

## **Hunter or prey? Exploring the situational profiles that define repeated online harassment victims and offenders**

Asier Moneva <sup>a\*</sup>, Fernando Miró-Llinares <sup>a</sup> and Timothy C. Hart <sup>b</sup>

<sup>a</sup> *Crimina Center for the Study and Prevention of Crime, Miguel Hernández University, Elche, Spain;* <sup>b</sup> *Department of Criminology, University of Tampa, Tampa, Florida*

\* Correspondence: Avda. de la Universidad, s/n. Hélike building. 03201, Elche (Spain).

Email: amoneva@crimina.es

Asier Moneva is research personnel in training (FPU16/01671) at Crimina Research Center for the Study and Prevention of Crime at Miguel Hernandez University of Elche. Asier is a member of the Cybercrime Working Group of the European Society of Criminology. His research interests include cybercrime analysis and prevention from a situational perspective.

ORCID: <https://orcid.org/0000-0002-2156-0213>

Twitter: @crimoneva, Email: amoneva@crimina.es

Fernando Miró-Llinares is Professor of Criminal Law and Criminology at Miguel Hernandez University of Elche and Chair of the Crimina Research Center for the Study and Prevention of Crime. Fernando is a board member of the Cybercrime Working Group of the European Society of Criminology. His research interests include cybercrime, artificial intelligence in criminal justice, ethics, and crime prevention.

ORCID: <https://orcid.org/0000-0001-6379-5857>

Twitter: @FernandoQPH, Email: f.miro@crimina.es

Timothy C. Hart is Assistant Professor at University of Tampa and Adjunct Member of the Griffith Criminology Institute at Griffith University. His research interests include applied statistics and quantitative methodologies, victimization, and spatiotemporal crime patterns.

ORCID: <https://orcid.org/0000-0003-3274-3661>

Email: thart@ut.edu

## **Hunter or prey? Exploring the situational profiles that define repeated online harassment victims and offenders**

Data collected from a sample of Spanish non-university students ( $N = 4174$ ) were used to identify unique situational profiles of self-identified repeated online harassment victims and offenders, through a Conjunctive Analysis of Case Configurations (CACC) (Miethe et al., 2008). Repeat victim and offender profiles were constructed using individual-level factors and variables related to the cyber “places” where students go online and their personal information they share while there. Clustering analysis demonstrates that students spent their time online in few situational contexts where online harassment occurs. Dominant situational profiles of students are then provided, along with their associated probabilities for experiencing repeat victimization or committing repeat offending, identifying those at relatively higher and lower risk. Results show that composite profiles associated with victims of repeated online harassment are dissimilar to those associated with offenders of repeated online harassment, suggesting that each form of online harassment occurs in different situational contexts and therefore requires different preventative measures. Our findings are discussed in terms of criminological theory, future online harassment research, cybercrime prevention, and policy implications.

Keywords: online harassment; cyber places, CACC, conjunctive analysis, situational profiles.

### **Introduction**

Online harassment among young people is often described differently based on the origin, frequency, and nature of the behavior. In general, cyberstalking is understood to be a form of continuous online harassment, but may be characterized as cyberbullying when the aggressor is known to the victim (e.g., a classmate) (Miró-Llinares, 2012). Studying these behaviors can be challenging because myriad definitions for similar behaviors have been established within the empirical literature (Wolak et al., 2007). This lack of consensus in defining online harassment can also make measuring the phenomenon a tricky endeavor (Patchin & Hinduja, 2015). For these reasons, it is not

surprising that a recent systematic review of online harassment studies found that prevalence rates varied considerably, between 1% and 41% for perpetration and between 3% and 72% for victimization (Selkie et al., 2016).

Researchers have also investigated similarities and differences between traditional or offline harassment and similar behaviors that occurs online (Beran & Li, 2008). These studies often hypothesize that a substantial proportion of online harassment behaviors originate from a previous interpersonal relationship. Researchers also acknowledge that although offline and online behaviors may be related, they also have unique defining characteristics that distinguish them from one another. For example, Henson (2010) describes three main differences between online and offline harassment: (1) the physical proximity between offender and victim (i.e., place); (2) the time of commission of the offence, and (3) the effective prevention measures for each modality. In terms of place, while offline harassment may occur at the workplace or on the street, online harassment occurs in cyber places, including in chat rooms and on social media (Ybarra & Mitchell, 2008). With respect to time, offline harassment requires direct convergence between offenders and victims, but online settings allow communication to be streamed or asynchronous. Additionally, a number of successful strategies aimed at preventing offline harassment (see, for example, Ttofi & Farrington, 2011) may incorporate new measures (e.g., parental monitoring) that can also be effective against online harassment (Khurana et al., 2015). Therefore, to be effective online, preventive measures must be implemented according to the convergent environments defined by the factors described above.

Drawing on the original Routine Activities Approach (RAA) (Cohen & Felson, 1979) and inspired by its adaptation to cyberspace (Holt & Bossler, 2008), we demonstrate an alternative method to analyzing the place and time dimensions of

online harassment among young people. Our aim is to identify the situational patterns in offending and victimization that can inform the creation and implementation of crime prevention measures at the micro level. To accomplish this goal, several online convergence settings (i.e., social media) in which young people spend their time and interact with each other are examined. As a result, the paper makes an innovative contribution to the existing literature in two meaningful ways: first, it contributes to criminological theory by incorporating the concept of cyber place (Miró-Llinares & Johnson, 2018) for the development of studies on routine activities and cybercrime; and second, it adds to applied crime prevention research by exploring the relationship between crime and place using configural thinking and conjunctive data analysis techniques (Miethe et al., 2008).

