Identifying and Ranking Internet Dangers

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Abstract—**The paper reports a study on the identification and ranking of internet risks, using a root-cause analysis method. The results were used for the development of scenarios for the Simsafety Game™. The methodology used, known as structured dialogic design process, is unique in its capability to explore relationships between ideas and identify deep drivers. The risks that following collective consideration turned out as being more influential (i.e., deep drivers), and which have been considered during the development of the scenarios for the game included easy access to games or content that is inappropriate for certain ages, addiction and confusion of reality.**

Index Terms— **Structured Dialogic Design Process, Internet risks, Internet safety, video games.**

I. Introduction

SINCE 1990 the use of the internet became increasingly popular especially in the developed countries [1]. As time passes by, the internet becomes a necessity and people are using it for personal, professional and/or educational purposes.

Therefore, the impact of the internet upon people's everyday life has become a primary area of interest among scholars [2], [3], [1]. One of the most prominent debates that exist in the current literature focuses on the social impact of the internet [4] as new means of communication with special emphasis on whether the internet has changed the social ties that existed until now. Opponents of this view, argue that electronic communication was part of people's lives long before the introduction of the internet (such as telegraph, telephone), and as such the internet does not change social ties as it is still based on the communication between the existing face-to-face social networks [5], [6], [7]. Proponents of this view however, argue that the internet provides new means of communication and includes relationship formation among people that have never met in person, but are based only on mutual liking and common interests [8]. Zhao [1] presented a comprehensive assessment of the impact the internet has brought on the social construction of reality. His work revisited the work of Berger and Luckmann and highlights the changes in people's lives since the introduction of the internet [1]. Specifically, he contents the creation of a "spatiotemporal zone" that eliminates time and offers new socialization ways through chatting in the online public space [1]. At a similar pace, Xie [3] provides a valuable account of offline relationship formation developing through online meetings. This assessment verifies the changes that accompany the advent of the internet in the construction of the social life of people.

Researchers examined also gender differences on the impact of the internet among adults [2]. Results showed that in adult males the internet has helped them in advancing or creating a career, in assessing the global impact of technology (positive aspects) and also in identifying the negative aspects of the Internet [2]. Women were found to be affected from the Internet in interpersonal relationships (such as making new friends or renewing old friendships) and also were found to be using the internet for shopping, studying and accessing information [2]. Therefore, the use of the internet and its impact to people's lives has become an area of continuous interest to the scientific community. Nowadays, most countries are calculating statistics taking note of how many people use the internet annually and what services are they using from it.

According to Eurostat (2008), 60% of all Europeans have internet access, and 48% of those, access the internet via broadband connection. Not surprisingly, the highest percentage of people who access the internet ranges in ages 16-24 (96%). These figures indicate that the younger population is by far the lead in Internet use. The internet is becoming a necessity in people's lives offering many conveniences and simplifications in the workplace, school and everyday life. However, as the internet occupies more and more time from our life, the population using it also lowers. In the last decade, researchers started assessing the impact of the internet on children [9], [10]. It has been found that in the US children as young as five years old are using the internet [11].

II. Possible Risks

Despite internet's countless benefits, access to useful information and ease of use, there are also always risks overlooking. Like any other new technology, the internet comes with potential hazards if one is not careful. Many dangers (we usually speak of risks) can potentially victimize everyone, but most often, the targets are underaged children. According to Staksrud & Livingstone [12], internet risks can be distinguished in three categories:

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> "Content risks (where the child is a recipient of unwelcome or inappropriate mass communication), contact risks (where the child participates in risky peer or personal communication), and conduct risks (where the child acts themselves to contribute to risky content or contact)" p.5.

Content-related risks include exposure to pornographic material, child pornography material, racist/xenophobic or violent material and self-harm related material. Content risks appear to be more common among European adolescents and children with 4 out of 10 teenagers in Europe to have encountered such content on the Internet [13]. Exposure on this type of content can cause distress, discomfort or threat in young people and teenagers. 15- 20% of EU teens reported that they had experienced distress, discomfort and felt threatened after exposure to pornographic, unwelcome sexual, violent and/or gruesome content [12]. Unfortunately, little research exists in the area of content-related risks and the impact it has upon children.

