Coping with Cyberbullying: A Systematic Literature Review

Final Report of the COST IS 0801 Working Group 5

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Abstract

The present literature review aims to summarize current knowledge on coping with cyberbullying. Coping strategies are defined as responses (behaviours, but also emotions/cognitions) that are successful (or unsuccessful) against cyberbullying. We differentiate between three different coping domains: reducing risks, combatting the problem, and buffering negative impact. A systematic literature search was conducted yielding 36 relevant papers. Most of these papers report findings regarding general prevention strategies (e.g. anti-bullying policies or cybersafety strategies) and the use of coping strategies such as seeking support, reactions towards cyberbullies (retaliation or confronting), technical solutions and avoidant and emotion-focused strategies. A few studies report on perceived success whereas only a very few studies measure the success of the strategies in relation to cyberbullying, its risks and outcomes. In sum, although there are a number of studies investigating the use of coping strategies, there is a clear lack of evidence concerning the question on what are successful coping strategies. Based on the current lack of sound empirical data, the report suggests future research strategies.

Content

1   Background and Aims

Cyberbullying refers to bullying and harassment of others by means of new electronic technologies, primarily mobile phones and the internet. There has been much research and action on traditional forms of bullying in schools, with some success, but cyberbullying has arisen and increased in the last few years. Researchers, pupils, parents, teachers, unions, and local, regional and national authorities, are all in various ways starting to grapple with the issues involved in cyberbullying, in consultation with mobile phone companies and internet service providers. COST Action IS 0801 aims at sharing expertise on cyberbullying in educational settings, and coping with negative and enhancing positive uses of new technologies. Different working groups within the COST-action devoted their time to generate expertise regarding guidelines, successful coping and positive use.

The general aim of one of these working groups (WG5) was to share research on coping strategies, in different countries, and on research that will inform the work on guidelines for cyberbullying. Towards this general aim, we specifically aimed to explore the empirical (scientific) database regarding successful coping strategies against cyberbullying on: (a) Personal level; (b) Family level; (c) School level. This exploration includes a systematic literature review and the preparation of a review of coping measures in relation to cyberbullying. **The current report provides descriptive results on the systematic literature review**.

2   Systematic Literature Search

2.1   Overview of the steps

1. Internal definition of „Coping with cyberbullying"	completed
2. Establishing a set of keywords	completed
3. Systematic searches on different databases	completed
4. Preselection of relevant articles (related to cyberbullying)	completed
5. Inclusion of the hits in Endnote	completed
6. Systematic ratings for relevance (coping with cyberbullying)	completed
7. Search of articles (pdf) > made available to group members through Google docs	completed
8. Establishing a category system for systematic data analyis	completed
9. Systematic rating of relevant articles	completed
10. Summarizing the results of the data analysis	> Final report with descriptive results
11. Joint writing of a review paper	> Manuscript accepted for publication[1]

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[1] Perren, S., Corcoran, L, Cowie, H., Dehue, F., Garcia, D., McGuckin C., Smahel, D., Sevcikova, A, Tsatsou, P., Völlink, T. (2012). *Facing cyberbullying: Review of empirical evidence regarding successful responses by students, parents and schools*. International Journal of Conflict and Violence, in press.

2.2   Keywords

Coping strategies are defined by WG5 as responses (behaviors, but also emotions/cognitions) that are successful (or unsuccessful) against cyberbullying

The following keywords and databases to be searched were defined.

001 cyberbullying OR cyber-bullying

002 (cyber OR internet OR online OR mobile OR electronic) AND (bullying)

003 griefing OR cyberstalking OR cyber-stalking

004 (cyber OR internet OR online OR mobile OR electronic) AND (aggression OR harassment OR victimization OR victimisation)

005 1 OR 2 OR 3 OR 4

006 child* OR adolesc* OR school OR kindergarten OR teacher* OR parent*

007 coping OR cope

008 reaction* OR action*

009 response* OR responding

010 Adaptive AND behav*

011 Regulation AND (self OR emotion*)

012 7 OR 8 OR 9 OR 10 OR 11

013 5 AND 6 AND 12

2.3   Databases and number of hits

Database	*End of search period*	*Hits*
PsychInfo	17.09.2010	93
ERIC	17.09.2010	65
Medline	17.09.2010	28
Psyndex: Literatur und AV-Medien	17.09.2010	3
IBSS: International Bibliography of the Social Sciences	17.09.2010	7
Web of Science	17.09.2010	38
Francis	17.09.2010	11
SocINDEX with Full Text	17.09.2010	44
Communication & Mass Media Complete	17.09.2010	12
Sociological Abstracts	17.09.2010	616[1]
PsycARTICLES	17.09.2010	1788[1]
Science Direct	17.09.2010	10,924[1]

[1]These searches yielded a high number of irrelevant references

All hits were pre-selected regarding match of the articles with our topic cyberbullying (or on-line aggression) in youth / educational settings. Those hits were entered into an Endnote-Database (duplicates removed).

This search resulted in **225 articles**. These hits were twice rated for relevance.

The first round yielded the following number of references[2]: Relevant (=2): 46; Maybe relevant (=1): 29; Not relevant (=0): 150.

All abstracts rated "not relevant" were double-checked regarding relevance by two other raters[3] and excluded from the further steps. This step of the literature search was finished in September 2010 (newer studies are not included).

2.4   Additional references added

In a further step, we added some additional relevant references. Based on a suggestion by some co-authors we did an additional database search (only PsychInfo, ERIC and Medline) regarding "cyberbullying" and parental mediation or parenting. This search resulted in one additional relevant reference, which was included in our database. Some members[4] sent additional papers, which might be relevant for our research aim. They were added in the database[5].

This procedure resulted in a preselection of 88 partly or highly relevant references, which were rated with a systematic category system (see **Appendix 1**).

3   Categorization System

Next, we established a category system for systematic data analysis. We systematically collected information on: Source (e.g. kind and quality of article); Research questions; Methods; and Results

A preliminary version of the category system was developed by the first author and discussed in the WG-meeting in Florence and also online. The final categorization system can be seen in **Appendix 2.**

The paper version of the category system was transformed into an electronic data entry system.[6] Data was entered through an electronic questionnaire (netq).