The next section presents the theoretical framework used in the current study, which aims to help explain the relationship between the cyber places where online harassment manifests and the routine activities that users undertake within them. The theoretical framework serves to contextualize three research questions. Then the methodology used in the present study, the measures used, and the analytical strategy based on the Conjunctive Analysis of Case Configurations (CACC) (Miethe et al., 2008) to answer our questions are presented. Results are structured and presented sequentially, according to the current research questions. Finally, a discussion of the results in relation to criminological theory and the prevention of cybercrime, as well as the implications for policy making, is presented. This section is followed by some concluding comments.

### **Routine activities and victimization in cyber places**

The RAA (Cohen & Felson, 1979) is a theoretical framework used in the analysis of contextual opportunities that produce crime events; it has been one of the most

frequently empirically tested theories for various forms of cybervictimization (Holt & Bossler, 2016). To help explain victimization processes further, criminologists have also relied on Lifestyle Theory (LT), a theory of criminality that explains the propensity of certain individuals to become victims according to their lifestyle (Hindelang et al., 1978). Some scholars suggest that both theoretical frameworks possess important synergies; and as a result, offer a third integrating construct of both: The Lifestyle-Routine Activities Theory (Holt & Bossler, 2008; Reyns et al., 2011). However, merging these two theories can be confusing because LT is a theory of criminality that focuses on individuals, while RAA focuses on events (Hirschi & Gottfredson, 1986). To address specific crime problems in cyberspace, RAA has generally been applied to explain the spatio-temporal convergence of motivated offenders and suitable victims when a capable guardian is absent (Cohen & Felson, 1979).

Debate over the applicability of RAA in cyberspace research has both supporters (e.g., Grabosky, 2001; Pease, 2003) and detractors (e.g., Yar, 2005). This debate was purely theoretical until scholars put the RAA model into practice by operationalizing its essential elements in cyberspace (e.g., Choi, 2008; Holt & Bossler, 2008; Hutchings & Hayes, 2008). Usually, victims were measured with self-reported victimization and their suitability with online exposure measures. Guardians and their absence were measured through personal guardianship (e.g., parent monitoring) and technical guardianship (e.g., antivirus software) variables. However, as with more traditional RAA studies, the motivated offender has been largely ignored and rarely measured with self-reported offending. Since RAA was first measured for cybercrime analysis, a growing body of empirical evidence consistently indicates that RAA has contributed to a better understanding of the dynamics of different forms of cybercrime (for a review, see Leukfeldt & Yar, 2016).

While some have not found complete support for the application of RAA to cyberspace, as it relates various forms of economic cybercrime (Leukfeldt, 2014), others have obtained promising results (Bossler & Holt, 2009; Petrescu et al., 2018). Furthermore, in his study on identity theft, Reyns (2013) found that this framework had explanatory potential beyond the criminality that required physical convergence. These contradictory results could be explained by the fact that there is not a standardized model for applying RAA to cyberspace, since neither the models used in most studies are not similar, nor are the ways in which the variables included in them are measured. Regarding the various forms of social cybercrime, existing scholarship shows greater consistency between studies using RAA as an explanatory framework (Marcum, Ricketts, et al., 2010; Reyns et al., 2011; Wolfe et al., 2016). Collectively, these studies show how the application of RAA to cyberspace has been more successful in explaining cyber-enabled crimes in which the convergence between people in digital spaces is evident and strongly conditioned by everyday offline activities.

In addition to risk factors related to the everyday activities undertaken by victims, findings from other studies suggest that RAA is an appropriate framework for studying cybervictimization. For example, studies show that people who have admitted to committing a cyber offence, or who have associated with peers who have done so, are more likely to experience a subsequent cybervictimization (e.g., Holt & Bossler, 2008; Ngo & Paternoster, 2011; Reyns et al., 2011). As with certain criminal dynamics in physical space, these findings suggest that some cybercrimes are also likely to generate homogeneous pools of offenders and victims. Thus, there appears to be elements other than those related to the suitability of potential victims that also affect the likelihood of participating in a cybercriminal dynamic.

Existing scholarship also suggests factors that influence the likelihood of cybervictimization are related to individual and environmental characteristics that define digital spaces where people converge and interact (Leukfeldt & Yar, 2016; Miró-Llinares, 2015; Miró-Llinares, Moneva, & Esteve, 2018). As in the physical space, these digital places or cyber places have certain characteristics that (1) affect the way people contact each other, (2) define the forms of surveillance and their scope, and (3) condition the different activities carried out in them (Miró-Llinares & Johnson, 2018). Because online harassment requires a specific form of convergence to occur, these elements may configure cyber places in such a way that victimization and offending is more/less likely to occur. For example, prolonged use of chat rooms by teenagers increases their chances of becoming victims of online harassment (Marcum, Higgins, et al., 2010; Ybarra & Mitchell, 2008). Similarly, users who have many social media accounts and add strangers as friends are more likely to be harassed (Henson et al., 2011).

Social media are cyber places mostly transited by teenagers and young adults. When social media users interact, there is an exchange of information that can include both live streaming, and store-and-forward interactions – when information is stored but sent/received later (Miró-Llinares & Johnson, 2018). In addition, social media contain digital microenvironments where natural surveillance and surveillance capacity can vary across platforms as the timelines where users publish their posts are usually public environments, while the spaces for personal messaging are usually private (Miró-Llinares et al., 2018). And while some social media allow thousands of users to interact at the same time, others limit their capacity to a few hundred. The use of social media (e.g., leisure, work), defines the type of activities that users perform in them and, consequently, shapes crime opportunities. Thus, certain activities, such as the

publication of opinions, habits of daily life, or personal information, also appear to be related to an increased risk of victimization (Choi & Lee, 2017). Similarly, excessive use of the social media Facebook increases the likelihood of online harassment (Näsi et al., 2017). On the contrary, these same authors found that receiving greater social control, defined by the number of friends in each account, does not have a protective effect against online harassment.

