

INTERNET USE AND CYBERBULLYING AMONG ADOLESCENT STUDENTS IN GREECE: THE “TABBY” PROJECT

*Christina Athanasiades¹, Harris Kamariotis¹,
Anastasia Psalti², Anna C. Baldry³, & Anna Sorrentino³*

¹School of Psychology, Aristotle University of Thessaloniki, Greece,

*²Department of Preschool Education, Alexander Technological Educational
Institute of Thessaloniki, Greece,*

³Department of Psychology, Seconda Universita degli Studi di Napoli, Italy

Abstract: The main objective of the article is to present the implementation of a European project in Greece for the safe use of the internet. Specifically, the article reports on the results of the evaluation of a school-based intervention against cyberbullying. Three hundred and fourteen secondary school students (50.3% boys) participated in the study. The students completed a self-report online checklist, which aimed to assess internet use along with the risk level of cyberthreats received and performed by youngsters. Results showed that even though adolescent students in Greece report a number of risky online behaviors, exhibit lower rates of cyberbullying compared to students from other European countries. Additionally, students' estimate of their involvement in cyberbullying incidents in the future was significantly correlated with their risky and unsafe use of the internet. Results regarding the effect of the school-based intervention on students' online behavior are inconclusive, pointing to the need for an extended implementation over a long period of time and parental involvement in all prevention initiatives.

Key words: Adolescents' use of the internet, Cyberbullying, School-based intervention.

INTRODUCTION

The extensive use of new technologies and electronic devices by youngsters during the last decade has turned researchers' attention to the various factors that reinforce the

Address: Christina Athanasiades, School of Psychology, Aristotle University of Thessaloniki, Thessaloniki 541 24, Greece. Tel: +30-2310-997992. E-mail: cathan@psy.auth.gr

safe use of the internet, while at the same time prevent adolescents' risky behavior within the cyberworld (Lenhart, 2007; Livingstone, Haddon, Gorzig, & Olafsson, 2011; Mitchell, Wolak, & Finkelhor, 2007; Hasebrink, Gorzig, Haddon, Kalmus, Livingstin, & EU Kids Online, 2011; Wallmyr & Wellin, 2006; Ybarra, Mitchell, & Finkelhor, 2007). Examples of such risky behavior include: compulsive use of the internet, sharing passwords, exposure to harmful or illicit online material, uploading intimate images or other personal information, talking to or meeting with strangers as well as involvement with any kind of aggressive act carried out through the internet or cell phones.

Cyberbullying is one of the most common and serious threats adolescents might face while using contemporary Information and Communication Technologies (ICT, i.e. cellular phones, smart phones, emails, social networks, chat rooms, instant messaging programs, etc.) with serious negative consequences at the social, emotional and educational level (Dempsey, Sulkowski, Nichols, & Storch, 2009; Hinduja & Patchin 2007, 2009; Livingstone et al., 2011; Patchin & Hinduja, 2012). The percentage of adolescents who are involved in incidents of cyberbullying ranges between 4% to 33% for the bullies and 4% to 49% for the victims (Kowalski & Limber, 2007; Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010; Ybarra & Mitchell, 2004a). According to Patchin and Hinduja (2012), among 35 papers published in peer-reviewed journals since 2002, the average percentage for cybervictimization and cyberbullying others was 24.4% and 18% respectively. The variations in numbers are usually attributed to the different definitions assigned to the phenomenon of cyberbullying as well as to the different ways of measuring how, when and where children and adolescents are victimized or offending others through the internet (Menesini & Nocentini, 2009).

For example, researchers have tried to determine whether cyberbullying experiences differ by gender. Although results have been inconsistent, many studies found no statistically significant differences between boys and girls (Beran & Li, 2005; Livingstone et al., 2011; Mishna et al., 2010; Ybarra & Mitchell, 2004b). On the other hand, there is evidence that girls are more frequently victims of cyberbullying (especially of hurtful electronic messages and online rumors), while boys engage more in cyberbullying behaviors as offenders (Cole, Krohn, Jewell, & Hupp, 2011; Li, 2006; Hinduja & Patchin, 2008; Patchin & Hinduja, 2012; Slonje & Smith, 2008; Smith, Mahdavi, Carvalho, & Tippett, 2006).

Several studies also show a clear relationship between traditional and cyber bullying, since bullies and victims seem to extend (or alternate) their roles from the school yard to the cyber world and vice versa (Hinduja & Patchin, 2009; Kowalski, Morgan, & Limber, 2012; Patchin & Hinduja, 2012; Varjas, Henrich, & Meyers, 2009; Ybarra & Mitchell, 2004b).

In addition, some studies indicate that there is a significant relationship between

cyberbullying and internet addiction. The term “addiction” has been used by many researchers to describe an excessive and compulsive overuse of the internet which disrupts daily activities (i.e., social, occupational, and scholastic) and interferes with the person’s psychological state (Beard, 2005; Mitchell, 2000; Young, 1996, 1998). Although addiction to the internet is not a clinical entity and has not been included in the DSM-IV, it has been compared to other addictive behaviors (i.e., pathological gambling) with which it shares similar symptoms such as mood modification, conflict, withdrawal, denial, tolerance, relapse, etc. (Griffiths, 1995; Young, 1996, 1998). Excessive internet use has been steadily associated with a variety of risky internet activities including bullying others online (Hasebrink et al., 2011; Smahel & Blinka, 2012). Moreover, it has been found to predict participation in cyberbullying both as a perpetrator and as a victim (Raya, Casas, Del Ray, & Ortega, 2012).

