be identified (Muthén & Muthén, 2000). Consequently, groups of individuals are created based on their scores on a particular indicator; thus allowing naturally co-occurring experiences to be examined (Anderberg, 1973; Betts & Houston, 2012). When applied to cyber bullying, cluster analysis allows researchers to identify distinct groups based on young people's actual involvement whereby members of the same group have similar experiences which are different from those groups to which they do not belong.

Lovegrove and Cornell (2014) used latent class analysis to identify four groups that varied according to American high school students' involvement in face-to-face bullying. The largest group was the not involved group (65%) and groups also emerged that reflected the bully role (12%), the victim role (16%), and the bully/victim role (8%). Latent class analysis has also been used to explore experiences of workplace bullying (Leon-Perez, Notelaers, Arenas, Munduate, & Medina, 2014). Leon-Perez et al. identified six groups: "Not exposed" (32%), "rarely exposed" (34%), "negative working conditions" (14%), "work related bullying" (12%), "severe bullying" (5%), and "bullying and aggression" (3%). Together, these studies provide support that individuals fulfil different roles in face-to-face and workplace bullying.

To date, only a few studies have adopted a person centred analytical approach to explore involvement in cyber bullying. One such study, conducted with 133 American high

school students, identified four groups of cyber bullying involvement (Aoyama, Barnard-Brak, & Talbert, 2011). The majority of the sample belonged to the "least involved" group (51%), 13% of the sample were "highly involved as bully and victim", 10% "more bully than victim", and 10% "more victim than bully". Consequently, Aoyama et al. argued that there was little evidence that young people fulfilled either the bully or victim role in cyber bullying. More recently, Schultze-Krumnholz et al. (2015) undertook a latent class analysis of 6260 young people's involvement in cyber bullying recruited from 6 European countries. Again, the majority of the sample belonged to the: "Non-involved" group (70.1%). The "bully/victim" group comprised 26.1% of the sample and group members were more likely to report engaging in relational cyber bullying as a bully and experiencing verbal cyber bullying as a target. The "perpetrator with mild victimization" group comprised 4% of the sample and group members reported acting as a cyber bully and most frequently engaging in: Verbal, threats, stealing, and altering personal information forms of cyber bullying. This group also experienced relatively low levels of cyber bullying compared to the amount of cyber bullying they engaged in. Focusing on experiences as a victim in face-to-face bullying and cyber bullying, Barboza (2015) identified four categories of victims through latent class analysis: (1) "highly victimised by both bullying and cyber bullying behaviours" (3.1%); (2) "victims of relational bullying, verbal bullying and cyber bullying" (11.6%); (3) "victims of relational bullying, verbal bullying, and physical bullying but were not cyber bullied" (8%); and (4) "non-victims" (77.3%).

Together, these studies provide some support for the proposition that young people adopt different roles in cyber bullying, although the pattern of results is mixed. For example, there is some suggestion that there are not exclusive bully and victim groups but rather that groups vary with regard to the extent to which they are involved in cyber bullying. However, there are a number of limitations with these previous studies that need addressing. First,

some studies (e.g., Aoyama et al., 2011) have used composite scores of reports of experiences as a victim and bully in cyber bullying. Examining involvement in different types of cyber bullying as a victim and bully would yield a more objective account of young people's experiences (Dehue, 2013). Second, other studies (e.g., Barboza, 2015) have not simultaneous examined cyber bullying behaviours that young people receive and make, akin to the victim and bully roles respectively. Investigating experiences as a victim and bully concurrently is necessary to identify young people who fulfil the bully/victim role and there is clear evidence that these roles co-occur in cyber bullying (Frey et al., 2015). Finally, the studies have not examined young people's involvement in cyber bullying separately across specific media. For example, whilst Schultze-Krumbholz et al. (2015) included 11 different forms of cyber bullying, 4 of the items made reference to more than 1 type of media (e.g., "say nasty things or call someone names using texts or online messages" p53) and 3 items did not specify the type of online media (e.g., "Post embarrassing videos or pictures of others online" p52). In contrast, the approach adopted here was to explore young people's involvement in five types of cyber bullying across up to nine media. For each of the types of cyber bullying and media the young people reported the extent to which they received and made the corresponding behaviour.