In summary, existing research shows that the application of RAA as an explanatory framework for studying cybercrime has produced a large and growing body of empirical knowledge, with three key aspects emerging. First, despite highlighting the value of convergence between offenders and targets, this theoretical framework has been applied mainly from a victimological perspective, focusing on variables that constitute both risk and protective factors that influence cybervictimization dynamics. This necessitates more cybercrime research that focuses on offenders (Bottoms, 2012; F. T. Cullen & Kulig, 2018; Miró-Llinares & Moneva, forthcoming). Secondly, and in line with Vakhitova, Reynald, and Townsley's (2016) interpretation of the studies on cyber abuse and RAA, these risk factors have been more or less correctly related to one of the three minimum elements for the occurrence of the crime, a combination known as the Chemistry of Crime (Felson & Eckert, 2019): motivated offender, suitable target, and the absence of a capable guardian, but who have separated themselves from the other essential elements to avoid the occurrence of the event that gathers the triangle of the crime (Cullen, Eck, & Lowenkamp, 2002): the place, the manager, and the handler. In this sense, some have discussed the use of place-based approaches and have contributed to developing a theoretical environmental framework for analyzing crime events in cyber places (Miró-Llinares & Johnson, 2018; see also Reyns, 2010). Thirdly, previous studies show that researchers consider a wide range of digital environments



relevant for the study of the criminal opportunity outside the cybercrime object of study, but that their analysis has not been carried out from the prism of the event, emphasizing the context in which cybercrime occurs, but in the individual actors who participate in it (Miró-Llinares & Moneva, forthcoming).

### **The Present Study**

By analyzing the influence of the cyber place where online harassment may occur, the present study pursues three objectives: (1) to determine whether online harassment repeat victimization and offending among students is context-dependent, using conjunctive analysis of case configurations; (2) to determine which dominant situational contexts define self-reported online harassment repeat victimization and offending among students; and (3) to determine whether repeat online harassment is defined by a homogeneous pool of victims and offenders, by testing whether distributions of dominant case configurations associated with each group are statistically similar.

### ***Sample***

A probabilistic sampling method stratifying by sex, age and area of residence (i.e., rural or urban) in Castile-Leon (Spain) was carried out to select the respondents for this study. Castile-Leon is an Autonomous Community consisting of nine provinces, most of them low density populated. Once the number of participants was calculated for each stratum, the classrooms containing the right number of students were accordingly selected for the survey to be administered. Our sample of Spanish non-university education students ( $N = 4174$ ) was comprised of 1999 males (47.9%) and 2175 females (52.1%), ranging from 12 years to 21 years ( $M = 15.44$ ;  $SD = 1.87$ ) of age. All subjects included in the sample use at least one social media on a daily basis and spend at least 1 hour online every day. Relative to the non-university educated population in Spain, our

sample was very similar in terms of sex and age according to National Institute of Statistics (INE) official figures (INE, 2018).

### ***Instrument***

To collect our sample, an *ad hoc* online survey was administered in local schools, supervised at the time by classroom teachers, which helped ensure students understood survey questions and assist students with questions about the survey when they arose. Given the sensitive content of the survey, its design was elaborated in a joint effort of methodologists, criminologists, and jurists, and then adapted to a language that could be understood by school-aged children. The instrument was comprised of four groups of questions: (1) sociodemographic questions that queried students about their sex and age, (2) questions related to students "routine activities" in cyberspace, which were designed to measure social media use and school-children's habits, (3) questions designed to measure self-reported online harassment victimization, (4) and questions designed to measure self-reported online harassment offending behaviors.

### ***Dependent variable: Online harassment***

Existing empirical scholarship fails to provide a consensus definition for online harassment (i.e., cyberharassment). Instead, there is considerable debate on the use and operationalization of this behavior, with some suggesting it is synonymous to cyberbullying and cyberstalking, which has led to confusion among researchers (Patchin & Hinduja, 2015; Wolak et al., 2007). For the current study, we use a behaviorally-defined definition of online harassment: experiencing repeated, unwanted, harassing behavior that would likely cause a reasonable person to become fearful or worried (Finn, 2004; Wall, 2003).

To define online harassment, we refer to five self-reported behaviors related to repeated, unwanted, harassing online contact: (1) insulting and humiliating, (2) spreading rumors, (3) marginalizing, (4) threatening, and (5) pretending to be someone else. Each of these measures is dichotomous. Participants who claimed to commit or suffer at least one of these repeat behaviors were labelled as online harassment “repeat victims” and “repeat offenders”. Elements of intent and harm were integrated in the design of each question to identify online harassment offenders. In these questions, we measured intent by asking students whether their online behavior was “intended” to “cause harm”. Following Wolak and colleagues (2007), the questions referred to incidents occurring during the last year. The questions were formulated as follows: “In the last year, have you repeatedly [self-reported behavior] someone online?” —for measuring repeat offending—; and “In the last year, has anyone repeatedly [self-reported behavior] you online?” —for measuring repeat victimization—.

### *Independent variables*

A total of 10 predictors of online harassment victimization and offending were used in the analysis that follows. Three of the 10 correspond to individual-level characteristics, whereas seven are related to cyber places where adolescents spend their time online.