3.1   Rating procedure

The systematic rating of relevant articles was divided between seven raters[7]. The first author created a list of reference and assigned to the raters (by chance) about 13 articles which the person had to rate. In addition, we assigned each person 3 additional references which they had to rate as a second person

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[2] rated by LC and UR

[3] TV and FD

[4] PT, MF, FD and TV

[5] Campbell, MA: 2005; Chibbaro, JS: 2007; Eastin, MS, Greenberg, BS, Hofschire, L: 2006; Hensler-Mcginnis, N. F. (2008); Li, Q: 2006; Livingstone, S., L. Haddon, A. Görzig, and K. Olafsson (2010); Lodge, J. & Frydenberg, E. (2007); Mason, KL: 2008; Rosen et al., 2008; Slonje, R, Smith, PK: 2008; Stacey, E: 2009, 115; Topçu C., Erdur-Baker O., Capa-Aydin Y. (2008).

[6] developed by LC.

[7] HC, FD, DG, TV, AC/HM, AS, PT.

("blind" inter-rater-reliability to ensure the quality of the rating), i.e. every person was responsible for about 16 articles. The raters had to search for the paper or pdf-version of the article through electronic or other public sources or by contacting the authors.

For the descriptive results (see Appendix 3), answers of both raters were aggregated (numerical variables) or combined (open questions). Inter-rater reliability was moderate.

3.2   References included for further analyses

Based on the systematic ratings, articles were re-rated according to their relevance and selected for inclusion or exclusion for the final analyses. The following inclusion criteria were used:

- Empirical studies on cyberbullying (new data and knowledge)
- Published papers only (scientific journal, book chapter, EuKidsOnline, dissertations - exclude conference papers and posters....)
- Who is coping: Parents, Teacher (Schools) or students...
- Paper should include some measures of coping strategies (= listed in the coping model)
- Paper should address at least one of our predefined research questions (prevent, combat, buffer)

4   Results

4.1   General characteristics of the reviewed publications

4.1.1   Number of relevant articles and research questions

36 articles which were rated as being relevant for our research questions fulfil the defined inclusion criteria and are included in the current report (see Table 1). Most of them concern the use of coping strategies, either to prevent or to combat cyberbullying.

Table 1: Research questions addressed in the empirical studies

	What coping strategies are used against cyberbullying?	What is the success of coping strategies?		Total
	(reported or observed)	(Perceived)	(Measured)	
preventing cyberbullying	14	4	5	23
combating cyberbullying	23	5	0	28
buffering negative impact	10	3	1	14

4.1.2   Methodological approach

Most studies include data from cross-sectional studies with student reports (30 studies), only one study had longitudinal data. More than half of the articles also address traditional bullying besides cyberbullying. About one third of the studies also assessed other online risks. Most articles concern students' coping strategies, some also schools' and parents' responses to cyberbullying or general anti-bullying strategies. The most frequently investigated coping strategy is "support" (e.g. telling friends, parents, teachers). Technical solutions, retaliating/confronting the bully and ignoring were also discussed in several studies.

4.2   Preventing cyberbullying

4.2.1   Description of publications

Before discussing the literature reporting on prevention strategies for both traditional and cyber or electronic bullying, it is important that we outline the main characteristics of this literature and related literature gaps. Firstly, most of the literature reporting strategies to prevent cyberbullying refers to journal articles (14 out of 21 articles) and only a couple of literature outputs are in a book or book chapter format. Secondly, most of the literature on prevention strategies examines both perpetration and victimisation aspects of cyberbullying, whereas some greater emphasis on victimisation aspects seems to be placed by certain parts of the existing literature evidence.

Regarding the forms of cyberbullying and who is coping with it, most literature on prevention of cyberbullying examines both mobile phone and Internet bullying and it usually explores students' coping with it, followed by parents' and teachers' strategies to protect children/students. Finally, regarding the quality of the reported data, most of the literature has some research/methodological limitations (5), while some literature outputs exhibit either strong methodological design (5) or report no new empirical data at all (4). Such reflections on the quality of research literature and its methodological ramifications are important as they can shed some light on the breadth and quality of the results reported by the literature on cyberbullying prevention and on whether such results are supported by sufficient data and evidence or not.

4.2.2   Use of coping strategies

Regarding the prevention strategies reported in the literature, one could argue that some strategies concern traditional bullying and some others cyberbullying, with one category of prevention strategies often overlapping with and feeding the other. In what follows we report on these two categories separately, while we base our discussion on the distinction between prevention categories supported by research data and evidence and those relying more on researchers' observations and conclusions.

4.2.2.1   Measures to prevent bullying (or antisocial behaviour in general)

Regarding traditional bullying, five articles of the reviewed literature outputs report on prevention measures (including social skills training). This literature puts forward results on the usage of measures to prevent traditional bullying as well as a range of relevant suggestions and implications for future strategies.

Specifically, the literature reports on the following prevention strategies used for traditional bullying:

1. Teachers consider it important to engage in discussion and communication with students at school, also involving social workers or parents (teacher/counselor perspective) (DiBasilio, 2008);

2. Students feel safe at school and assess teachers' interventions to prevent bullying quite positively. Students feel that the school environment is important for their protection (DiBasilio, 2008);

3. At the same time, there is some literature that finds that over a third of the students have a negative perception of the school's prevention strategies (Genz, 2010);

4. Peer-help for preventing bullying is considered important among students and it can be based on student-leaders and bystanders (DiBasilio, 2008).

On the other hand, the literature reaches conclusions, points to implications and makes suggestions for preventing traditional bullying. Most of these observations and arguments refer to the role of schools and make relevant suggestions concerning teaching, curriculum, policies in place and so on:

1. Curriculum programs to incorporate the direct teaching of values education, empathy training and the use of stories and drama (Campbell, 2005);

2. Need for more effective programs for students including specific social skills training that are part of the school curriculum (Dranoff, 2008);

3. Need for classroom interventions that incorporate lessons on bullying into life skills and bullying prevention classes and also implement effective social skills, empathy training and conflict resolution education (Mason, 2008);

4. There is literature that makes recommendations for strategies to prevent bullying at middle school including an intensified whole school approach that requires full commitment from all stake holders and focuses on ongoing education for adults in identifying and responding to bullying (Dranoff, 2008);

5. Also, some literature makes concrete suggestions for anti-bullying programmes such as the Olweus Bullying Prevention Program (Willard, 2007);

6. Some othe literature brings up the importance of community activities (Willard, 2007) to bring together family, educational, third sector and policymaking ideas within and throughout the community context;

7. Finally, the literature suggests that questions about Internet experiences should be included in routine well-being checks as well as more intensive therapeutic conversations and risk assessments. Along these lines, the literature suggests that professionals should arguably emphasize general positive parenting styles to prevent and address bullying (Ybarra and Mitchell, 2004).