**Types of cyber bullying**

There are many different types of cyber bullying and behaviours have been described as either direct or indirect (Vandebosch & van Cleemput, 2009). Direct cyber bullying includes: Physical (e.g., purposefully sending a virus), verbal (e.g., using technology to threaten), non-verbal (e.g., sending obscene images), and social (e.g., excluding someone from a group). Indirect cyber bullying involves spreading gossip and taking part in votes on defamatory websites. More recently, Menesini, Nocentini, and Calussi (2011) operationalised cyber bullying as: Nasty messages, violent images, intimate images, unpleasant images, and silent

phone calls which reflect direct verbal and non-verbal forms of cyberbully. However, the participants of Menesini et al.'s study were asked to report their experiences for some of these types of cyber bullying for one medium whereas for other types they were asked repeatedly for different media. Although this approach acknowledges that young people may experience different behaviours according to the media type, the exclusion of some media for some of the items meant that young people's experiences may not be fully captured. Additionally, one of the challenges associated with asking young people about explicit and sexual images – as Menesini et al. did – is that there is some ambiguity in how young people interpret these images with regard to cyber bullying (Akbulut, Sahin, & Eristi, 2010). Receiving explicit sexual images was interpreted as cyber bullying when the images were sent to an individual and the sender was anonymous but not when the images were perceived to be targeted at a large audience. In addition to types of cyber bullying outlined by Menesini et al., a number of the definitions of cyber bullying (e.g., Bhat, 2008; Borgia & Myers, 2010; Rafferty & Vander Ven, 2014; Raskaiskas & Stoltz, 2007) recognise that threatening behaviour is a key facet of cyber bullying.

Assessing multiple types of cyber bullying and using multiple items gives a more objective account of young people's experiences (Dehue, 2013). Further, by asking young people about multiple types of cyber bullying this ameliorates the risk of potential under-reporting associated with single item measures that assess global levels of cyber bullying (Gradinger et al., 2010). Therefore, drawing on the previous research, the current study assessed young people's involvement in cyber bullying as a victim and bully across five types of cyber bullying selected to reflect direct verbal (i.e., nasty communications, insulting communications, and threatening communications) and direct non-verbal (i.e., violent images and unpleasant images) cyber bullying.

**Media**

As technology has evolved over the last decade, young people's experiences of cyber bullying have also evolved.  For example, the capabilities of mobile telephones have evolved such that they are now the most popular device for getting online in the UK (Ofcom, 2015).  Reflecting young people's technology use, Beale and Hall (2007) argued that cyber bullying could be experienced through instant messengers, social networking sites, email, small text messages, websites, voting booths, and bash boards (a bulletin board where users can post anonymous comments).

Given the potential range of media through which cyber bullying can occur, researchers have argued that rather than assessing cyber bullying across all media simultaneously experiences should be individually assessed for each medium (e.g., Calvete, Orue, Estévez, Villardón, & Padilla, 2010).  Exploring young people's involvement in cyber bullying separately for each media type rather than named platforms or devices is appropriate for two reasons.  First, the perceived popularity of different media platforms is constantly changing as evidenced by the transition by Australian youths from MySpace to Facebook (Robards, 2012).  Second, examining different types of cyber bullying across a range of media enables a more accurate account of young people's involvement in cyber bullying to be assessed (Mehari, Farrell, & Le, 2014).  However, Rivers (2013) argues that because of the issues associated with the changing popularity and capabilities of platforms that whilst it is appropriate to ask about such experiences across individual media is important, focusing on types of cyber bullying is more appropriate.  Therefore, in the current study young people were asked about their involvement in different types of cyber bullying separately for a range of media and then aggregate scores for each cyber bullying type were created such that individuals' experiences as a victim and bully of cyber bullying were explored.

**The current study**

Using a person centred analytical approach, the present study examined the roles that young people fulfil in different types of cyber bullying across a range of media. There are theoretical reasons, based on the face-to-face bullying literature (e.g., Salmivalli et al., 1996), to expect that young people would fulfil one of the following roles of: Bully, victim, bully/victim, and not involved. The roles that young people fulfil may also vary according to whether the cyber bullying is direct verbal or direct non-verbal as Barboza (2015) identified different groups of victims based on the type of bullying and cyber bullying they experienced. Previous research (e.g., Aoyama et al., 2011) has also reported that the roles in cyber bullying can also be distinguished by quantifiable differences in the frequency of being a victim or target. Therefore, the roles that young people fulfil and the type of cyber bullying will also be explored according to the direction of cyber bullying (i.e., the extent to which young people report they are the victim or bully in a cyber bullying episode). Consequently, the current study developed and extended existing research by examining: (a) five types of cyber bullying, (b) cyber bullying involvement across a range of media, and (c) experiences as a victim and target of cyber bullying simultaneously.