#### *Individual factors*

Developmental and life-course criminology literature has found a relationship between sex and specific age intervals and criminal propensity for offending and victimization (Farrington et al., 1990; Moffitt et al., 2001). In addition, it has been found that young adults are those who are most likely to spend most of their time online (Hargittai & Hinnant, 2008) and are also among the age group most likely to be victimized or offend

(Cops & Pleysier, 2014). To examine this relationship, three age intervals have been defined as (1) 12 – 14 years, (2) 15 – 17 years, and (3) 18 – 21 years. Note that the legal age of majority in Spain is 18 years old, so these age intervals were set on the recommendation of the Department of Education of the Governing Council of Castile-Leon, accounting for the possible policy-making implications of the findings. The age intervals of the underage participants were further divided into two groups based on a similar recommendation, given their different degree of maturity<sup>1</sup>. Although lower secondary schooling is often completed by the age of 16 in Spain, some of the participants were either repeating grades or studying professional training courses in the same school. Students' sex was also recorded and coded "0" for females and "1" for males.

Previous research also suggests that spending more time online increases the likelihood of exposure to deviant behaviors (Bossler & Holt, 2009; Hinduja & Patchin, 2008). For this reason, and under the category of routine activities, a measure designed to gauge the amount of time students reportedly spent online each day was included in the analysis through the following question "How many hours a day do you spend surfing the Internet?" and possible answers "Less than 1 hour", "From 1 to 3 hours", "From 4 to 7 hours", "From 8 to 15 hours", and "More than 15 hours". For participants it may be difficult to determine exactly how much time they spend on the Internet and, in addition, only 0.8% of participants reported spending less than 1 hour per day on the Internet and none more than 15 hours, so responses were recoded into three categories: (1) less than 4 hours, (2) 4 – 7 hours, and (3) more than 7 hours.

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<sup>1</sup> Personal communication.

*Cyber place-related factors*

Victims play an important role when it comes to determining their own online harassment victimization risk by incorporating certain assets to digital spaces (Miró-Llinares, 2015). Considering adolescents spend much of their time interacting with each other and building online relationships using social media (Subrahmanyam et al., 2008), another set of factors were included in the analysis that follows to help understand the role that these cyber places play in online harassment behaviors. These variables measure (1) whether students used various social media every day through the following question “Which of the following social media do you use daily? (You can choose more than one option)” and possible answers “I do not use social media”, “Snapchat”, “Instagram”, “Facebook”, “Twitter”, and “Another, which one?”; (2) whether students uploaded their name and photos to their social-network profiles through the following question “What kind of personal data do you publish in social media? (You can choose more than one option)” and possible answers “I do not publish any personal data”, “First name and/or surname”, “Personal photos”, and “Another, which one?”; and (3) whether they restrict other users’ access to them through the following question “Do you restrict access to your social media (only your contacts can see your information)?” and possible answers “Yes”, and “No”. Including each of the multiple response options, these variables were coded as dichotomized, where 0 indicates “No” and 1 indicates “Yes”.

The national studies conducted by Van Wilsem (2011, 2013) revealed that online harassment victimization was related to interacting through social media. A matrix question regarding which social media were used daily included a list of seven possible answers: Instagram, Twitter, Snapchat, Facebook, Periscope, Ask.FM, and the option Other as an open answer. According to their popularity among students, the top

four social-network sites, in terms of their usage, were then selected and included in the dataset. The others were not included in our analysis.

Table 1 contains all measures used in the analysis that follows, presented by self-reported online harassment victim/offender status.

Table 1. Descriptive statistics for self-reported online harassment repeat victims and offenders

Variable	Total		Online harassment status			
	(N = 4174)		Repeat victim (N = 1401)		Repeat offender (N = 514)	
	n	%	n	%	n	%
Individual factors						
Age						
12-14	1561	37.4	447	31.9	152	29.6
15-17	2148	51.5	753	53.7	304	59.1
18-21	465	11.1	201	14.3	58	11.3
Sex						
Female	2175	52.1	795	56.7	201	39.1
Male	1999	47.9	606	43.3	313	60.9
Time online						
< 4 hours	2105	50.4	585	41.8	213	41.4
4 - 7 hours	1924	46.1	736	52.5	263	51.2
> 7 hours	145	3.5	80	5.7	38	7.4
Cyber place factors						
Reportedly uses						
Snapchat	839	20.1	335	23.9	130	25.3
Instagram	3635	87.1	1287	91.9	472	91.8
Facebook	805	19.3	317	22.6	109	21.2
Twitter	1108	26.5	427	30.5	160	31.1
Profiles contain						
Name	1305	31.3	607	43.3	246	47.9
Photo	595	14.3	319	22.8	133	25.9
Profile access						
Restricted	3348	80.2	1098	78.4	370	72

### *Analytical strategy: Conjunctive Analysis of Case Configurations*

To analyze the situational profiles of online harassment among both offenders and victims, we used Miethe and colleagues' (2008) CACC approach. CACC is a case-oriented analysis technique that can be applied to categorical data. As an alternative to traditional, variable-oriented approaches to data analysis, CACC enables researchers to

identify the complex causal recipes of variable attributes that give rise to a particular outcome (i.e., the dependent variable).