According to the European Network “EU Kids Online”, youngsters in Greece reported spending on average 90 minutes per day online, while 70% of adolescents (between 13-16 years old) confirmed that they use social networks –mainly Facebook– quite frequently (Haddon, Livingstone, & EU Kids Online, 2012). Also, 33% of youngsters mentioned some form of pathological internet use and 19% stated that they had been exposed to web pages of harmful material. A few years ago, a wide-scale research study of 2,200 Greek secondary school students found that 8.2% of adolescents, particularly boys, were addicted to the internet, meaning that they reported feeling preoccupied with the internet, making repeatedly unsuccessful efforts to stop internet use or staying online longer than originally intended (Siomos, Dafouli, Braimiotis, Mouxas, & Angelopoulos, 2008). Most studies in Greece confirm that adolescent boys spend more time online than girls do, mostly playing games (Aslanidou & Menexes, 2008. Papastergiou & Solomonidou, 2005).

Another study among Greek adolescents between 14-19 years old indicated that 14.7% of the students were victims of cyberbullying once or twice during the last two months, while 8.6% cyberbullied others once or twice in the same period of time (Kapatzia, 2008). This same study found that girls were more involved in cyberbullying incidents –either as bullies or as victims– than boys were and that they had been victimized for a longer period of time. In a more recent study (Τσορμπαζούδης & Αγγελακόπουλος, 2012), the percentages of adolescent victims of cyberbullying ranged between 4% and 10% (depending on the type of cybervictimization), while the percentage of cyberbullies was found to be around 8%. Finally, a research study among Greek elementary school students found a significant correlation between cyberbullying behaviors and internet addiction (Touloupis & Athanasiades, 2014).

The seriousness of the cyberbullying phenomenon among youngsters, as indicated by the increasing number of related studies over the past decade, gave rise to a variety of

initiatives both for the prevention of and intervention against cyberbullying. Due to the definite relationship between cyber- and traditional bullying, most initiatives follow the basic principles of effective anti-bullying school-based programmes, focusing mainly on the holistic character, the intensity and the duration of the intervention (Fox, Farrington, & Ttofi, 2012; Smith, Schneider, Smith, & Ananiadou, 2004; Ttofi & Farrington, 2010). On the other hand, the implementation of successful strategies to combat cyberbullying should also take into account the different (and more complex) characteristics of online compared to offline aggression and focus on educating teachers, students and parents on the different aspects of cyberbullying as well as on the positive uses of ICTs (Cassidy, Faucher, & Jackson, 2013).

Unfortunately a very limited number of published articles deal with the evaluation and/or the effectiveness of prevention programs against cyberbullying. In 2009, a systematic review on the assessment of such initiatives in schools (Mishna, Cook, Saini, Wu, & MacFadden, 2009) identified only three (out of 3,000 references reviewed) short-term classroom-based interventions (I-SAFE, The Missing Program and HAHASO) aimed at decreasing risky internet use and preventing cyberbullying among children and youth. Intervention material included classroom instructions, an interactive computer game, a documentary video, brochures and a guidebook for teachers and parents. Evaluation results showed that although all programs increased students' knowledge of online safety, none of them altered students' attitudes or behaviors since there was no statistically significant decrease in reports of cyberbullying (Mishna et al., 2009). Other studies reporting on the evaluation of similar interventions for either traditional or cyberbullying (such as the "Philosophy for Children") as well as for cyberbullying and internet safety (such as "Let's Fight It Together" and "Exposed"), showed also limited effectiveness on reducing cyber-risky behaviors (Tangen & Campbell, 2010; Thompson, Robinson, & Smith, 2013).

However, the "ConRed Cyberbullying Prevention Program", which consisted of eight weekly training sessions addressed to students, teachers and parents and was coordinated by external experts, not only increased the rates of internet safe use but also decreased students' involvement in cyberbullying for both victims and perpetrators (Ortega-Ruiz, Del Rey, & Casas, 2012). On the whole and according to relevant literature, successful interventions against cyberbullying among youth may start from early adolescence and involve: (a) the development of a proactive policy as well as educating/learning practices in schools for both students and teachers, (b) the interactive and positive aspects of using ICT, and (c) classroom discussions with students to enhance empathy, positive self-esteem and social skills (Agatston, Kowalski, & Limber, 2012; Cassidy et al., 2013; Collier, 2012; Dowell, Burgess, & Cavanaugh, 2009; Pearce, Cross, Monks, Waters, & Falconer, 2011; Willard, 2007).

Such an initiative, which incorporates many of the aforementioned qualities of effective anti-cyberbullying interventions, was implemented in five European countries (Italy, Hungary, Bulgaria, Cyprus, and Greece) that participated in the “TABBY in Internet” project¹ during the years 2011-2012. The project aimed at developing an intervention to help students: (a) assess the risk associated with certain ways of using the internet, especially social networks, and (b) take action to reduce their own risk both of potentially or actually harming others or of being the target of these behaviors. Through the implementation of the “TABBY in Internet” project, awareness was raised and a significant part of the public was sensitized about safe internet use and the rapidly growing phenomenon of cyberbullying among adolescents. Furthermore, school community was provided with a comprehensive toolkit (TABBY in Internet), which can be used to assist schools in their battle against violence in the internet. More information about the project can be found in the following website: <http://www.tabby.eu/en>.