## Method

**Participants**

Four hundred and forty (281 female, 154 male, and 5 no gender reported) 16- to 19-year-olds ($M = 16.95$, $SD = .62$ years) participated in the study. The sample was recruited from two sixth form colleges and two secondary schools with sixth form colleges from across the UK. Together, the sample was drawn from a range of socio-economic backgrounds as indicated by the catchment areas. The two sixth form colleges were attended by young people aged over 16; one college has over 2000 students and the other over 450. The secondary schools were attended by 11- to 19-year-olds and both had over 1000 students

registered across all years. The participants reported that they spent approximately 5 hours per day online ($M = 4.72$ hours, $SD = 4.69$ hours). Over half of the participants (57.3%) reported they used technology to access Facebook, 49.8% using Twitter, and 42.5% using YouTube, and 36.4% used technology to complete their academic work, and 28.4% to shop.

**Measures**

   **Cyber bullying received.** Participants were presented with five types of cyber bullying (i.e., nasty communication, violent image, unpleasant image, insulting communication, and threatening communication) and asked to report the frequency with which they had occurred to them over the last year using a 3-point scale: 0 (*Never*), 1 (*Sometimes*), and 2 (*Often*). Based on Beale and Hall's (2007) recommendations, participants were presented with a behaviour (e.g., "How often have you received a nasty…", "How often have you received photos/video of a violent scene via …") and asked to respond separately for eight forms of media: Small text message, email, instant messenger, social network sites, chatrooms, blogs, bashboards, and gaming. Participants were also asked to report the frequency with which they had received nasty communication, insulting communication, and threatening communication via a telephone call. Total scores were created for each type of cyber bullying received yielding a score for: Nasty communication ($\alpha = .68$, 95% CI [.64, .73]), violent image ($\alpha = .61$, 95% CI [.55, .66]), unpleasant image ($\alpha = .68$, 95% CI [.64, .73]), insulting communication ($\alpha = .74$, 95% CI [.70, .77]), and threatening communication ($\alpha = .65$, 95% CI [.60, .70]).

   **Cyber bullying made.** The same measure as for cyber bullying received was used to assess cyber bullying behaviours made (e.g., "How often have you made a nasty…"). Participants were asked to report the extent to which they had engaged in the five types of cyber bullying over the past year for up to nine forms of media using a 3-point scale: 0 (*Never*), 1 (*Sometimes*), and 2 (*Often*). Total scores of cyber bullying made were created by

summing the participants' responses to each media yielding a score for: Nasty communication ($\alpha = .75$, 95% CI [.72, .79]), violent image ($\alpha = .66$, 95% CI [.61, .70]), unpleasant image ($\alpha = .82$, 95% CI [.79, .84]), insulting communication ($\alpha = .75$, 95% CI [.71, .78]), and threatening communication ($\alpha = .68$, 95% CI [.64, .73]).

**Procedure**

Questionnaires were distributed either in an electronic format or a paper format according to the schools'/colleges' preference during a lesson.  The young people were informed that there were no correct answers, that individual responses would be kept confidential, and that all responses would be anonymous.  Consent was initially given by the head teacher at the school/college and letters were sent home to inform parents of the study.  Parents were asked to inform the school/college if they did not want their son/daughter to participate in the research.  In addition, before data collection commenced, the young people gave their consent.

## Results

**Descriptive statistics**

Table 1 presents the descriptive statistics according to type of cyber bullying for each media and split according to whether the behaviour was received or made.  From Table 1, it is apparent that there is variation in the reported involvement in cyber bullying.  Table 2 presents the descriptive statistics of the types of cyber bullying received and made split according to gender and age.  From comparing the means in Table 2, it suggests that males received and made higher levels of cyber bullying on average than females.  Also, the profile of involvement in cyber bullying appears to be broadly similar according to the age of the participants, although the means are lower for the 18-year-olds.