Specific details for conducting CACC are available in the extant literature (Hart, 2014; Hart et al., 2017; Hart & Moneva, 2018; Miethe et al., 2008), but can be summarized with a few basic steps. First, a “truth table” is constructed from variables contained in an existing data file. The table’s columns reflect each predictor variable included in the analysis, the outcome variable, a column associated with the number of times a case configuration is observed in the existing data file, and one that represents the probability a configuration results in the outcome of interest. Each row in the truth table reflects a unique combination of predictor variable attributes that could be observed in the existing data file (i.e., case configurations). Once the truth table is constructed, all the data from the existing file are aggregated to each case configuration and are prepared for data analysis by applying decision rules for defining dominant case configurations<sup>2</sup>. For the current study, dominant case configurations are defined as 10 or more observed configurations. Finally, analysis of a CACC truth table involves identifying and quantifying patterns of situational clustering (Hart, 2019) and describing patterns of contextual variability<sup>3</sup>. This approach can uncover patterns in one’s data that main-effect models commonly used in traditional analysis (e.g., logistic regression) may

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<sup>2</sup> See Miethe et al. (2008), Hart (2014), and Hart, Miethe, and Rennison (2017) for a discussion on the decision rules for defining dominant profiles.

<sup>3</sup> A chi-square goodness-of-fit test is used to determine whether data from an existing data file cluster among dominant case configurations more than expected and Hart’s (2019) Situational Clustering Index (SCI) is used to measure the magnitude of clustering if it is detected. The SCI is a standardized metric, similar to the Gini coefficient.

not be capable of identifying (Hart, 2014; Hart, Rennison, & Miethe, 2017; Miethe et al., 2008).

For the current study, we created two CACC truth tables (i.e., one for victimization and one for offending), following the steps described previously. In doing so, we were able to link the specific situational profiles of online harassment victims with identical profiles of online harassment offenders. As described previously, 10 predictor variables were analyzed in the current investigation. The “age” and “time spent online” measures each were defined by three categories, whereas the other eight measures were dichotomized. This enabled us to compare and contrast the attributes that define the victim and offender group of students simultaneously, in ways that existing empirical scholarship has yet to do.

The next section presents results of our analysis of these variables using the CACC methodology, which answers our three research questions. CACC has been conducted with the CACC R package version 1.0.0 (Esteve et al., 2019) that incorporates tidyverse (Wickham et al., 2019) data transformation functions. Data visualization uses GGally R package version 1.4.0 (Schloerke et al., 2018). All code was written in R version 3.6.1 using RStudio version 1.2.5019.

## **Findings**

Our first research question is whether repeated online harassment victimization and offending among students is context dependent. The structure of our CACC matrixes could have produced over 2,300 case configurations (i.e., two variables with three attributes and eight dichotomous variables or  $3^2 \times 2^8 = 2304$ ). However, when aggregated to our truth tables, our survey data were defined by far fewer situational profiles. Specifically, our entire survey data were defined by a total of 643 repeat online



harassment profiles or 27.9% of all observable profiles. This is despite the fact that our sample was large enough that nearly two students could have been associated with each of the theoretically observable configurations. These findings suggest that participants do not visit cyber places randomly. Instead, their behavior – both as victims and offenders of repeated online harassment – cluster within specific situational contexts defined by the unique combinations of variable attributes examined in the current study.

In addition to our data clustering within a relatively small subset of theoretically observable profiles, our survey data clustered significantly among 94 dominant case configurations ( $\chi^2(93, N = 2817) = 3,378.22, p < .001$ ), which were defined by 10 or more observations. Furthermore, based on the Situational Clustering Index (Hart, 2019), the magnitude of clustering among dominant profiles was moderate ( $SCI = 0.451$ ). These findings provide strong evidence that our online harassment survey data is very context dependent.

Our second research question asks, “Which dominant situational contexts define self-reported online harassment victimization and offending among students?” Findings from our CACC indicate that the likelihood of online harassment repeat victimization varies considerably among dominant situational profiles. For example, 82% of female students, age 15 – 17 years, who spend between 4 – 7 hours per day online, who reportedly use Snapchat and Instagram, and share both their names and photos on these social media platforms, but who do not restrict other users’ access to their profiles reported experiencing repeat online harassment. In contrast, none of the male students, age 12 – 14 years, who spend 4 – 7 hours online each day, using Instagram, Facebook, and Twitter, but who do not share their names or photos on social media and who do not allow other users to access their social media profiles reported similar repeat victimization experiences. This 82 percentage-point difference in victimization risk

illustrates the extreme contextual variability in online harassment repeat victimization, which is not easily identified using traditional, variable-orientated approaches to data analysis (i.e., HLM, OLS, etc.) because these analytic methods focus on identifying “main effects”, while holding covariates “constant” (Weisburd & Britt, 2014).

Table 2 shows the composite profiles associated with the five dominant case configurations *most* and *least* likely to be associated with repeat online harassment. These profiles illustrate the complex causal recipes that lead/do not lead to online repeat harassment, as many of the predictor variable attributes are associated with profiles found in both groups. For example, all the students who reportedly restrict access to their social media profiles to other users (i.e., Privacy = Yes) are among the *least* likely to report being repeatedly victimized. However, three of the five dominant profiles *most* likely associated with online harassment are also defined by students who allow other users to access their profiles. It is the application of the CACC method that enables us to disentangle the complex causal recipes that give rise to online harassment repeat victimization.

Placeholder for [Table 2](#).

Table 3 shows the composite profiles similar to those in Table 2. In Table 3, however, profiles are associated with the five dominant case configurations *most* and *least* likely to be associated with self-reported online harassment repeat *offending*. Results from a CACC presented in Table 3 show that 44% of females, age 12 – 14 years, spending 4 – 7 hours online each day, and who reportedly use Instagram, and who share their names and photos on social media, but who do not restrict access to their social media profiles are the most likely to report having engaged in online harassment behaviors. In contrast, several different combinations of variable attributes define students who never report harassing others online (i.e.,  $P(O) = 0.00$ ). As with the

dominant profiles of repeat victimization, case configurations associated with online harassment repeat offending behavior are characterized by variable attributes that fail to demonstrate linear main-effects on offending that are assumed by popular traditional analytic approaches.