The present study

This paper is presenting the implementation and evaluation of the above innovative project in Greece. Specifically, a pilot short-term intervention against cyber risks and cyberbullying was designed to be implemented by teachers in the classroom. The intervention included the provision of age-appropriate guidelines to secondary school students about the safe use of internet as well as discussion of the emotional and legal effects of cyberbullying, through the projection of four videos each of which presented a different form of cyberbullying. Evaluation of the intervention was based on the completion of an online, self-assessing and non-standardized questionnaire (the “Tabby checklist”) completed by the students before and after the intervention. We expected that the above intervention will have a positive effect on student’s online behavior, by decreasing risky internet use as well as involvement in cyberbullying incidents (Hypothesis 1).

¹ The Project “TABBY in Internet” (Threat Assessment of Bullying Behavior of Youngsters in Internet) was financially supported by a research grant (JLS/2009-2010/DAP/AG/1340AMG) under the DAPHNE III Programme of the European Commission, DG Justice, Freedom and Security. The contents of this research are the sole responsibility of the Department of Psychology of the Second University of Naples, the Estzter Foundation, the University of Cyprus, the Center for the Study of Democracy and the School of Psychology of Aristotle University of Thessaloniki, and can in no way be taken to reflect the views of the European Commission. We would like to thank the above agency for its funding as well as all the students who participated in our Project.

A number of risk factors were also studied, such as the excessive use of the internet, the relationship between traditional and cyber bullying, the subjective estimates of future involvement in both kinds of bullying behavior, as well as gender differences. More particularly, we expected that: (a) excessive internet use will be positively related with participation in cyberbullying either as a perpetrator or as a victim (Hasebrink et al., 2011; Raya et al., 2012; Smahel & Blinka, 2012; Touloupis & Athanasiades, 2014) (Hypothesis 2).

(b) Traditional bullying and victimization at school will be positively related with cyberbullying and cyber-victimization respectively (Hinduja & Patchin, 2009; Kowalski et al., 2012; Varjas et al., 2009) (Hypothesis 3).

(c) Bullying online was expected to be positively related with victimization at school and vice-versa (Festl & Quandt, 2013; Smith, Mahdavi, Carvalho, Fisher, Russel, & Tippett, 2008) (Hypothesis 4).

(d) Past involvement in bullying and cyberbullying (either as bully or as victim) will be positively related with estimates of future involvement in both kinds of behaviors (Dilmac & Aydogan, 2010) (Hypothesis 5), and

(e) more boys than girls will exhibit risky internet use and be involved in cyberbullying incidents especially as perpetrators (Cole et al., 2011; Hasebrink et al., 2011; Hinduja & Patchin, 2008; Li, 2006; Siomos et al., 2008) (Hypothesis 6).

METHOD

Participants

Three hundred and fourteen (314) secondary school students (50.3% boys) participated in the study. All students were born in Greece and attended the second grade of Middle School (that is, they were between 13 and 14 years of age). Students had been selected from five schools (three public and two private) that volunteered to participate in the project². All schools were located in the Greater Metropolitan Area of Thessaloniki, the second largest city in Greece. Students were randomly allocated to two groups: the experimental and the control group. One hundred and twenty-three (123) students participated in the experimental group and 140 students participated in the control group. The experimental group participated in the intervention whereas the control group received no intervention.

² The Greek Ministry of Education, through its corresponding agency of the Pedagogical Institution, granted official permission for the Tabby research project and the implementation of the intervention in schools.

The TABBY checklist

The “TABBY checklist” is a self-report instrument that assesses internet use. It is focusing on social networks as well as the risk level of cyberthreats received and performed by youngsters. It was initially developed in English by all partners participating in the “TABBY in Internet” project and translated in Greek by the Greek research team (the authors).

The “TABBY checklist” consisted of 44 questions that were divided in three parts. (a) In the first part (four items), students were asked to estimate (in a 5-point Likert-type scale, ranging from “very possible” to “almost impossible”) the possibility of their future involvement in bullying incidents (both offline and online) (i.e. “do you think that in the next six months you run the risk to become victim of bullying in school?”, “do you think that in the next six months you will act some form of cyberbullying behavior?”, etc).

(b) The second part comprised of 11 questions related to various demographic characteristics (e.g., gender, age, school class, country of origin) and the use of social networks (e.g., “Do you have a profile in a social network and which?”, “How many friends do you have on Facebook?”, “Is one of your parents or another adult with whom you feel close between your online friends?”, etc.)

(c) The third and main body of the checklist consisted of 29 questions that asked students to assess risk levels of internet use (e.g., “Do you know personally all your internet friends?”, “Do your parents speak with you about safe internet use?”); involvement in traditional and cyber-bullying behaviors during the past six months, either as victims or as bullies, (e.g., “At school, in the last six months, have you ever been a victim of bullying behaviors?”, “In the last six months, have you received online messages that made you very afraid for your safety?”, “In the last six months, have you ever been excluded from an online group?”, “In the last six months, have you ever put down someone else online by sending or posting cruel gossips, rumours, or other harmful material?”, etc.); their level of self-esteem (e.g., “Do you think you are a person who’s worth at least equal to others?”, “Do you think you have good qualities?”, etc.), as well as internet abuse (“Sometimes I stay online more than what was my intention”, “I always find a reason to stay online longer”, etc.). Responses in the above questions were given on a 5-point Likert-type scale, ranging from 1 = it happened many times to 5 = it never happened, or, depending on the question, from 1 = totally agree to 5 = totally disagree. According to the literature, this multiple-item approach, asking students about the frequency of a variety of behaviors representing cyberbullying is usually more accurate and more reliable than a single item asking whether or not students have been victimized or bullied others (Menesini & Nocentini, 2009).