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Insert Table 1 and Table 2 about here

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**Roles in cyber bullying**

Cluster analysis (Ward's method) was initially used to examine whether distinct groups emerged according to young people's involvement in cyber bullying. The aggregate scores for each of the five types of cyber bullying received and made were used in the analysis. The means for nasty communication, insulting communication, and threatening communication could range from 0 to 18. Scores close to 0 would correspond to the response format "*Never*", scores close to 9 would correspond to the response format "*Sometimes*", and scores close to 18 would correspond to the response format "*Often*". The means for violent image and unpleasant image could range from 0 to 16 as telephones were not included in these measures. Again, scores close to 0 would correspond to the response format "*Never*", scores close to 8 would correspond to the response format "*Sometimes*", and scores close to 16 would correspond to the response format "*Often*".

Four distinct groups emerged from the cluster analysis that were validated using direct discriminate function analysis ($p < .001$, Youngman, 1979). The groups were labelled according to the distribution of the means which are shown in Figure 1. The "not involved" group was characterised by very low reports of receiving and making all types of cyber bullying. A third of the sample ($n = 135$, 33%) belonged to the "not involved" group. The "rarely victim and bully" group reported receiving and making some types of cyber bullying although their involvement was lower than all other groups except the "not involved" group. The "rarely victim and bully" group was the second largest group with 164 members (40%). The "typically victim" group reported that they received cyber bullying but rarely engaged in these behaviours. This group had 106 members (26%). The "retaliator" group had the highest involvement in all types of cyber bullying and comprised individuals who reported that they received and made behaviours at a similar level. However, this was the smallest group with 5 members (1%).

The profile of the means presented in Figure 1 has a number of features common to all groups. For all groups, there was also a peak for insulting and nasty communication as a type of cyber bullying. Further, the results suggest that irrespective of group, cyber bullying involving images is less prevalent. Finally, the results of the cluster analysis also reveal that whilst there is a clear victim group (i.e., the "typically victim"), there is no clear group bully group and that victim status and bully status is likely to co-occur for some young people (i.e., the "retaliator group").

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Insert Figure 1 about here

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**Differences in cyber bullying experiences according to role**

Previous research has focused on whether involvement in cyber bullying varies according to cyber bullying type (e.g., Aoyama et al., 2011). However, this effect may also be influenced with regards to whether the behaviour is received or made and the role young people fulfil in cyber bullying. To explore whether there were significant differences in the cyber bullying experiences according to type of cyber bullying, the group a young person belonged to, and reported levels of cyber bullying received and made, a 4 x 5 x 2 (group ["not involved", "rarely victim and bully", "typically victim", "retaliator"] x type [nasty communication, violent image, unpleasant image, insulting communication, threatening communication,] x direction [received, made]) mixed ANOVA was performed. Type and direction were repeated measures (with violations of sphericity dealt with using the Greenhouse-Geisser correction).

**Main effect for group.** There was a significant main effect for group, $F(3, 406) = 572.4$, $p < .001$, $h_g^2 = .42$[1]. Tukey HSD post hoc tests revealed that the overall means for each of the four groups were significantly different from each other ($p < .05$).

**Main effect for type.** A significant main effect also occurred for type of cyber

bullying, $F(3.5, 1426.0) = 66.8$, $p < .001$, $h_g^2 = .024$. The most frequent types of cyber

bullying were insults ($M = 3.51$), and nasty communications ($M = 3.00$). The least frequently

endorsed types of cyber bullying were threatening communications ($M = 2.00$), violent

images ($M = 2.15$), and unpleasant images ($M = 2.24$). Pairwise comparisons adjusted using

the Bonferroni correction revealed significant differences between all types of cyber bullying

($p \leq .003$) with the exception being between unpleasant imagery and threatening

communication, violent and unpleasant imagery, and violent imagery and threatening

communication. These results suggest that the frequency of the various types of cyber

bullying did differ with young people most likely to be involved in indirect and some forms

of direct verbal cyber bullying.

**Main effect for direction.** There was also a significant main effect of direction, $F(1,$

$406) = 37.0$, $p < .001$, $h_g^2 = .008$: Participants reported that they received significantly higher

levels of cyber bullying behaviours ($M = 2.91$) compared to the amount they made ($M =$

$2.25$), irrespective of the group they belonged to and the type of cyber bullying.