Placeholder for [Table 3](#).

Finally, our third research question investigates whether the pool of online harassment repeat victims and offenders are homogeneous. To answer this question, we compared the 94 dominant profiles that defined online harassment repeat victims to the 94 profiles that defined repeat offenders, based on the rank-orders of the likelihoods of being a victim/offender. Results of a Wilcoxon's signed-ranks test revealed that the distributions of matched profiles were significantly different from each another ( $W^+ = 22.00, z = 7.91, p \leq .001$ ). In other words, offending probabilities are not proportional to victimization probabilities, suggesting that the situational contexts of those who repeatedly engage in online harassment are dissimilar to those who repeatedly experience online harassment.

These findings are illustrated in Figure 1 using parallel coordinates plot, where dominant profiles are presented in descending order along the y-axis according to their offending probabilities and a line drawn from each ordered position to the position along the opposite y-axis that corresponds to the same dominant victimization profile.

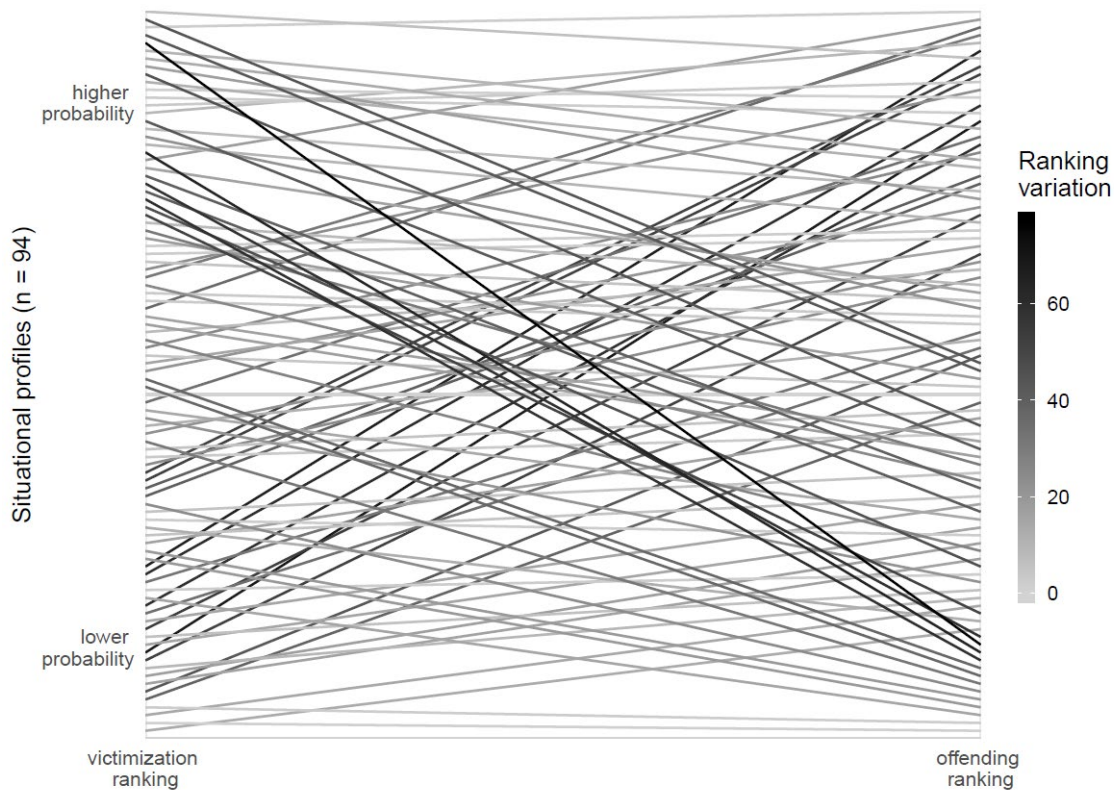


Figure 1. Linkages between dominant situational profile probabilities for repeat victimization and offending. Each line represents matched case configurations across both groups.

## Discussion

Although most cybervictimization studies show the explanatory potential of RAA regarding different cybercrimes (Holt & Bossler, 2016; Leukfeldt & Yar, 2016), to date, they all typically use a variable-oriented approach (e.g., logistic regression) to generate new empirical knowledge. An alternative analytic strategy used in the current study (i.e., CACC) allowed us to explore the routine activities of social media users in relation to repeat online harassment from a new perspective. This new perspective informed us about online harassment repeat victims and offenders by examining the situational profiles or the unique causal recipes defined by all observed variable attributes in combination with one another simultaneously.

With regards to cybervictimization profiles, several points require further discussion. First, the situational profiles of users associated with a *lower* likelihood of victimization spend *less* time navigating through cyberspace daily. This conclusion is consistent with the framework of opportunities offered by the RAA background, since the less time spent online, the fewer opportunities there are for them to become objectives for harassers. Existing literature provides a consensus on this aspect (e.g., Bossler, Holt, & May, 2012; Hinduja & Patchin, 2015; Reynolds et al., 2011). Results show that the visibility of users is also related to victimization likelihood. In line with Reynolds and his colleagues (2011), those that do not publicly share personal information, such as their real name or pictures, have lower risk of being repeatedly victimized within the context described. It should also be noted that the top five case configurations observed in data used for the current study were defined by profiles of female students, showing another pattern identified in previous studies (Marcum, Higgins, et al., 2010; Navarro & Jasinski, 2013). Specifically, current findings suggest that sex is a determining factor in online harassment outcomes, since other profiles that were similar – expect where the students were male – had a substantially lower probability of being victimized.