4.2.2.2   *Measures regarding Internet use and online communication*

On the other hand, most of the reviewed literature (14) reports on prevention measures for cyberbullying. Most of this literature actually puts forward conclusions about and implications for

prevention measures rather than actual empirical data and related findings regarding the usage and success of such measures (see section 3.2.2 for more information on success). In this sense, part of this literature does not present a significant volume of new data, nor does it put forward systematic and thorough conclusions about or implications for preventing cyberbullying in the future.

Specifically, the literature reports the following findings and results on strategies for preventing cyber bullying:

1. Peer-intervention (i.e. peer support by trained student leaders) is used in school to prevent cyberbullying in school by:

   - Creating bullying awareness in the school;

   - Developing leadership skills among students;

   - Developing intervention practices in the student community to prevent bullying;

   - Developing team-building initiatives in the student community;

   - By students behaving proactively as bystanders (DiBasilio, 2008):

2. Technology enabled prevention strategies in use: switching a screen name, blocking a particular name and sending a warning to someone to prevent cyberbullying are some of the technology enabled strategies reported in research (Juvonen and Gross, 2008). Also, some students/youth argue that they know about safety strategies in cyberspace (Li, 2007).

3. Parental supervision (Rosen, Cheever and Carier, 2008):

   - The literature reports that parents set limits on computer and online use and monitor their pre-teens and young teens more than their older teens. The literature finds that parenting styles are related to experiences, behaviors and attitudes.

   - Also the literature finds that teens with authoritative parents have limits and are monitored more than those with authoritarian and permissive parents. Specifically, neglectful parents set fewer limits and monitor their teens the least, while authoritative and authoritarian parents are more likely to set limits on computer behavior than permissive and neglectful parents. In the same way, authoritative and authoritarian parents are more likely to set limits on MySpace use and less likely to allow computers in teens' bedrooms.

4. In addition, the literature reports on a number of other prevention tactics (Stacey, 2009) such as:

   - trying to sort out issues face to face rather than online;

   - better education about the Internet, something widely favoured by parents and teachers as much as by students themselves;

   - a code of conduct for better communication amongst students, something arguably supported more and viewed less critically and less as a challenge to defy by students than introducing rules and bans at school.

However, in some of the literature students appear pessimistic about the possibility of preventing cyberbullying, arguing that it is unlikely to be 'eradicated' (Smith et al., 2008).

In addition to reporting results, the literature puts forward a series of conclusions about and implications for preventing Internet/online bullying in future. Overall the literature (Campbell, 2005) argues that we should draw upon previous experience from face-to-face bullying prevention strategies so as to apply prevention of cyberbullying along the following lines:

1. Awareness raising initiatives in order that teachers, parents and students be made aware of cyber bullying. More specifically:

   • Professional development for teachers is needed, explaining what cyber bullying is and the real consequences of severe and continuous cyberbullying (Campbell, 2005);

   • Parents also need to be made aware of cyber bullying methods, such as student texting on mobile phones under the bedcovers in the middle of the night and sending hurtful emails from the computer in their bedroom (Campbell, 2005);

   • The literature also notes the adults' responsibility for making youth aware of the possible consequences of sharing personal information online (Young, Young and Fullwood, 2007).

   • Along these lines, the literature argues that awareness raising can be developed through training and through parent education about the risks associated with online communication and training of youth in strategies to prevent cyberbullying incidents (Juvonen and Gross, 2008; Li, 2007; Wright et al., 2009).

2. School policies to respond to the challenge of cyberbullying and implement a range of prevention policies accordingly (Campbell, 2005; Dranoff, 2008; Mason, 2008; Stacey, 2009). More specifically, the literature suggests:

   • An intensified whole school approach that requires full commitment from all stake holders and focuses on ongoing education for adults in identifying and responding to bullying;

   • Schools to include the issue of cyberbullying into the whole school policy, including specific social skills training and more effective disciplinary efforts such as restrictions of usage of mobile phones, email, chat sites and social networking.

3. School programmes are at the core of the suggestions of some literature and they are outlined as frameworks to incorporate the direct teaching of values education, empathy training and the use of stories and drama in the curriculum. Also, according to the literature, direct teaching of 'netiquette' and othe classroom and teacher interventions could help to prevent cyberbullying (Campbell, 2005).

4. More broadly, social programmes and curriculum programmes are suggested by the literature as means to motivate students towards taking action against cyberbullying. Some of the suggested programmes include peer support programmes, buddy programmes teaching values in education, empathy training, teaching of 'netiquette' and other anti-cyberbullying elements integrated into teaching (Campbell, 2005).

5. Adult supervision is also identified by the literature (Cambell, 2005) as an important prevention strategy that consists of the following guidelines:

- Teachers must be vigilant with students and supervise them when using computers;

- Parents must have a greater role to play in supervision to prevent bullying by technology; Parents need to take back the power to control the technology and should pay attention to where the home computer is located;

- Schools could assist in parent education to this end and encourage parents to talk to young people about the technology.

6. More specifically, regarding parental intervention, the literature suggests the following (Rosen, Cheever and Carier, 2008):

- Parents should set limits and monitor ther child's use of computers;

- It is not recommended that children have computers in their bedrooms;

- Parents should be involved in their children's use of the internet and should avoid neglecting their parenting role in this domain.

Hence, the literature stresses the impotance of both family and education/school (Smith et al., 2008) and points out to the role that community/authority wide interventions can play in preventing and stopping cyberbullying (e.g. legal issues/rulings) (Willard, 2007). In this respects it becomes apparent how many of the suggested and reported prevention strategies are common or at least similar between traditional bullying and cyberbullying. At the same time, there is cyberbullying specific literature that stresses the need for empowering children and making them the key actors deciding about and implementing prevention strategies through appropriate cyberspace usage and youth's input into relevant psychosocial interventions (Ybarrra and Mitchell, 2004; Young,Young and Fullwood, 2007).