**Two way interactions.** There were significant two way interactions between: Group

and type of cyber bullying, $F(10.5, 1426.0) = 57.3$, $p < .001$, $h_g^2 = .078$; type of cyber

bullying and direction, $F(3.4, 1347.3) = 7.0$, $p < .001$, $h_g^2 = .002$; and group and direction,

$F(3.0, 406.0) = 30.9$, $p < 001$, $h_g^2 = .020$. However, all of the two way interactions were

qualified by the significant three way interaction between type of cyber bullying, group, and

direction and we therefore consider these patterns in further detail below.

**Type x direction x group interaction.** As noted, a significant three way interaction

between the type of cyber bullying, direction, and group, $F(10.0, 1347.4) = 2.54$, $p = .004$,

$h_g^2 = .003$, was detected. Figure 1 displays the profile of cyber bullying behaviours received

(akin to being the victim) and made (akin to being the bully) for each type of cyber bullying split according to the four groups identified in the cluster analysis.  Figure 1 also displays 95% confidence intervals for each mean.  From comparing the plots a complex pattern of results emerges; it is evident that each group received and made a different profile of cyber bullying behaviours and these also varied according to type of cyber bullying.  The presence of a three way interaction indicates that the two way interactions reported earlier differ across levels of a third factor.  For ease of interpretation – and in keeping with the person centred approach adopted here – it is useful to focus on how the type and direction of bullying differ between the groups as revealed in Figure 1.

The "not involved" group's profile is characterized by a low and relatively flat rate of endorsement. For threatening communication the rates of making and receiving are both close to zero. The "not involved" group thus have low rates of endorsing all cyber bullying behaviours.

The "rarely victim and bully" although superficially similar in profile to the "not involved" group reveal several distinct features.  First, where the "not involved" group had a relatively flat profile, the "rarely victim and bully" group have notable peaks for both the nasty communication and insulting communication behaviours.  Second, although it is generally more common for this group to receive rather than make these behaviours, this pattern is more uneven. For threatening communications in particular this group makes and receives these behaviours almost equally often – albeit infrequently. In contrast, receiving violent or unpleasant images is much more common than making them (which is at a similar frequency to making threatening communications).  Thus rates of endorsing cyber bullying behaviours, while low, are generally higher than for the "not involved" group and the most marked differences are around receiving violent or unpleasant images and both making and receiving of insulting or nasty communications.

The profile of the "typically victim" group has a number of prominent features. In this group there is a clear and consistent separation of the levels of making and receiving cyber bullying behaviours. This group are more likely to receive than make each of the behaviours, with the endorsement of making or receiving being highest for insulting and nasty communications. Violent images, unpleasant images, and threatening communications are least likely types of behaviour to be endorsed, but are still more frequently endorsed than in either the "not involved" or "rarely victim and bully" group. This group are more likely to be involved in all cyber bullying behaviours than the "not involved" or "rarely victim and bully" group, but are consistently more likely to be the receivers than the makers of these behaviours.

The "retaliator" group had the highest rates of receiving and making all types of cyber bullying. However, for this group – where sample size and hence statistical power is lowest – there were no clear differences between the frequency with which the young people received and made each type of cyber bullying except insulting and threatening communications (as denoted by the substantial overlap of the 95% CIs[2]; Figure 1). In addition, where all three other groups had profiles dominated by the nasty and insulting communications, for the "retaliator" group other types of cyber bullying behaviours (notably violent and unpleasant images) were at comparably high levels, although it should be noted that the frequency of receiving insulting communications is markedly higher and making threatening communications is more common than receiving them (and far higher than for any other group). The "retaliator" group is thus characterised by high rates of both making and receiving all cyber bullying behaviour including the most direct forms of cyber bullying such as threats.

While patterns of differences in types of cyber bullying are relatively consistent across groups, the size of these differences varies within group and differs in direction in some but not all groups.

### Discussion

The current study examined the roles that young people fulfilled in different types of cyber bullying across a range of media. Young people reported that they were more likely to receive rather than make all types of cyber bullying behaviours. The most frequently reported types of cyber bullying were insulting communications and nasty communications and the least frequently reported types of cyber bullying were threatening communications, violent images, and unpleasant images. Young people in this sample were therefore more likely to be involved in some types of direct verbal cyber bullying rather than direct non-verbal cyber bullying.