Principal component analysis with varimax rotation was performed on 15 (of the 29) items. This was necessary because the questionnaire used in the study is not a full-blown scale but a checklist with independent items. The analysis revealed three factors: F^1 = Cyberbullying, F^2 = Excessive internet use, and F^3 = Cybervictimization (see Table 1). The above three factors explained 40.65% of the total variance. The Kaiser-Meyer-Olkin (KMO) = .71 and Bartlett's Test of Sphericity (105) \geq 88.38, $p <$

Table 1. Factor analysis of the TABBY checklist

	F^1	F^2	F^3
Cyberbullying ($\alpha = .68$)			
9. Sent mean or nasty messages to someone	.44	.21	.19
10. Put down someone else online by sending or posting cruel gossips, rumors or other harmful material	.73	.07	.10
11. Pretended to be someone else and send or posted material to damage that person's reputation or friendships	.68	.07	.19
12. Shared someone's personal secrets or images online without that person's permission	.74	.01	-.02
13. Excluded on purpose someone from your online group	.61	.00	-.03
Excessive internet use ($\alpha = .61$)			
25. Sometimes I stay online more than what was my intention	.09	.62	.12
26. Sometimes I have an urge to go online, even if just for a short time	-.06	.57	.11
27. I always find a reason to stay online longer	.10	.60	-.15
28. Sometimes I get comfort just by using my computer	.14	.56	-.04
29. Sometimes I say to myself: "just a little bit more ... and then I will get off the Internet"	-.00	.68	-.00
Cybervictimization ($\alpha = .50$)			
14. Received online messages that made you very afraid for your safety	.22	-.10	.51
15. Been put down online by someone who has sent or posted cruel gossip, rumors or other harmful material	-.16	.21	.58
16. Someone pretended to be you and send or posted material that damaged your reputation or friendships	.24	-.06	.49
17. Someone shared your personal secrets or images online without your permission	.02	.08	.66
18. Been excluded from an online group by people who have been mean to you	.05	-.04	.57
Eigenvalue	2.730	1.834	1.536
% of Variance Explained	18.19	12.22	10.24
Total Variance			40.65%

Note: F^1 : "Cyberbullying", F^2 : "Excessive internet use", F^3 : "Cybervictimization"

.001 were satisfactory. The five questions that constitute the factor “Cyberbullying” refer to types of bullying someone has inflicted onto other(s) through the internet, during the last six months (i.e., cyberharassment, denigration, impersonation, outing and exclusion). The five questions that constitute the factor “Cybervictimization” refer respectively to the same types of bullying someone has suffered from through the internet, during the last six months. The five questions that constitute the factor “Excessive internet use” refer to behaviors that are indicative of excessive and compulsive use of the internet and which are beyond the person’s control. Reliability indices of internal consistency (Cronbach’s alpha) for the three factors were $\alpha = .68$, $\alpha = .50$, and $\alpha = .61$, respectively.

The “TABBY checklist” is also an interactive tool through which students are able to assess their own cyberbehavior; that is, after they fill in the checklist, students automatically receive a Profile explaining the level of risk they face when using the internet, depending on their final scores and how they responded to a certain set of questions. In addition, each profile gives students useful information about ways to protect themselves from various cyber threats. Overall, there are four TABBY profiles: the “Green Profile”, which represents no risk at all; the “Yellow Profile”, which represents low risk of becoming either a victim or a perpetrator of cyberbullying; the “Orange Profile”, which indicates a state of high risk; and the “Red Profile”, which is connected to a very high risk of either cyberbullying others or being cyberbullied. Possible levels of risk are weighted according to a formula based on risk and protective factors’ interaction (Baldry & Farrington, 2004) that are still under validation for the TABBY checklist.

Procedure

The study took place in the spring of 2012 through the online administration of the “TABBY checklist”. The Greek Ministry of Education informed the school administrators (after our application to implement the Tabby Project had been approved) and issued a couple of directions in order to facilitate the gathering of research data as well as the implementation of the interventions in the classroom. In particular, we had to inform students’ parents or legal guardians of the aims and the tools of the project in order to secure their consent for students’ participation. Participation was voluntary and anonymous.

According to the research plan, the TABBY self assessment checklist on cyberbullying and victimization was administered online to the experimental and control groups in April 2012 (pretest). After the first measurement was completed,

only the students of the experimental group participated in an intervention based on the TABBY method. The intervention was implemented by the trained teachers in the classroom. As mentioned before, the intervention included the presentation of four videos (each one negotiating a different form of cyberbullying), followed by a discussion on the negative consequences of cyberbullying as well as on proper internet use and certain actions against cybervictimization. Interventions in schools lasted a maximum of two school hours, according to the Greek Ministry's directions. The rationale behind the intervention among all partners was (a) to design a flexible method which would be easily adopted by teachers in class, without the help of other professionals (i.e., school psychologist) and (b) to allow an adequate amount of time before the second measurement (i.e., 6 months) in order to test the long-term effectiveness of our method. Following the completion of the intervention, both groups filled in the TABBY checklist for a second time in October 2012 (posttest).

The teachers who implemented the intervention had been trained by the Greek research team in a special seminar of nine hours. Overall, 23 secondary school teachers participated in the seminar that took place in the end of March 2012. About half of them implemented the Tabby interventions in schools. The contents of the seminar were agreed upon among all partners in the project and included: (a) an introduction to the phenomenon of cyberbullying as well as the role of the school; (b) the presentation of the Tabby toolkit (i.e., checklist, videos, the teachers' booklet and the Projects' webpage), and (c) the legal aspects of cyberbullying.