4.2.3   Success of coping strategies

Regarding some of the above 'in use' strategies reported in the literature, there is some, although limited, evidence concerning their success and level of effectiveness in actually preventing cyberbullying. First, the literature evaluating the success of peer support strategies has argued that this type of intervention has led, according to teachers, to some decrease in school bullying. School staff claimed that reports of electronic bullying decline, while students' perceptions of bullying widened. Also, the number of students who did not participate in electronic bullying increased (DiBasilio, 2008). The literature suggests that the decrease in bullying may have been a result of student-leaders going into classes to discuss bullying and reporting back. So, education is key (DiBasilio, 2008).

As far as parental strategies are concerned, the literature has found that parenting styles and parental limit-setting influence the coping. Specifically, parental monitoring of sites is a factor in reducing the amount of time children spent online (Rosen, Cheever and Carrier, 2008). Also, research has found that higher parental support is negatively associated with involvement in bullying (Willard, 2007). On the other hand, infrequent parental monitoring is significant in the odds of reporting aggressor/target behavior, with a threefold increase in likelihood for youth indicating poor parental monitoring (Ybarra and Mitchell, 2004).

At the same time, some literature concludes that prevention strategies which are in place in school are not effective and that additional prevention strategies are warranted to create an open line of communication between students and school adults (Genz, 2010).

4.3   Combating cyberbullying

4.3.1   Technical strategies

The literature review identified 15 articles that discussed the strategy of blocking a sender and 9 published works mentioning the report abuse button (including theoretically focused papers as well). It is worth noting that no codes were developed for other technical strategies. Based on our detailed analysis, other technologically related actions which were measured or at least discussed at the level of recommendations were recognized:

    a)   blocking a sender (Aricak et al., 2008; Juvonen & Gross, 2008; Price, & Dalgleish, 2010; Smith et al., 2008; Stacey, 2009; Staksrud & Livingstone, 2009)

    b)   restricting particular screen names from their buddy list (Juvonen & Gross, 2008)

    c)   changing (online) identity - the username (Aricak et al., 2008; Juvonen & Gross, 2008), e-mail address (Smith et al., 2008), one´s avatar/mobile phone number (Price, & Dalgleish, 2010)

    d)   deleting harmful messages (Chesney et al., 2009; Staksrud & Livingstone, 2009)

    e)   using a report abuse button (Chesney et al., 2009; Willard, 2007; Wright et al., 2009)

    f)   tracing an aggressor to identify his/her identity (Stacey, 2009)

In terms of preferences of technical strategies, the study findings show that blocking the sender was the most prevalent (Aricak et al., 2008; Juvonen & Gross, 2008; Smith et al., 2008). Furthermore, deleting messages was considered to be a common action that cybervictims had taken (Chesney et al., 2009; Staksrud & Livingstone, 2009). Similarly, changing (online) identity and restricting particular screen names from their buddy list were used by children and adolescents as well (Aricak et al., 2008; Juvonen & Gross, 2008; Price & Dalgleish, 2010; Smith et al., 2008). On the other hand, tracing an aggressor to identify his/her identity (Stacey, 2009) was found to be the least common.

Although a large number of technical strategies and variability in preferences is apparent, their effects have been measured only in a single study which was included in the present literature overview. Specifically, according to Price and Dalgleish (2010), blocking a sender has been found to be the most helpful.

4.3.1.1   Recommendation

Apart from the above-mentioned empirically based findings, many authors make several recommendations. They call for systematic education about safety strategies (Li, 2007), ensuring support from IT specialists for children and adolescents (e.g., tracing harassers, blocking unwanted messages) (Stacey, 2009). Willard develops these recommendations into more detailed suggestions, specifically into a list of technical actions that victimized individuals can consider:

    1.   Contact the mobile phone company when dealing with mobile phone bullying

    2.   Contact the ISP of the bully and look on the ISP´s site for a "Contact us" e-mail address when cyberbullying occurs by e-mail:

    3.   Contact the relevant webmaster when cyberbullying takes place online - or go to the host company´s website and file a complaint through the "Contact us" e-mail address

    4.   Try to identify the cyberbully if possible (to be able to take further/legal action if needed)

However, as suggested above, some recommendations lack research evidence. Sometimes the proposed strategies seem to be in contradiction with those that cybervictims are more likely to adopt.

For instance, on one the hand Willard (2007) stresses the need to save the evidence in order to keep online material proving the act of cyberbullying, yet on the other hand victimized internet users tend to delete them. To sum up, it remains unknown what effect deleting harmful materials may have on combating cyberbullying, which in turn can question the necessity to save the evidence. On this single example we aimed to show the necessity of examining outcomes of technical strategies that would help us provide young internet users with more accurate recommendations on how to deal with cyberbullying.

4.3.2   Confronting a bully

Confrontation with the cyberbully was defined in two different ways: retaliation and non-aggressive confrontation. Based on pre-established categories, the literature overview identified 14 articles discussing the issue of retaliation and 12 articles on confronting the cyberbully.

4.3.2.1   *Retaliation*

Six articles included in the present literature overview report studies which empirically explored retaliation on two distinct levels: retaliation offline and online. Juvonen and Gross (2008) found that cybervictims were more likely to retaliate offline (60%) than online (28%). Furthermore, there were observed gender differences regarding the preferences of the place for retaliation. Specifically, males' responses revealed more active and physical retaliatory behavior (by physical assault), whereas females' responses indicated more passive and verbal retaliatory behavior (by changing her e-mail address or screen name and sending a message back) (Hoff & Mitchell, 2009). However, other studies provide evidence that retaliation offline or online was less prevalent than other coping strategies (DiBasilo, 2008; Hensler-McGinnis, 2008; Price & Dalgeish, 2010). To sum up, the findings on the place of retaliation do not unequivocally support the assumption that victimized adolescents take advantage of the anonymity of cyberspace for revenge. Instead, they only show that adolescent girls seem to be more likely to turn to the internet to retaliate.

4.3.2.2   *Recommendation*

When it comes to the measured effect of this coping strategy, Hoff and Mitchell´s (2009) studies warn against the risk which retaliatory behaviour might produce; specifically, this behavior may provide temporary relief but is unlikely to deter the cyberbully and may even escalate the situation further. In the literature overview, 3 works elaborated recommendations regarding retaliatory behavior even though they were not based on any research evidence. Specifically, the authors of those contributions recommended:

- on the peer-to-peer level children should be informed about the dangers and consequent legal risks of retaliation (Manson, 2008) or undergo training that focuses on reducing retaliatory cyberbullying and impulsive behavior that may be causing the retaliatory behavior (Bhat, 2008)
- on the level of professional help counselors, psychologist and administrators should pay greater attention to whether a target intends to retaliate (Willard, 2007)

4.3.2.3   Confronting

Apart from retaliation, it has been found that some cybervictims tried to non-aggressively confront their cyberbullies. Based on used samples, the percentage of adolescents who took this action varied from 16.4% (Aricak et al., 2008) to 25% (Juvonen & Gross, 2008).