In addition to corroborating findings obtained by much of the existing research into online harassment victimization and offending, our study also produced new insights that are unique. For example, based on our configural analysis, the composition of the top profile associated with online harassment repeat victims, reflects certain types of “context-specific interaction effect” (Miethel et al., 2008, p. 235) because the probabilities of victimization vary greatly when compared to other top profiles (i.e., the outcome varies by 19% between the first and second profile). This could mean that interacting in more digital environments within that context significantly increase the

probabilities of suffering online harassment repeatedly. It can also be observed that the two case configurations in which none of the social media measured is used daily by students are among the three situational profiles least likely to produce online harassment repeat victimization (0.10 and 0.07 respectively). The fact that these profiles still have a small probability of victimization associated with their configuration means that this behavior occurred in different cyber places from others in the CACC matrix (e.g., in Flickr or Ask.fm – see 'Independent Variables' section). That the chances of being victimized are so low when none of the social media examined are present in the CACC matrix is convincing evidence that the selection of the social media included in our analysis is adequate.

Results from the current study also produced findings contrary to what can be found in the existing literature. For example, our CACC analysis shows that the probabilities of repeat offending are lower ( $M(O) = 0.12$  versus  $M(V) = 0.33$ ) and more homogeneous than those of repeat victimization (i.e., they vary less;  $SD(O) = 0.10$  versus  $SD(V) = 0.15$ ). The former indicates that criminal behavior is infrequent and concentrated in fewer users, while the latter suggests this is an obsessive and therefore more stable behavior (Pittaro, 2007). In fact, although not shown in the tables, one of the most representative case configurations comprises 4.3% of the total sample ( $n = 181$ ), with a very low probability of repeated offending ( $P(O) = 0.03$ ). Whereas traditional research on deviant behavior among youth populations suggests that males engage in the majority of offending behavior (Moffitt et al., 2001), our results show a mixed distribution in line with Novo and colleagues (2014). Nonetheless, the age interval for high risk repeat offenders' situational profiles is the same as their analogous, which seems logical considering that many of these criminogenic dynamics

happen between peers within the context of conflicts generated at school (Beran & Li, 2008; Hinduja & Patchin, 2008).

Our analysis also show that the top five repeat offender profiles use their real name on the social media that they use frequently and three of them also upload their personal photos. However, from a rational choice perspective, offenders should be expected to describe higher levels of anonymity to reduce their risk of being identified. Similarly, one might assume that some users diversify their offensive opportunities among several social media accounts, but when examining their situational profiles this is not evident. Configurations with almost zero probabilities associated with offending are associated with students that spend less time online daily and who tend not to provide personal information. This could also indicate that users who make up such profiles are less familiar with the use of social media or have restricted access to them.

Like Holt and Bossler (2016) noted, most of the previous research on online harassment victimization has focused on victims, leaving aside both their relationship with offenders and the context in which this dynamic occurs. Some environments where online harassment occurs, such as social media, produce a two-way interaction that increases the opportunities of getting involved into personal conflict with other users, resulting in an offender-victim continuum. Our results show that each situational profile associated to repeat offenders matches a repeat victim profile, meaning that any context that determines an online harassing behavior also meets the requirements to lead to a cybervictimization. In contrast, 13 of the 94 profiles resulted in victimization only (13.8%). These results underscore the importance of accounting for more situational elements than the victim, since most profiles show that there are not purely victimizing or purely offending environments, but rather mixed contexts that can lead to both

situations. However, it should be noted that the probabilities of repeat victimization are higher than the probabilities of repeat offending.

In their literature review on routine activities, Holt and Bossler (2016) state that “scholars have consistently found that committing cybercrime or cyber-deviance is one of the strongest risk factors for being harassed or stalked in the virtual world” (p. 70). While previous research has focused on the dynamics of cybervictimization from a broader perspective (Leukfeldt & Yar, 2016), CACC allows us to analyze this link at the profile level, showing that actors involved in offending do not necessarily share the same situational context as those who suffer cybervictimization. In Figure 1, greater differences in the range of links between columns would indicate fewer specific contexts between repeat offenders and victims, while less variance would suggest that there is a more homogeneous dynamic. This means that some of the case configurations analyzed in this study are key to defining whether a social media user is more likely to offend repeatedly or become a repeat victim in cyberspace.

Findings from the current study also provide guidance for future research in the area of online harassment. Specifically, scholars undertaking research in the future should go beyond the traditional variable-oriented analysis based on the elements that constitute the Chemistry of Crime. As an alternative, we propose the use of conjunctive analysis techniques, as they allow to generate knowledge in terms of configuration (i.e., unique combinations of multiple variable attributes) (Hart, 2014; Hart et al., 2017; Hart & Moneva, 2018; Miethe et al., 2008). Since an essential component of this type of cyber-enabled crime is the previous relationships between offenders and victims (Beran & Li, 2008; Hinduja & Patchin, 2008), future research on online harassment should also address the connections between the occurrence of these dynamics in cyberspace and physical space. Furthermore, it would be interesting to transfer the study of the



homogeneous populations of offenders and victims to a micro-level analysis that would enable us to determine the characteristics that relate both conditions.