RESULTS

Internet use and abuse

One of the main objectives of the "Tabby in Internet" project was to assist students in assessing their use (or abuse) of the internet, focusing mainly on social networks. About 88% (87.9%) of the students reported that they had at least one profile in a social network, mainly Facebook, and almost 91% (90.5%) claimed that they used the internet up to 4 hours per day. The average number of friends they reported having on social networks was 462. Most of the participants claimed that they knew the majority or all of their contacts; however, 22.6% claimed that they knew half or less than half of their "internet friends". Fifty-seven percent of the students reported they talked with their teachers about safe use of the internet, while 65.3% of the students claimed that they did the same with their parents.

Students also responded positively to the five questions asking, in general, about

Table 2. Students' reports of their involvement in types of cyberbullying "during the last 6 months"

	It happened once or several times a week		It happened once or twice		It has never happened	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Involvement as victims						
Nasty or mean online messages	11	3.5	54	17.2	249	79.3
Denigration	25	8.0	62	19.7	227	72.3
Impersonation	13	4.1	61	19.4	240	76.4
Trickery or outing	20	6.4	51	16.2	243	77.4
Exclusion	10	3.2	57	18.2	247	7.4
Involvement as bullies						
Nasty or mean online messages	13	4.1	80	25.5	221	70.4
Denigration	14	4.5	44	14.0	256	81.5
Impersonation	10	3.1	23	7.3	281	89.5
Trickery or outing	12	3.8	44	14.0	258	82.2
Exclusion	6	1.9	38	12.1	270	86

Note: $N = 276$

excessive or pathological use of the internet (e.g., staying online longer than scheduled, having an overpowering urge to get online, feeling a kind of relief when being on line) with percentages ranging from 38.6% to 48.1%. Visiting websites with illicit content (such as pornography, racism and violence) was also reported by students, as 28.1% had visited such sites a few or more times over the past six months; more boys (69%) than girls (20%) reported visits to such websites, $\chi^2(4) = 80.43, p < .001$.

Traditional and cyber bullying

Answering the relevant questions in the TABBY checklist, most of the participants reported they had never experienced as victims (78.3%) or inflicted as bullies (82.5%) any type of bullying behavior at school during the past six months. Even though differences between genders were not statistically significant, $\chi^2(4) = 8.85, p < .065$, it seems that more girls (88.5%, $z = 2.8$) than boys (76.5%, $z = -2.8$) reported that they never bullied someone at school.

From those students who reported that they had been involved in bullying behaviors at school during the past six months, around 13% of them stated that they had been involved in "jokes" (13.4% as victims and 13.1% as bullies). Fewer students reported that they had been involved in offensive teasing (7% as victims and 4.1% as bullies) and

even fewer in threats (4.8% as victims and 2.2% as bullies) and social exclusion (3.5% as victims and 1.3% as bullies). In terms of gender differences, more boys (17%) than girls (9%) reported using jokes to bully others at school, $\chi^2(1) = 4.55, p < .033$.

Most of the participants also stated that they had never experienced any type of cybervictimization. However, almost one-fifth of the students reported that they were the victims of cyberbullying once or twice during the past six months, mainly of denigration (19.7%) or impersonation (19.4%). Results regarding the students' involvement in different types of cyberbullying (as victims or bullies) are given in Table 2. Likewise, most of the participants claimed that they had never bullied anyone on the internet. However, almost one in four students (25.5%) reported having sent nasty or mean messages to someone once or twice during the past six months, while 14% of them claimed that they had used some other types of cyberbullying (i.e., outing and denigration) once or twice during the past six months. In terms of gender differences, more boys (26%) than girls (12.8%) stated that they had been the victims of impersonation on the internet, $\chi^2(3) = 9.61, p = .022$.

The overall TABBY Profiles were as follows: (a) more than half of the students (60.5%) had a Yellow Profile, which implies low risk of becoming either a victim or a perpetrator of cyberbullying; (b) approximately one-fourth (23.9%) had a Green Profile, which means no risk at all; and (c) 15.6% had an Orange Profile, which indicates a state of high risk especially for boys, since more boys (21.5%) than girls (9.6%) were categorized under this profile, $\chi^2(2) = 9.69, p = .008$. None of the students had a Red Profile, which is connected to a very high risk of either cyberbullying others or of being cyberbullied. Results are shown in Table 3.

Table 3. Gender differences in TABBY profiles

TABBY Profile	Boys		Girls		Total		χ^2	<i>p</i>
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%		
Green	31	41.3	44	58.7	75	23.9		
Yellow	93	48.9	97	51.1	190	60.5		
Orange	34*	69.4	15	30.6	49	15.6	9.69	.022
Red	0	0	0	0	0	0		

Note: **z* = 2.9, *df* = 2

The association between traditional school bullying and cyberbullying was also explored, as there are several studies pointing to the strong connection between the two phenomena. Our results showed that there were significant correlations between the Factor of Cyberbullying and bullying at school the last 6 months, $r = .320, p < .001$, and

between the Factor of Cybervictimization and victimization at school the last 6 months, $r = .207, p < .001$ (Table 4). However, no significant correlation was found between students' reports of acting as bullies online and reports of being victims of traditional bullying at school, $r = .046, p = .422$, and vice-versa, that is, between students' reports of being victims in the internet and reports of acting as bullies at school, $r = .085, p = .132$.