The results of the cluster analysis identified four distinct groups that varied according to the young people's involvement in cyber bullying: "Not involved"; "rarely victim and bully"; "typically victim"; and "retaliator". A third of the sample belonged to the "not involved" group which consisted of young people who reported that they received and made cyber bullying behaviours very infrequently over the previous year. Previous research with face-to-face bullying and cyber bullying has identified a similar group of young people (e.g., Lovegrove & Cornell, 2014; Schultze-Krumnholz et al., 2015). However, in the current study the relative proportion of the sample that belonged to the "not involved" group was 33%, somewhat lower than the previous estimates which range from 65% (Lovegrove & Cornell, 2014) to 77.3% (Barboza, 2014).

The "rarely victim and bully" group reported slightly higher involvement in cyber bullying than the "not involved" group at levels significantly lower than the "typically victim" and "retaliator" group. Focusing on the type of cyber bullying, the "rarely victim and

bully" group were more likely to receive direct non-verbal and indirect cyber bullying than make it. While members of this group did not fulfil one of the expected victim, bully, bully/victim, and not-involved roles in cyber bullying, the presence of the "rarely victim and bully" group does indicate that it may be appropriate to make distinctions according to the frequency of involvement in cyber bullying. For instance, previous research into workplace bullying has identified groups that varied according to the frequency with which individuals are involved in bullying (Leon-Perez et al., 2014). Furthermore, considering levels of involvement in cyber bullying is also appropriate because unlike face-to-face bullying which typically ends with the school day, cyber bullying can occur at any time of the day or night. The potential for constant connectedness means that it is harder for victims of cyber bullying to escape their bully than would be the case in face-to-face bullying (Davies, Randall, Ambrose, & Orand, 2015). Also, an emerging line of research reports that young people who are frequently involved in cyber bullying are more likely to experience psychosocial adjustment than those who are not involved or who are infrequently involved (Rivituso, 2014).

The "typically victim" group equated to 26% of the sample and was the only group of young people to report that they received significantly more cyber bullying than they made. Further, with the exception of the "retaliator" group, this group reported that they received the highest levels of all types of cyber bullying. Although the "typically victim" group is akin to a victim only group that has been reported in face-to-face bullying (e.g., Lovegrove & Cornell, 2014), previous studies using similar methodologies that have examined involvement in cyber bullying behaviours have failed to identify such a group (e.g., Schultze-Krumnholz et al., 2015). Some of the digital technology that young people use to cyber bully others enables users to post comments whilst remaining anonymous or to manipulate their true identity. Therefore, because a broader array of media were examined in the current

study, the presence of the "typically victim" group may be indicative of those young people who do not know who is cyber bullying them and, as such, cannot take steps to reduce their exposure.

Finally, the "retaliator" group had the highest reported levels of receiving and making direct verbal (except threatening communication) and direct non-verbal cyber bullying. This group are likely to be akin to bully/victim groups identified in the previous literature (e.g.,Aoyama et al., 2011; Lovegrove & Cornell, 2014; Schultze-Krumnholz et al., 2015). However, what sets this group aside from those groups identified in previous studies is that the levels of cyber bullying received and made are identical (except threatening communication). Consequently, this "retaliator" group provides further support for Frey et al.'s (2015) claim that some young people who experience cyber bullying engage in similar behaviours as a mechanism for dealing with their experiences. Specifically, young people may retaliate to: Reduce the negative emotions associated with being a victim of cyber bullying (Varjas et al., 2010) or demonstrate to peers that they are not an easy target to prevent further reprisals (König et al., 2010). The level of similarity in the cyber bullying behaviours that this group of young people receive and make is perhaps unsurprising given that cyber bullying is not constrained by geographical proximity (Kite, Gable, & Filippelli, 2010) and some of the power dynamics associated with face-to-face bullying are neutralised by technology (Lapidot-Lefler & Dolev-Cohen, 2015).