Child Pornography refers to visual material depicting sexually explicit activities that involve a child or children under the age of 18. Literature on child pornography is mainly focused on the profiles and typologies of the offenders [14], [15], [16], [17]. According to Elliott and Beech [14] there has been a significant increase in the incidents of child pornography online where the 80% of the children depicted in the images and videos are below the age of 10.

Racism refers to an ideology or practice or behavior towards a person or people, which classifies the worth of the person or people according to racial characteristics (such as color, ethnicity and nationality). Racist websites that are considered illegal are mainly those that urge people to act against other people of specific race, color, ethnicity or nationality. Xenophobia refers to an intense fear of people from different ethnic, national or social group than one's own. Xenophobic websites that are considered illegal are also those that urge people to act against people of different ethnic, national or social group than one's own. Even though child pornography, racist and xenophobic content appears widely on the Internet there is a big gap in the literature regarding the impact that viewing such material imposes on children. It is assumed however, that just like any other inappropriate content, racist and xenophobic websites increase incidents of hate among people, and can negatively influence children and teenagers that are in a crucial age span and can be easily affected and persuaded in wrong standards. The area of racism and xenophobia online merits serious in depth research, as such content can easily be accessed from children.

However, during the last years an increasing research interest has arose in the area of self-harm content. Self-harm websites aim at "helping" people harm themselves or sustain their unhealthy state of living. Self-harm and suicide websites demonstrate positive attitudes towards self-injury and suicide. Suicide websites are most commonly known as 'pro-suicide' websites. Researchers in the field report that pro-suicide and self-harm websites encourage these self-destructive behaviors and that can lead prone individuals to harm themselves by acting on the ideas that are offered to them [18], [19], [20]. Further to self-injury and suicide websites, websites that promote eating disorders (anorexia-bulimia) are also on the rise. Pro-ana and pro-mia (short for pro-anorexia and pro-bulimia) websites present those eating disorders as a lifestyle instead of an illness [21]. These websites are associated and offer advice on how to lose weight, on how to keep the disorder secret from the family and loved ones, and reinforce the disorder by the use of concepts such as "thinspiration" [22], [23], [24]. The concept of thinspiration refers to presentation of famous anorexic models in an attempt to idealize the disorder. Many of those also offer information on medication that can help achieving and maintaining weight-loss [25]. Only a few of those websites present show that anorexia and bulimia are serious eating disorders and present the consequences that they impose on health [26].

Contact risks are the second most common risk category that adolescents are faced with, and cyber-bullying is by far the most common form of those risks [12]. Except cyber-bullying contact risks also include online grooming even though less common as an incidence.

Cyber-bullying occurs when one minor harasses torments, threatens or humiliates another minor (child, pre-teen or teen). In cyber-bullying this kind of abuse is conducted through the internet, digital technologies or mobile phones. In many cases the bully discloses personal information of the victim on the web humiliates him/her and threatens them. Unfortunately, with the introduction of the internet and new digital technologies, cyber-bullying became increasingly popular among adolescents and children. Studies show that cyber-bullying increased in the past few years, with almost 50% of all teens to have been cyber-bullied at least once in the past year [27]. Cyber-bullying victimization has been associated with psychosocial problems such as emotional distress [28]. Further research identified that victims of cyber-bullying often show low self-esteem, suicidal ideation, cyber-bullying back, depression or anger [29]. Suniti Bhat [30] in her article on cyber-bullying describes detrimental cases of victims of cyber-bullying. Children as young as 12 years old, have come to end their lives as a consequence of being unable to deal with the cyber-bullying they suffered [30]. Moreover, Wang et al [31] studied the various forms of bullying including cyber-bullying in the US and showed that parental practices may be the key in protecting children and adolescents from being bullied and being bullies.