In terms of effects by coping strategy on combating cyberbullying, there seems to be insufficient evidence. Only the study conducted by Price and Dalgleish (2010) has found that confronting a bully offline was the most often used action against bullying, and yet also the least helpful one. On the other hand, Huang and Chou (2010) have documented that personal confrontation was well accepted among younger children (10-13 years) in cases where students were harassed by someone they knew.

4.3.2.4   Recommendation

From the perspective of recommendations, those studies that focused on this issue emphasize that the target should be instructed to send the cyberbully a very clear, unemotional, strong message demanding the cyberbullying to stop (Willard, 2007). Furthermore, DiBasilio (2008) documented that the students´ reluctance to confront the cyberbully may be diminished by long-term training. However, further research on the impact of confrontation on combating cyberbullying is necessary before more specific recommendations can be provided.

4.3.3   Doing nothing or ignoring

Based on pre-established categories, we identified 17 research works that concerned the coping strategy - doing nothing/ignoring. Doing nothing or ignoring may be also represented by actions such as to stop looking at websites where the events happened or just staying offline (Price, & Dalgleish, 2010). Apart for some exceptions, doing nothing or ignoring was a relatively often used strategy and was generally proposed by students (Hoff & Mitchell, 2009; Price & Dalgleish,2010; Smith 2008; Wright et al., 2009). According to Stacey (2009), younger internet users aged between 13 and 15 years were more likely to approve avoiding "fuss".

However, despite the preference of this strategy, two studies have documented its ineffectiveness (Hoff & Mitchell, 2009; Price & Dalgleish, 2010). More specifically, Hoff and Mitchell (2009) came to the conclusion that the victims simply did not know what else to do, since "doing nothing" resulted in an escalation of cyberbullying.

4.3.4   Instrumental and Emotional Support

In our literature overview, we reviewed papers that addressed support from adults, teachers, peers or friends and other types of support or help. Some papers included empirical data regarding these different types of supports but others are more theory-based papers that give suggestions/advice about what different providers of support can do about cyberbullying. Initially, for the literature review we distinguished between instrumental and emotional support where instrumental support was defined through "the most concrete direct form of social support, encompassing help in the form of money, time, in-kind assistance, and other explicit interventions on the person's behalf", while emotional support captured support from family and close friends including empathy, concern, caring, love, and trust (House, 1981). However, the findings from our literature overview have shown that studies lack this approach and seem not to distinguish between asking for help and asking for support. Therefore, in this report we decided to address them together.

Cyberbullying has a serious emotional impact and it has been found that telling others about it, such as parents, carers and teachers, is helpful (Price & Dalgleish, 2010). However, studies point to the fact that over quarter of victims did not seek this support and that the majority of them lack coping strategies to deal with cyberbullying (Li, 2006; Price & Dalgleish, 2010).

4.3.4.1 *Adults Support and Help from Parents, Teachers and Other Adults*

Some studies report that telling a parent about cyberbullying is one of the most popular coping strategies (Smith et al., 2008). However, others show that seeking support from adults was not popular although it was effective regarding helpfulness (Price & Dalgleish, 2010). In fact only a very modest percentage of cybervictims and of students that knew about cyberbullying told their parents or adults about it (e.g. Aricak et al., 2008; Li, 2006, 2007). There are also empirical findings providing evidence that telling a teacher or principal was relatively effective. However, this also was not a popular strategy (Price & Dalgleish, 2010). Empirical studies found that the percentage of cybervictims that told their teachers about the abuse was minimal (Aricak et al., 2008;). In a focus group study, students reported that they would discuss cyberbullying with their school counselor (Wright, Burnham, Inman, & Ogorchock, 2009). But the truth is they usually do not talk with their parents or other adults, including from school, about cyberbullying (Hoff & Mitchell, 2009; Juvonen & Gross, 2008; Li, 2006, 2007; Mishna, Saini, & Solomon, 2009).

Students have a perception that adults are quite unaware of what cyberbullying is (Mishna, Saini, & Solomon, 2009 and only a few tell adults (from school or outside of it) about bullying and ask their help (DiBasilio, 2008). Even so, they seem to be less prone to talk with their school leaders and more likely to tell their parents (DiBasilio,2008; Hoff & Mitchell, 2009). In the retrospective study developed by Hoff and Mitchell (2009), only a small percentage of students (16.7%) informed school authorities about cyberbullying incidents. From these students, 70.7% claimed that the school authorities frequently did nothing to help them. Students considered that schools would not take these incidents seriously, would not protect their privacy or would simply not take action. Most of them perceived that schools wanted distance from this problem. When asked about anti-cyberbullying school policies 36.1% reported that their school had a policy, 15.4% reported that their school did not have one and 48.6% of students reported that if there was such a policy in their school they were not aware of it (Hoff & Mitchell, 2009). In contradiction, Li (2006) notes that only 64.1% of students believed that adults from their schools would try to put an end to cyberbullying after becoming aware of it.

However, the reasons presented for not reporting cyberbullying incidents to their parents and other adults are varied and include the fact that students believed that they need to learn how to deal with cyberbullying themselves, the fear that this would complicate their problems even further since adults rarely understood their online world, the fear of being advised to ignore the situation, the perception that school adults do not take action against cyberbullying, the wish to be independent, the need to avoid worrying or angering parents, and the desire to avoid the loss of their computer or cell phone privileges (which they perceive as a sort of punishment) or to hide embarrassing behavior (Genz, 2010; Hoff & Mitchell, 2009; Juvonen & Gross, 2008; Mishna et al., 2009).

The fact is that students do have a perception that bullying is ignored or not noticed by school staff for almost half of the time (Genz, 2010). Some also perceive negatively the prevention strategies carried

out by the school and believe that, because cyberbullying occurs *outside* school. teachers cannot do anything (Genz, 2010; Mishna et al., 2009). But others believe that, even if it occurred outside school, school authorities should and would deal with cyberbullying (Mishna et al., 2009). Students aged between 13 and 15 expressed their preference for dealing with problems themselves and the older ones (16-17yrs) relied even more on themselves (Stacey, 2009). They used various strategies to be safe on the cyberspace and considered that it was only necessary to involve adults in exceptional circumstances (Stacey, 2009).