Despite the identification of the "not involved", "typically victim", and "retaliator" groups, the distribution of the roles in cyber bullying in the current study showed some differences from those reported in previous studies that have adopted similar methods (e.g., Aoyama et al., 2011; Schultze-Krumnholz et al., 2015). For example, although the "typically victim" group may be indicative of a victim-only group, there was no evidence of a bully-only group. From the theoretical accounts of the roles young people fulfil in face-to-face

bullying (e.g., Salmivalli et al., 1996) and the previous research that has used similar techniques to identify roles in cyber bullying (e.g., Aoyama et al., 2011), the lack of a clear bully group for cyber bullying in the current study is perhaps surprising. There are three potential explanations for this lack of a clear bully group. First, the method used to assess involvement in cyber bullying was different to those used in previous research. The current study extended previous research by asking young people to report whether they received or made five different types of cyber bullying, across up to nine types of media yielding a more comprehensive account. Second, the power dynamics in cyber bullying are different from those in face-to-face bullying which may impact on young people's propensity to engage in cyber bullying. The literature suggests that victims of face-to-face bullying tend to physically weaker than the bully (Smith, 2004); however, the effects of physical strength are ameliorated in cyber bullying by the technology (Lapidot-Lefler & Dolev-Cohen, 2015). Therefore, victims may engage in cyber bullying to "get their own back". Further, the current study accounted for this potential retaliation by simultaneously examining experiences as a victim and a target across five types of cyber bullying which represents an extension of the previous research.

Finally, the anonymity that digital technology affords individuals who engage in cyber bullying behaviour may also prompt those who are victims to engage in cyber bullying. Specifically, not only can bullies hide their identity from their victim, bullies are also more likely to be anonymous to the consequences of their actions than they would be in face-to-face bullying because they are not in the same physical space (Anderson & Strum, 2007). Together, this approach in the current study yielded a more objective account of cyber bullying (Dehue, 2013) and revealed differences in patterns according to whether the cyber bullying was direct verbal or non-direct verbal whilst recognising that young people use a range a media.

The lack of a clear bully group, the co-occurrence of receiving and making different types of cyber bullying, and the variation in the types of cyber bullying young people are involved with according to their group have implications for the development of anti-cyber bullying interventions.  Although we did not determine the direction of causality with regard to cyber bullying behaviours received and made, it seems that it is important to raise young people's awareness of appropriate behaviours when using technology.  For example, interventions could be developed dissuade retaliation but rather enhance coping skills similar to the online 'pestkoppenstoppen' (stop bullies online/stop online bullies; Jacobs, Völlink, Dehue, & Lechner, 2014) so that young people do not enter a cyber of retaliation and counter-retaliation for cyber bullying.  Raising young people's awareness of appropriate behaviours when using technology could also go some way to highlighting the legal consequences of cyber bullying as Paul, Smith, and Blumberg (2012) advocate.

There were a number of limitations associated with the current study.  First, despite examining more types of cyber bullying than previous studies, only five forms of cyber bullying were examined.  Therefore, future research should seek to replicate the current findings using a broader array of behaviours to include physical cyber bullying and the growing trend of sexting (McEllrath, 2014).  Second, totals were created to reflect the type of cyber bullying young people received and made.  Consequently, although young people were asked to report their experiences across a range of media, the clusters that emerged were not examined according to media type.  Therefore, whilst the findings of the current study guard against potential individual differences in the type of media that young people use, they do not take in to consideration whether different patterns of cyber bullying involvement occur according to media type which should be addressed in subsequent research.

In summary, young people fulfilled one of four roles: "Not involved", "rarely victim and bully", "typically victim", and "retaliators".  Together, these roles point to distinct patterns of involvement in cyber bullying that vary by frequency and type.

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**Footnotes**

[1] We choose to report the statistic generalized eta-squared ($h_g^2$) in preference to the

commonly reported statistic partial eta-squared ($h_p^2$).  Generalized eta-squared describes the

proportion of sample variance account for by a factor after accounting for the design features

of the study, and hence in a way that facilitates comparisons between studies (Olejnik &

Algina, 2003).  Note $h_p^2$ would produce much higher estimates of effect size, but those

estimates are generally highly misleading (e.g., see Baguley, 2012).  For instance, $h_p^2$

between clusters is .81 (and total $h_p^2$ is 1.55 or 155% of sample variance).  The overall

sample variance accounted by all effects is 54% - a high level of explanatory power for such

a complex set of behaviours.

[2] As a rule of thumb CIs that overlap by more than a third indicate statistically non-

significant differences on an uncorrected test (see Baguley, 2012).