Table 4. Correlations between involvement in school bullying, cyberbullying and excessive internet use in the past and in the future

	1	2	3	4	5	6	7	8	9
1. Suffer some kind of bullying in the next 6 months									
2. Suffer some kind of cyberbullying in the next 6 months									
3. Inflict some kind of bullying in the next 6 months									
4. Inflict some kind of cyberbullying in the next 6 months									
5. Suffered bullying at school in the last 6 months	.388**	.291**							
6. Inflicted bullying at school in the last 6 months			.537**	.348**					
7. Factor of 'Cybervictimization' in the last 6 months	.254**	.334**			.207**	.085			
8. Factor of 'Cyberbullying' in the last 6 months			.317**	.519**	.046	.320**			
9. Factor of "Excessive internet use"		.157		.121*			.152	.175*	

Note: * $p \leq .05$, ** $p \leq .01$

Risk assessment

We also looked at the correlations between students' responses regarding their involvement in bullying incidents over the past six months and their estimate of their (possible) involvement in such incidents in the next six months. Students appeared to offer very consistent responses in those questions regarding their past and future involvement. Specifically, as shown in Table 4, there was a statistically significant correlation between (a) victimization at school in the past and students' estimate for their victimization in both traditional, $r = .388, p < .001$, and cyberbullying, $r = .291, p < .001$, incidents in the next 6 months; and (b) bullying at school in the past and students' estimate for their bullying others both in traditional, $r = .537, p < .001$, and cyberbullying, $r = .348, p < .001$, incidents in the next 6 months.

Respectively, there was a significant correlation between (a) the factor of "Cyber-

victimization in the past” and the estimate for victimization both in traditional, $r = .254$, $p < .001$, and cyberbullying incidents in the future, $r = .334$, $p < .001$; and (b) the factor of “Cyberbullying others in the past” and the estimate for bullying others in traditional, $r = .317$, $p < .001$, and cyberbullying incidents in the future, $r = .519$, $p < .001$ (see Table 4).

There was also a significant correlation between excessive or pathological use of internet and cyberbullying. Specifically, there was a statistically significant correlation (although relatively low) between the factor of “Excessive Internet use” and reports on the role of perpetrator, but not the role of victim (Table 4). Thus, excessive use of internet correlated with the involvement as a perpetrator in cyberbullying in the past six months, $r = .175$, $p = .002$, and the estimate for cyberbullying others in the future, $r = .121$, $p = .032$, but not with cybervictimization in the past six months, $r = .152$, $p = .081$, and the estimate for cybervictimization in the next six months, $r = .157$, $p = .080$.

Evaluation of the school-based intervention

In order to examine the effectiveness of the intervention, Repeated Measures ANOVA was used. According to the results, there were no statistically significant differences in the overall TABBY profiles between the Experimental and the Control group of students before and after the intervention. However, as shown in Table 5, students in the experimental group (after the intervention was completed) reported that it was less likely to become victims of cyberbullying in the next six months compared to their answers before the intervention, $F(1, 122) = 7.632$, $p = .007$, partial $\eta^2 = .059$. Moreover, the same group of students (after the intervention) scored significantly lower at the set of questions about the forms of cybervictimization they had experienced during the last six months, $F(1, 122) = 6.004$, $p = .016$, partial $\eta^2 = .047$.

Table 5. Students' reports regarding their involvement in cybervictimization before and after the intervention in schools

	Experimental Group ($n = 123$)				Control Group ($n = 140$)			
	Before the intervention		After the intervention		Before the intervention		After the intervention	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Estimate for cybervictimization in the next 6 months	1.27**	1.50	0.88**	1.39	1.26	1.72	1.21	2.49
Involvement in cybervictimization in the last 6 months	0.76*	1.03	0.51*	0.88	0.79	0.97	0.66	0.91

Note: * $p \leq .05$, ** $p \leq .01$

Even though effect sizes are low, the above statistically significant differences could be attributed to the intervention, since there were no statistically significant differences in the control group before and after the intervention, neither at the set of questions regarding cybervictimization in the past, $F(1, 139) = 0.045, p = .833$, nor at the questions regarding the likelihood of becoming a victim of cyberbullying in the future, $F(1, 139) = 1.923, p = .168$. Moreover, there were no significant differences between the control and the experimental group before the intervention in these two factors: cybervictimization in the past, $F(1, 312) = 0.077, p = .781$, estimate for cybervictimization in the future, $F(1, 312) = 1.658, p = .199$.

DISCUSSION

The main objective of this paper was to report the evaluation of a short-term, school-based intervention against cyberrisks and cyberbullying, through the use of a self-assessing, non-standardized checklist (measuring a variety of risk factors relating to cyberbullying and victimization) completed online by secondary school students in Greece.

Evaluation of the school-based intervention

The results regarding the effect of the TABBY intervention on students' online behavior were inconclusive. Although there was some slight improvement in the experimental group's behavior toward safer internet choices, there is still room for improvement. This lack of conclusive results can be attributed to the long time elapsed between the two measurements (six months), including two months of summer vacation, which might have weakened the effect of the TABBY intervention. Moreover, there are studies indicating that cyberbullying incidents tend to decrease during summer vacations (Smith et al., 2008).

Another reason might be that the researchers did not take the necessary measures to ensure the actual implementation of the intervention by teachers who took up the training. As von Marées and Petermann (2012) point out "even if teachers rank prevention as a priority and know about possible interventions, policies or programs are not automatically implemented in schools" (p. 473).