Although teachers and counsellors can take several actions or measures (e.g. disciplining the bully or the bully-victim; ignoring the bullying; calling the parent; bringing bullying to the attention of the school administration; addressing their class about bullying; using one specific method for reducing bullying; teachers bringing bullying to the attention of counselors and teachers helping students work it out themselves), none of the victims from DiBasilio's (2008) study would tell their teacher about the victimization as they did not agree that it was right to punish the bully.

4.3.4.2   Recommendations

Research shows that cyberbullying bullies/victims are more infrequently monitored than non-harassed children and are also more likely to have poor parents or caregivers than non-harassed children (Ybarra & Mitchell, 2004). Parents also supervised their older children less than their younger ones (Rosen, Cheever, & Carrier, 2008). Authoritative parents limited and monitored their children more when compared to authoritarian, permissive or neglectful parents (whose children were the least supervised). On the other hand, children with authoritative or authoritarian parents were the most likely to be supervised (e.g. on MySpace) and less likely to have computers in their bedrooms (Rosen et al., 2008).

Increased parental awareness may reduce cybervictimization. However, one empirical study has found that not all parental supervision seems to be effective. When parents controlled the time their children spent online, the location of the computer and the information that they shared with others, that did not influence the probability of their child being a victim of cyberbullying (Mesch, 2009). Similarly, neither measures such as blocking access to websites or recording online activities reached significance in terms of their effectiveness. Only monitoring the sites visited had an impact on the risk of being cyberbullied, but only for boys (Mesch, 2009).

A more theoretical article recommends that parents should: advise their children not to reveal information on the internet, limit and monitor the time they spend online or share evidence with the school when facing a cyberbullying situation (Kowalski, Limber, Agatston, & Corporation, 2008).

 In another literature review article, recommendations are made to schools which might be relevant but which need to be supported by evidence. These recommendations include: a whole-school policy to counteract cyberbullying; up-to-date knowledge about legal sanctions with regard to cyberbullying ; responsibilities and rights of all in the school community should be established; school policies on cyberbullying should be monitored regularly; and boundaries of school policies to capture all internet use should be changed, including classrooms, home and cell phones (Brown, Jackson, & Cassidy, 2006). As an example, in Illinois, action against cyberbullying taken by public school principals, ranged from conferences with the victim and with the bully to no action. These were classified into four categories: a) action taken with the student, b) counseling, c) parent involvement, d) law

enforcement and legal action, e) consequences versus restorative action, f) actions employing internal and/or external (outside the school) resources, and g) actions incurring additional expenditures/costs (e.g. seeking legal advice). The most frequent action taken was conferences with the victim and with the bully. The least frequent action taken was requiring counseling with an outside agency for bullying (Roskamp, 2009). School principals more often utilized internal sanctions (e.g. detention, in school suspension, and out of school suspension) to combat cyberbullying than external resources/agencies (e.g. community service, and legal action taken) for assistance and intervention (Roskamp, 2009).

4.3.4.3   Peers/Friends Support

Although help from parents and teachers is positively perceived by younger children (10-13yrs), many of them demonstrate that they are more likely to get help from peers (Stacey, 2009). In fact, empirical results showed that cybervictims actually ask for help after a cyberbullying experience mostly from peers/friends and less from parents and teachers (Topçu, Erdur-Baker, & Capa-Aydin, 2008)

Many students admit that they would tell a peer about cyberbullying and prior research suggests that peers can help combating and preventing this phenomenon, in particular peer supporters and bystanders (DiBasilio, 2008). Research shows that victims are more likely to ask help from peers or friends than from parents and teachers. In fact, 43.6% of students from private schools and 28.6% from public schools asked help from their friends (Topçu et al., 2008). Another study reports that 15% of cyberbullied students told their friends (Aricak et al., 2008).

Disclosing to a friend is the most helpful strategy to deal with victimization and it is also the second most frequent reaction to it after confronting the bully (Price & Dalgleish, 2010). When asked about their possible reaction to cyberbullying participants reported that they most probably seek help from friends (Wright, Burnham, Inman, & Ogorchock, 2009).

Although younger students (10-13yrs) believed that help from adults was a positive solution they were more favorable to the idea of peer mediation to combat cyberbullying than to an adult intervention (Stacey, 2009). Early adolescent students (13-15yrs) also expressed their preference for the peer group, in particular the possibility of discussing cyberbullying with older peers. The older students considered that they had a responsibility to younger peers, in advising them, discussing their cyberbullying experiences and helping them with strategies to combat it (Stacey, 2009).

Peer-intervention (i.e. peer support) can reduce (cyber)bullying in school by: creating bullying awareness in the school, developing leadership skills among students, developing intervention practices and team-building initiatives in the student community; and by encouraging bystanders to behave more proactively (DiBasilio, 2008). After this type of intervention, the counselors needed to challenge the bully more often as a consequence of teachers reporting bullying more than before and because the number of teachers that advised students to work it out themselves decreased. More witnesses of bullying were committed to get someone to stop bullying or tell a teacher. The number of victims who reported joking about it also increased as did the number of those who said they retaliated (DiBasilio, 2008).

4.3.4.4   Other Support

With regard to asking for help from others, a study developed by Topçu and colleagues (2008) showed that 12.8% of private school students and 17.1% of public school students disclose to their siblings;

6.4% of private school students and 10.5% of public school students resort to the support from relatives; and 51% of private school students and 14.4% of public school students asked for help from acquaintances. In another study, 13.1% told mainly friends, family members, room-mates and peers about cyberstalking (Hensler-McGinnis, 2008).

4.4 Buffering negative impact

4.4.1 Emotional coping

4.4.1.1 Unhealthy coping and self-blame

Bullying has a strong relationship with experiencing negative emotions and with actual and contemplated self-harm (Hay & Meldrum, 2010). In a study conducted by Price and Dalgleish (2010) 3% of participants reported they had suicidal ideation and 2% reported that they had harmed themselves as a consequence of being cyberbullied. Another empirical study reports cyberbullies and victims had higher scores on the suicidal ideation scale and had more probability of having attempted suicide than those not-involved in cyberbullying. But being a victim (bullying and cyberbullying) seems to predict suicidal ideas and behaviors more strongly than being a bully (Hinduja & Patchin, 2010). It is important, however, to stress that only a small percentage of suicidal ideas are explained by being involved in bullying (Hinduja & Patchin, 2010).