In terms of policy implications, our results show which student situational profiles are most likely to repeatedly commit online harassment or suffer a repeat victimization. This information can be used by service providers, teachers, parents, and students themselves to raise awareness about propensity and vulnerability. However, it is important to note that our results showed different situational contexts of risk for repeat offenders and victims, therefore responses to this problem may have to be adapted differently for each of them. These findings stress the importance of responses be “situationally” dependent (i.e., different situations or contexts require different prevention strategies). In this sense, Situational Crime Prevention (SCP) measures are known for their versatility, simplicity and effectiveness, making them an adequate complement to the safety of young students. Based on SCP measures that have been specifically adapted for a similar behavior (i.e. cyberstalking) such as those proposed by Reyns (2010), those profiles that have obtained a high associated probability of cybervictimization should receive training on self-protection measures while repeat offenders should be controlled by social media service providers (i.e., cyber place managers). These types of measures are also often quite efficient, so they can be implemented even when resources for prevention are scarce.

## **Conclusion**

In this paper we presented a study on repeat online harassment from a novel situational approach that uses a conjunctive analysis technique (i.e., CACC) to explore the situational contexts where this dynamic occurs. Our work contributes to existing scholarship in two ways: (1) based on RAA, we introduced the notion of cyber place as

an essential element to analyze the convergence of offenders and victims in digital environments where online harassment is known to be found; and (2) we moved beyond victimization to explore through conjunctive analysis techniques the situational profiles of repeat offenders and their possible overlap with those of repeat victims.

In accordance with the specific objectives initially proposed in this paper, several conclusions can be drawn. First, concentration analyses show that the dynamics of repeat online harassment manifest themselves in very specific situational contexts, defined both by the routine activities undertaken by the participants and by the configuration of the cyber places they visit. Secondly, the CACC has allowed us to identify the composition of every situational profile defined by the participants. With this information it is possible to know which exact combination of factors influences a greater probability of being involved in an online harassment dynamic. Finally, this study reveals that the contexts in which a specific user is most likely to suffer repeat victimization are different from those in which another is more likely to offend repeatedly, which suggests that prevention and control strategies to tackle this problem require the adoption of different measures for each form of participation.

However, this research also has limitations. Although the CACC certainly allows patterns to be discovered in the data that other methods cannot, the inclusion of many variables in the matrix increases the variability of the number of the resulting profiles. This makes the interpretation of the results too complicated. For this reason, we excluded from the analysis any factors unrelated to cyberplaces, but equally important for understanding the dynamics of online harassment (e.g. self-control).

Therefore, future research should explore other factors identified in the literature as relevant to the study of online harassment. In addition, the "repeat" offending and victimization dimension should be further investigated to reduce the incidence of this

phenomenon. It is also necessary to do more research on the implementation of specific preventive measures for online harassment such as SCP and to evaluate their effectiveness. We also encourage further approaching this problem by adopting the notion of cyber place and using conjunctive analyses.

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**Tables**

[Table 2](#). The five dominant case configurations most and least likely to result in online harassment repeat victimization, the probability of being victimized, and the number of students associated with each profile.

Sex	Age	Hours	Snapchat	Instagram	Facebook	Twitter	Name	Photos	Privacy	P(V)	N	
Dominant profiles <i>most</i> likely to result in online harassment repeat victimization												
Female	15 - 17	4 - 7	Yes	Yes	No	No	Yes	Yes	No	0.82	11	
Female	12 - 14	< 4	No	Yes	No	No	Yes	Yes	Yes	0.70	10	
Female	15 - 17	4 - 7	No	Yes	No	No	Yes	Yes	No	0.63	16	
Female	15 - 17	4 - 7	No	Yes	No	Yes	Yes	No	No	0.60	10	
Female	18 - 20	4 - 7	No	Yes	No	No	No	No	Yes	0.60	10	
Dominant profiles <i>least</i> likely to result in online harassment repeat victimization												
Female	18 - 20	< 4	No	Yes	Yes	No	No	No	Yes	0.10	10	
Male	12 - 14	< 4	No	No	No	No	No	No	Yes	0.09	89	
Male	12 - 14	< 4	No	Yes	Yes	No	No	No	Yes	0.08	13	
Male	15 - 17	< 4	No	No	No	No	No	No	Yes	0.07	42	
Male	12 - 14	4 - 7	No	Yes	Yes	Yes	No	No	Yes	0.00	10	
										Mean =	0.33	30
										SD =	0.15	33

**Table 3.** The five dominant case configurations most and least likely to result in online harassment repeat offending, the probability of offending, and the number of students associated with each profile.

Sex	Age	Hours	Snapchat	Instagram	Facebook	Twitter	Name	Photos	Privacy	P(O)	N	
Dominant profiles <i>most</i> likely to result in online harassment repeat offending												
Female	15 - 17	4 - 7	No	Yes	No	No	Yes	Yes	No	0.44	16	
Male	15 - 17	4 - 7	No	Yes	No	No	Yes	Yes	Yes	0.40	20	
Male	15 - 17	< 4	No	Yes	No	Yes	Yes	No	Yes	0.39	18	
Female	15 - 17	4 - 7	Yes	Yes	No	Yes	Yes	Yes	Yes	0.36	11	
Male	15 - 17	4 - 7	No	Yes	No	No	Yes	No	Yes	0.32	31	
Dominant profiles <i>least</i> likely to result in online harassment repeat offending												
Male	15 - 17	4 - 7	No	Yes	No	Yes	Yes	No	No	0.00	11	
Female	12 - 14	4 - 7	Yes	Yes	No	Yes	No	No	Yes	0.00	10	
Female	18 - 20	< 4	No	Yes	Yes	No	No	No	Yes	0.00	10	
Female	18 - 20	4 - 7	No	Yes	No	No	No	No	Yes	0.00	10	
Male	12 - 14	4 - 7	No	Yes	Yes	Yes	No	No	Yes	0.00	10	
										Mean =	0.12	30
										SD =	0.10	33