Despite the limited impact of the TABBY intervention, it is worth noting that the proposed school-based intervention possesses several elements that characterize an effective cyberbullying prevention initiative. That is, it as an age-appropriate intervention that aims at the active involvement of students through the use of video presentations - a

significant element in prevention efforts (Farrington & Ttofi, 2009), discussions about the experience facilitated by a teacher - a crucial player in the battle against cyberbullying (Chibnall, Wallace, Leicht, & Lunghofer, 2006), and training in skills pertaining to the safe use of the internet - an effective preventive strategy (Pearce et al., 2011).

Furthermore, the use of a self-assessment checklist in the evaluation of the intervention highlighted a number of risk factors related to cyberbullying (risky and excessive internet use, involvement both in traditional bullying and cyberbullying and estimates of future involvement in both kinds of behavior), thus contributing, on the one hand, to the better understanding of the phenomenon in Greek schools and, on the other hand, to the formulation of suggestions for the improvement of the TABBY intervention (see Implications for practice).

Risky and excessive internet use

The results showed that adolescents in Greece use the internet extensively. The vast majority had at least one profile in a social network and used the internet up to 4 hours per day. These results are consistent with results from cyberbullying studies in other countries (Haddon et al., 2012; Hinduja & Patcin, 2008; Livingstone et al., 2011; Ofcom, 2008). Internet appears to gain popularity among youth worldwide because it meets “young people’s strong desire to connect with peers anywhere, anytime-to stay in touch, express themselves and share experiences” (Livingstone & Brake, 2009, p. 77). Although most young people appear to use the internet wisely, a disconcerting percentage of them abuse it. One in 10 students in this study reported that they remained online for more than 5 hours every day, a finding also confirmed by another Greek study (Τσορμπαζούδης & Αγγελακόπουλος, 2012). This abuse can be quite dangerous because of its strong correlation with cyberbullying (Cole et al., 2011. Lobe, Livingstone, Olafsson, Vodeb, & EU Kids Online, 2011). This points to the need for providing young people with the necessary knowledge and skills regarding safe use of the internet as well as online conduct.

Greek students reported a number of risky behaviors that they displayed online, such as having a large circle of online friends whom they did not know personally, visiting pages with harmful or illegal content (e.g., pornography or gambling), and even showing signs of compulsive internet use. This risky online behavior of Greek youth seems to be exacerbated by the limited discussions of online safety issues with adults (parents and teachers). Although Greek parents and teachers do not ignore or encourage risky online behaviors, it seems that they are less involved in discussion about safe use of the internet with young people compared to adults in other countries (Lenhart, Arafeh, Smith, &

Macgill, 2011; Livingstone et al., 2011). This bleak combination of risky behavior, on one hand, and lack of adult support and protection, on the other, results in an increased risk of involvement in dangerous online behaviors. Adolescent internet users in Greece often lack media or digital literacy, which in turn leads them to underestimate online dangers and to refrain from taking measures to protect themselves. Even adults do not take measures to protect young people, as their knowledge is limited as well and may not always possess the resources to manage such risks (Livingstone & Brake, 2009).

Involvement in bullying and cyberbullying

In terms of students' past involvement in bullying and cyberbullying, the percentages found in this study were consistent with those of other studies in Greece and elsewhere, although somewhat lower (Kowalski & Limber, 2007; Mishna et al., 2010; Ψάλτη, Κασάπη, & Δεληγιάννη-Κουϊμπζή, 2012; Sapouna, 2008; Smith, 2012; Τσοομπατζούδης & Αγγελακόπουλος, 2012; Ybarra & Mitchell, 2004a). Bullying percentages were 7.3% for victims and 3.2% for bullies, while cyberbullying percentages ranged between 3.5% and 29.6%. These discrepancies may be due to differences in the definition of the phenomenon of cyberbullying and its various forms, in the time frame used (e.g., incident took place within the past six months), in the measuring procedures and "flawed" instruments, and in limited samples (Menesini & Nocentini, 2009; Tokunaga, 2010).

TABBY profiles were also indicative of the significant risk young students in Greece face due to their online behavior. More than 7 out of 10 participating students ran moderate (60.5% had a Yellow profile) or high risk (15.6% had an Orange profile) of becoming involved in cyberbullying, boys more so than girls. These profiles coupled with students' online risky behavior and lack of adult support and protection paint quite a grave picture regarding the safe use of the internet by Greek youth. However, when the *TABBY* profiles of the Greek sample were compared with the *TABBY* profiles of students from the other countries that participated in the European project, Greek adolescents appeared to have displayed the least risky online behavior (Parti, Schmidt, & Virag, 2012; Porcaro & Rodontini, 2012). This finding is consistent with the results of a large-scale European study, according to which youth in Greece run the lowest risk from their use of the internet (Haddon et al., 2012). These contrasting results - risky online behavior but safer internet use - can be attributed to the content and wording of the questions as well as to the low percentages of bullying and cyberbullying involvement of the participating students.

The most common form of cyberbullying (both for victims and perpetrators) was rumor spreading, a quite surprising finding as it is not supported by other studies. This may be due to cultural factors but further study is necessary before a plausible explanation can be offered.

Gender differences

There were no or minimal *gender differences* in students' involvement in cyberbullying. This is consistent with the majority of studies showing an equal representation of boys and girls in cyberbullying (Beran & Li, 2005; Livingstone et al., 2011; Raskauskas & Stoltz, 2007; Smith et al., 2008; Tokunaga, 2010; Ybarra & Mitchell, 2004b). This picture is at odds with what research shows about gender differences in traditional bullying, with boys being more involved as both bullies and victims than girls (e.g., Boulton & Underwood, 1992; O'Moore & Hillery, 1989; Ψάλλη et al., 2012). One explanation might be that the profiles of both bullies and victims are quite different in traditional bullying and cyberbullying. Those involved in traditional bullying possess certain characteristics (physical stature, popularity) usually associated with the male gender. These characteristics are not obvious in cyberbullying incidents due to the virtual nature of the internet.