Cyberbullying has other negative psychological effects such as anger, powerlessness, sadness, and fear (Hoff & Mitchell, 2009). With the experience of these negative effects students become withdrawn, their confidence decreases and they become uneasy and alienated from school and friends (Hoff & Mitchell, 2009). The situation becomes more serious when victims do not know who was responsible for the bullying since this increases feelings of powerlessness and fear. Those who had high anger levels were more likely to resort to aggressiveness (Hoff & Mitchell, 2009).

Cyberbullying is also related to other behaviour problems (44%), drinking alcohol (26%) and smoking cigarettes (23%) frequently, and depressive symptoms (16%) (Ybarra & Mitchell, 2004). Bullies/victims drink significantly more than non-harassed youth, and bullies drink more than victims and non-harassed. Bullies/victims also, along with bullies, smoke significantly more than non-harassed youth, bullies/victims have more depressive symptoms than non-harassed and are also the ones who exhibit more problematic behaviours. When compared to victims and non-harassed, bullies behave more problematically and, when compared with non-harassed, victims have more emotional and behavioural difficulties (Ybarra & Mitchell, 2004).

4.4.1.2 Healthy coping

Healthy coping strategies for dealing with bullying include self-control and good parenting. Hay and Meldrum (2010) proposed that the association between bullying and negative outcomes is moderated by higher self-control. This finding was also confirmed by an association between parenting style and children's MySpace experiences, behaviors and attitudes. The parenting style adopted and the limit-setting influenced children's coping. In particular, when parents monitored the sites that their children accessed, this was a contributing factor to reduction in the time they spent online (Rosen et al., 2008).

4.4.2   Other type of coping

Among other strategies for coping with bullying, young people changed their avatar or mobile number, they told a sibling, stopped looking, stayed offline, changed their usernames and did not tell anyone (Aricak et al., 2008; Juvonen & Gross, 2008, Price & Dalgleish, 2010). Other students resorted to other strategies, such as considering cyberbullying a joke/joking or calling the police (DiBasilio, 2008; Topçu et al., 2008).

The coping strategies most frequently used by University students for dealing with cyberstalking were actions/behaviors such as ignoring or avoiding, behaving more cautiously, limiting the personal information that is disclosed on the internet, blocking electronic accessibility, minimizing or denying the problem, decreasing the use of internet and cell phone and confronting the pursuer in writing (Hensler-McGinnis, 2008).

Young people seem to agree that education about Internet usage is a valuable resource for students, parents and teachers. For older students this could be the way to enlighten adults about social networking and to support systems at school, such as a code of conduct for better communication (Stacey, 2009). However, introducing rules and bans at school was viewed critically and as a motivation to defiance (Stacey, 2009). Teachers and counselors considered that education, discussion with students, involvement of parents and encouragement of bystanders to get involved were very important strategies for coping with bullying (DiBasilio, 2008).

5   Conclusions

Our literature review resulted in 36 partly or highly relevant studies. Most studies (if they collected their own data) report cross-sectional data and remain on a rather descriptive level concerning the use of coping strategies. The question about the **success** or otherwise of the coping strategies has been investigated very rarely and with serious methodological flaws. In many studies, authors recommend practical applications but often those conclusions are not grounded in the empirical data of their own study.

However, certain themes emerged which offer scope for future research that specifically evaluates the effectiveness or otherwise of different coping strategies. In this section, we propose a number of research questions that have arisen from the literature review.

1. **Are authoritative, child-centred parenting styles more effective than either authoritarian or permissive parenting styles in preventing and reducing cyberbullying and in buffering its negative impact?** At a general level, the evidence supports the view that consultative, person-centred approaches both within the family and at school are more effective in addressing the issue of cyberbullyig than are authocratic, punitive approaches. At home, child-centred, authoritative parents seem to have a positive influence, for example, by reducing the actual time spent online, by monitoring internet use, by negotiating boundaries and by demonstrating a helpful interest in the interpersonal and social lives of their offspring. In these environments, children and young people are more likely to tell a family member when they are being cyberbullied. Furthermore, where young people express reluctance to tell parents about being bullied online, the reasons given often relate to fear of punishment, removal of

privileges or confiscation of phones and computers. Researchers need to ask questions about the parenting practices adopted within families before making generalisations about the role of parents in prevention, reduction and protection against negative effects.

2. **Should educators integrate anti-cyberbullying strategies into a wider whole-school approach to social-emotional literacy?** Some evidence from the literature review indicated that, where there was an whole-school approach to all forms of bullying, including cyberbullying, and a climate that fostered dialogue about relationships and promoted restorative practices with regard to conflict resolution, it was more likely that students would feel safe enough to tell someone when they were being cyberbullied and to feel confident that the school would take action. However, we need to take account of the fact that many children and young people were reluctant to tell adults, whether parents or teachers when they were being cyberbullied. The reasons for this varied but a common reason given by students was that adults were unlikely to help them and that part of the reason was the adults' lack of familiarity with such arenas as social networking sites. They also reported that they wanted to sort out the problem themselves, independently of adults. Research that investigates the impact of an emotionally literate climate at home and at school would help to clarify the conditions that are most helpful.

3. **Should schools make greater use of peer support systems in order to heighten awareness of the damage caused by cyberbullying and to facilitate pro-active defence of cybervictims?** Some evidence from the literature review indicated that peer support in a range of forms is an intervention that children and young people value. In fact some studies indicated that young people were more likely to confide in a friend or sibling than an adult when they were being cyberbullied. Additionally, when schools trained young people as peer supporters or peer leaders, cyberbullying was reduced and cybervictims reported access to a greater number of coping strategies. Where peer leaders engaged in some form of awareness-raising and education about cyberbullying with younger students, there appeared to be reduction in the incidence of cyberbullying and greater protection for victims through buffering of the negative effects. There was also evidence of a greater likelihood that cyberbullies' actions would be challenged, either by the victims themselves or by bystanders. Researchers need to ask specific questions about what forms of peer support work and what contexts are most conducive to the training and supervision of peer leaders.