Table 1

*Means and standard deviations for each type of cyber bullying, media and according to whether the behaviour was received or made*

| | Nasty communication | | Violent image | | Unpleasant image | | Insulting communication | | Threatening communication | |
|---|---|---|---|---|---|---|---|---|---|---|
| | M | SD | M | SD | M | SD | M | SD | M | SD |
| Cyber bullying received | | | | | | | | | | |
| Telephone call | .18 | .40 | | | | | .26 | .47 | .11 | .32 |
| Text | .46 | .55 | .10 | .32 | .19 | .44 | .48 | .55 | .16 | .40 |
| Email | .05 | .23 | .05 | .23 | .08 | .26 | .06 | .27 | .02 | .16 |
| IM | .29 | .50 | .11 | .34 | .17 | .43 | .28 | .48 | .11 | .32 |
| SNS | .36 | .55 | .55 | .68 | .56 | .68 | .37 | .55 | .14 | .37 |
| Chatroom | .07 | .31 | .04 | .24 | .05 | .27 | .04 | .25 | .03 | .18 |
| Blog | .06 | .27 | .06 | .25 | .08 | .33 | .06 | .29 | .02 | .14 |
| Bashboard | .05 | .26 | .03 | .18 | .03 | .19 | .04 | .26 | .03 | .18 |
| Gaming | .33 | .66 | .08 | .33 | .05 | .29 | .27 | .63 | .19 | .52 |
| Cyber bullying made | | | | | | | | | | |
| Telephone call | .11 | .33 | | | | | .16 | .40 | .06 | .25 |
| Text | .37 | .52 | .05 | .22 | .10 | .32 | .43 | .54 | .10 | .30 |
| Email | .03 | .19 | .02 | .14 | .02 | .18 | .03 | .18 | .01 | .12 |
| IM | .20 | .42 | .05 | .22 | .08 | .27 | .24 | .46 | .05 | .23 |
| SNS | .22 | .43 | .04 | .22 | .09 | .30 | .22 | .44 | .06 | .25 |
| Chatroom | .03 | .19 | .02 | .15 | .01 | .13 | .03 | .23 | .01 | .12 |
| Blog | .03 | .19 | .01 | .13 | .02 | .15 | .02 | .15 | .01 | .07 |
| Bashboard | .02 | .16 | .01 | .12 | .01 | .13 | .02 | .17 | .02 | .16 |
| Gaming | .16 | .48 | .02 | .18 | .01 | .08 | .02 | .16 | .09 | .37 |

*Note*. Participants did not provide imagery based items via telephone calls.

Table 2

*Composite means and standard deviations for the types of cyber bullying according to whether they were received or made split for gender and age*

| | Gender | | | | Age | | | | | |
| | Female | | Male | | 16 | | 17 | | 18 | |
| | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
|---|---|---|---|---|---|---|---|---|---|---|
| Received… | | | | | | | | | | |
| … nasty communication | 1.71 | 1.97 | 2.15 | 2.29 | 1.64 | 1.88 | 2.06 | 2.25 | 1.37 | 1.65 |
| …violent image | .83 | 1.17 | 1.34 | 1.83 | 1.09 | 1.26 | 1.06 | 1.58 | .69 | 1.10 |
| …unpleasant image | 1.08 | 1.48 | 1.49 | 2.13 | 1.14 | 1.37 | 1.31 | 1.90 | .97 | 1.56 |
| …insulting communication | 1.69 | 2.00 | 2.25 | 2.64 | 1.62 | 1.72 | 2.11 | 2.51 | 1.24 | 1.63 |
| …threatening communication | .61 | 1.23 | 1.09 | 1.72 | .82 | 1.23 | .84 | 1.59 | .47 | .94 |
| Made… | | | | | | | | | | |
| … nasty communication | .87 | 1.20 | 1.67 | 2.10 | 1.07 | 1.38 | 1.22 | 1.73 | .96 | 1.44 |
| …violent image | .08 | .42 | .46 | 1.46 | .11 | .52 | .27 | 1.10 | .13 | .68 |
| …unpleasant image | .16 | .55 | .67 | 1.50 | .20 | .59 | .43 | 1.20 | .20 | .58 |
| …insulting communication | .99 | 1.28 | 1.92 | 2.58 | 1.31 | 1.61 | 1.38 | 2.08 | 1.03 | 1.42 |
| …threatening communication | .12 | .45 | .85 | 1.68 | .22 | .66 | .44 | 1.27 | .30 | .90 |

*Note.* Data from one participant who was 19 was excluded from the descriptive statistics according to age.

*Figure 1*. The profile of means (with 95% confidence intervals) for each group