Traditional and cyber bullying

Despite the gender differences in traditional bullying and cyberbullying, results confirmed the strong statistical relationship that exists between the two forms, as they revealed that students, who were either bullies or victims at school, tended to adopt the same roles online as well. This finding is in line with numerous other studies (Beran & Li, 2007; Erentaite, Bergman, & Zukauskieve, 2012; Gradinger, Strohmeier, & Spiel, 2009; Hinduja & Patchin, 2009; Li, 2006; Raskauskas & Stoltz, 2007; Smith et al., 2008; Varjas et al., 2009; Ybarra & Mitchell, 2004a). However, our results did not support findings from several studies, according to which victims of bullying at school turn into cyberbullies due to the anonymity and distance that the internet provides among its users (e.g., Raskauskas & Stoltz, 2007; Smith et al., 2008). This difference may be also attributed to cultural factors but further research is required.

Risk assessment

Risk assessment is one of the innovative elements of the TABBY Project. Participating students were asked to report on the probability of their involvement in both traditional bullying and cyberbullying in the following six months, either as victims or as perpetrators. Results revealed that students were very consistent in their responses regarding their past and future involvement. All four roles (victim or bully, cybervictim or cyberbully) were significantly correlated with one another. In other words, students who were victimized at school reported a significant probability that they will be victimized both at school and online in the future and vice versa. By the same token, students who bullied others at school reported a significant probability of them bullying others either at school or online in the future and vice versa.

There are no research data to support these findings, as this aspect of cyberbullying has not been studied so far. It appears that there is a specific, although small, group of students who display a long-term involvement in aggressive behaviors, especially as perpetrators. These students are “at risk” and require specific attention (Livingstone & Brake, 2009). They need to be informed and trained – along with their “less risky” peers – on the responsible management of their public image on the internet. However, one should not forget that associations do not reflect causal relations, which require longitudinal data in order to be inferred (Tokunaga, 2010).

Students’ estimate of their involvement in cyberbullying incidents in the future significantly correlated with their risky and unsafe use of the internet. This was especially true for students with an Orange (high risk) profile. A large body of research confirms this finding (e.g., Agatston, Kowalski, & Limber, 2007; Hinduja & Patchin, 2009; Mishna et al., 2010; Slovak & Singer, 2011; Smith et al., 2008; Twyman, Saylor, Taylor, & Comeaux, 2010; Walrave & Heirman, 2011).

Limitations of the study - Suggestions for future research

There are several limitations in this study. First of all, it relied exclusively on self-report data from students, which limits their interpretability. Future research should focus on collecting data from multiple informants (parents, teachers etc.) using both qualitative and quantitative methods and over a long period of time (Tokunaga, 2010).

The TABBY intervention lacked an evaluation procedure of teachers’ role. This did not allow for a valid assessment of the implementation of the intervention according to the philosophy and content of the project. Results from the evaluation study pointed to the need for: (a) an extended implementation of the intervention, (b)

more information regarding the various aspects of cyberbullying provided to students, (c) parental involvement in all prevention initiatives, and (d) the collaboration of school with families and the community.

A new, innovative non-standardized checklist was used for the first time in this study. The sample consisted of students of 13-14 years of age. In the future, students of a larger age range should be used to test its potential with students younger and older. The three factors of the checklist had relatively low reliabilities. More research is needed to improve the internal consistency of these factors. In the future, a modified version of the checklist should be used with larger and more representative samples of students so that its psychometric properties can be thoroughly tested.

Future research should also pay attention to various factors that might mediate the relationship of cyberbullying to the following: (a) school and the role of adults, such as: quality of communication between students and parents/teachers and level of digital literacy among adults; (b) students' estimate of their future involvement in cyberbullying, such as: students' self-esteem and personal or psychological difficulties they may face; and (c) safe use of the internet, such as: online identity experimentation, disclosure of personal information online, and the qualities of technology involved in cyberbullying (Tokunaga, 2010).

Implications for practice

The TABBY intervention, despite its limitations, can be a useful tool in the battle against cyberbullying. First of all, it makes use of the internet, a popular means of communication among youth. Through the webpage students are provided with much needed knowledge of strategies and resources - both preventive and reactive - regarding internet safety and online conduct (von Marées & Petermann, 2012).

The TABBY intervention can be easily incorporated into the school curriculum, thus assisting in the development and/or maintenance of a positive, supportive, non-threatening school environment in which there are open discussions about cyberbullying. During these discussions, teachers have to opportunity to show their students - through the use of the TABBY videos - ways to successfully deal with such incidents. These discussions also help students to become part of the solution themselves (von Marées & Petermann, 2012). In turn, this can lead to the development of a school culture that opposes all forms of violence and boosts students' confidence in adults' help (Patchin & Hinduja, 2011).

Parents can also use the TABBY intervention at home to facilitate discussions with their children about internet use and risky behaviors, which can help parents "to

monitor children's use of ICT and the impact it has on their lives" (von Marées & Petermann, 2012, p. 472).

To conclude, this study was an extended pilot of an intervention project, which, nevertheless, produced some promising results. It brought about significant changes in the TABBY checklist, which is currently being used with a larger student sample, and enriched the TABBY intervention with a video-game which aims at changing students' behavior regarding the prevention of cyberbullying incidents.

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