4. **What are the most effective technology enabled prevention strategies?** A number of preventative strategies were reported by young people in the literature review, with blocking the sender, deleting offensive messages and changing screen identities appearing to be the most common. Education in e-safety was also shown to be important as a preventative strategy. Strategies such as making use of panic buttons and reporting abuse to providers were also discussed. However, there is mixed evidence about whether these coping strategies work. There is a need for researchers to evaluate the outcomes of a range of technology enabled strategies in order to give children and adolescents age-appropriate advice on how to deal with cyberbullying.

5. **What are the most healthy (and unhealthy) individual coping strategies and in what contexts do they work?** The literature review revealed a range of coping strategies commonly adopted by cybervictims to include: retaliation, confronting the bully either online or face-to-

face, doing nothing, telling someone. The findings were mixed, indicating that the contexts in which the victim's response occurs is likely to be a crucial factor. For the most part, retaliation was found to be ineffective and often dangerous. Telling someone was generally viewed as an effective strategy but a large proportion of cybervictims seem to be reluctant to use this method. Some studies recommended training for victims, for example in assertiveness and other non-aggressive behaviours. Additionally, the evidence suggests that it is less useful to evaluate coping strategies in isolation than to consider them in the wider context of a whole-school approach that fosters emotional health and well-being and demonstrates a concern for the rights of all students in a school community. Researchers need to draw on the existing literature on coping with traditional forms of bullying as well as evaluating strategies that are specifically related to the cyberbullying issue.

Finally, the diversity of findings in this literature review leads us to recommend at least three types of research design. First, there is a need for *experimental* studies where schools are randomly assigned to different conditions in order to evaluate the effectiveness or otherwise of different types of coping strategy. In the present situation where we lack randomised control studies, researchers are not in a position to take account of such variables as school climate (whether, for example, child-centred or authoritarian), community characteristics (for example, deprived or privileged, urban or rural) or student aspects (for example, concerning age, gender, sexual orientation, ethnicity, disability) which may confound the findings. Second, there is a need for detailed *longitudinal* (studies where the impact of particular coping strategies is evaluated and related to the outcome. Third, there is a need for in-depth *qualitative* studies that systematically investigate the thoughts and emotions of children and young people in a range of participant roles, including cyberbullies, cybervictims, bystanders and defenders.

The effectiveness of certain coping strategies is likely to be influenced by other components in a social context so that what works in one setting (for example, retaliation) may be totally ineffective in another. Similarly, it is possible that there is a cumulative outcome where coping strategies flourish in combination with other factors (for example, a concern on the part of the school to promote the rights of the child) but in isolation have minimal effect. In summary, the experience of carrying out this literature review has revealed a large gap in knowledge about how to guide schools, families and young people in the best ways of coping with cyberbullying with resultant limitations for policy-makers. The findings reported here suggest directions for further research and, it is hoped, for future developments for educators, policy-makers and even providers in our mission to reduce and prevent cyberbullying and to buffer its negative impact on young people.

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[8] For the final analyses the full findings report (2011) was analysed

Appendix 1: List of reviewed articles

All preselected articles (N=88) which were included for the systematic categorization	Relevant articles (N=36)
A1 Agatston, P. W., Kowalski, R., & Limber, S. (2007). Students' Perspectives on Cyber Bullying. Journal of Adolescent Health, 41(6, Supplement 1), S59-S60.	
A2 Aricak, T., Siyahhan, S., Uzunhasanoglu, A., Saribeyoglu, S., Ciplak, S., Yilmaz, N. et al. (2008). Cyberbullying among Turkish adolescents. CyberPsychology & Behavior, Vol.11(3), pp.	x
A3 Beale, A. V., & Hall, K. R. (2007). Cyberbullying: What School Administrators (And Parents) Can Do. SO - Clearing House: A Journal of Educational Strategies, Issues and Ideas, 81(1), 8-12.	
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A7 Bryce, J., & Klang, M. (2009). Young people, disclosure of personal information and online privacy: Control, choice and consequences. Information Security Technical Report. The Changing Shape of Privacy and Consent, 14(3), 160-166.	
A8 Calvert, S. L., & Wilson, B. J. (2008). The handbook of children, media, and development. (2008), The handbook of children, and development.	
A9 Campbell, M. A. (2005). Cyber bullying: An old problem in a new guise? Australian Journal of Guidance and Counselling, 15(1), 68-76.	x
A10 Chesney, T., Coyne, I., Logan, B., & Madden, N. (2009). Griefing in virtual worlds: causes, casualties and coping strategies. Information Systems Journal, 19(6), 525-548.	x
A11 Chi, C. W., & Frydenberg, E. (2009). Coping in the Cyberworld: Program Implementation and Evaluation - A Pilot Project. Australian Journal of Guidance and Counselling, 19(2), 196-215.	x
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A15 DeHue, F., Bolman, C., & Völlink, T. (2008). Cyberbullying: Youngsters' experiences and parental perception. CyberPsychology & Behavior, 11(2), 217-223.	x
A16 DiBasilio, A. (2008). Reducing Bullying in Middle School Students through the Use of Student-Leaders.	x
A17 Dranoff, R. (2008). Teacher and student perceptions of bullying and victimization in a middle school. Dissertation Abstracts International Section A: Humanities and Social Sciences Vol 68(7-A),2008, pp 2826.	x
A18 Eagen, T. (2008). Parent and adolescent Internet use, perception, and regulation: A dyadic analysis. Dissertation Abstracts International Section A: Humanities and Social Sciences Vol 69(6-A),2008, pp 2233.	

A19   Eastin, M. S., Greenberg, B. S., & Hofschire, L. (2006). Parenting the internet. Journal of Communication, 56(3), 486-504.

A20   Eliot, M., Cornell, D., Gregory, A., & Fan, X. (2010). Supportive school climate and student willingness to seek help for bullying and threats of violence. Journal of School Psychology, In Press, Corrected Proof.

A21   Feinberg, T., & Robey, N. (2008). Cyberbullying. SO - Principal Leadership, 9(1), 10-14.

A22   Genta, M. L., Brighi, A., & Guarini, A. (2009). European project on bullying and cyberbullying granted by Daphne II programme. Zeitschrift fur Psychologie/Journal of Psychology, Vol.217(4), pp.

A23   Genz, H. (2010). Education, prevention, and intervention of traditional and electronic bullying in   x
       middle school. Dissertation Abstracts International Section A: Humanities and Social Sciences, 70(12-A), 4537.

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[9] For the final analyses the full findings report (2011) was analysed

Appendix 2: Netq-Questionnaire

Appendix 3: Results (Open answers - Conclusions)