Online grooming refers to the incidents where pedophiles enter chat rooms that are used by children and approach them with the purpose of later engaging in sexual contact with them. According to the Diagnostic and Statistical Manual for Mental Disorder (DSM-IV) [32], pedophilia occurs when a person:

> "over a period of at least 6 months, has recurrent, intense sexually arousing fantasies, sexual urges, or behaviors involving sexual activity with a prepubescent child or children (generally age 13 years or younger); the person has acted on these sexual urges, or the sexual urges or fantasies cause marked distress or interpersonal difficulty; the

person is at least age 16 years and at least 5 years older than the child or children defined above" p. 1

Pedophilia existed long before the introduction of the Internet in people's lives. With the internet however, pedophiles have found new and better grounds through which they can access and seduce children. Online predators are usually looking for vulnerable children that face several emotional problems (home or school oriented) and by pretending their friend they attempt to gain their trust and friendship. When they manage to do that, they then try to meet those children offline and abuse them. The pattern is pretty much known by all prevention messages and awareness campaigns organized for educating people in all countries. Wolak et al [33] however, argues that this is not enough and may not even be helpful. By especially addressing adolescents, the researchers stress the need for new prevention strategies that will take into consideration the teenagers' normal interests for romance and sex [33]. As the authors continue, particular attention needs to be given to vulnerable teenagers referring mainly to those who have experienced sexual abuse, those who have conflicts with their sexual orientation and those who exhibit patterns of risky behavior [33].

Conduct risks refer to those that can potentially create the pathway for online groomers to act. Specifically, disclosure of personal information is one of the key behavior risk factors that children and adolescents exhibit on the net. Social Networking Sites are very popular in people who use the Internet from all over the world, with teenagers being the most common users. In these websites, each member is required to create a profile where he/she enters information about them such as contact information, interests/hobbies, profile picture etc. In a recent study on Social Networking Sites (SNSs) Taraszow et al [34] have found that young people are revealing crucial personal information (real name, gender, age, facial pictures and email addresses) on Facebook™ and accept friendship information from strangers that can potentially prove harmful for them.

Finally, a new threat has recently been added in the repertoire of internet related risks: some children and young people have started exhibiting patterns of what is now being called 'internet addiction." The term refers to the excessive use of internet to the extent that it affects the daily life of a person. Internet addiction is therefore associated with prolonged usage of internet, with a parallel loss of interest in other activities such as socializing or getting out of the house. Research in the area of internet addiction is still at primitive stages, but professionals have already identified associations between aggressive behaviors and internet addiction [35].

In sum, many internet related risks have been indentified and studied over the past few years. However, almost all studies lack, (a) ranking of importance and (b) an exploration into relations between the various risks. In this study, we have aspired to identify as many internet related risks as possible and subsequently structure them in the form of an influence map so as to discover the deep drivers, i.e., those risks which are "responsible" and which "drive" the more obvious risks. To this end, we engaged ten experts in the field of internet safety in a structured democratic dialogue for which over 100 person hours have been invested.

This paper presents the identification and raking of internet risks using a root factor analysis methodology in order to examine the most prominent risks that could be used in the development of game scenarios in the context of the Simsafety project.

III. METHOD

A. Participants

Ten people (6 females, 4 males) participated in workshop, thereafter referred to as co-laboratory that was organized in order to identify and cross-evaluate internet risks for children. The participants were educators and internet safety experts.

B. Materials

The co-laboratory for identifying and ranking internet risks for children was conducted using a special methodology of structured dialogue known as Structured Dialogic Design (SDD) process. This methodology was developed by scientists such as Hasan Özbekhan, Erich Jantsch, John Warfield and Alexander Christakis (for reviews see [36] & [37]; For an introduction see reference [38]), who, in the context of the Club of Rome [39] opted for developing a democratic methodology for solving contemporary complex problems. It is based on seven laws and four axioms from cybernetics; has been grounded both scientifically and empirically in hundreds of settings on a global scale for the past 30 years.

C. Procedure

We applied the SDD methodology in order to record democratically the views of every participant in the dialogue. The procedure in any SDD co-laboratory begins with the formulation of a *triggering question*. Participants are encouraged to produce responses to this question. The triggering question was formulated from a core group team referred to as Knowledge Management Team (KMT), comprised of people who are considered and who feel as owners of the problem. Once set, the triggering question was emailed to the participants who were required to prepare prior the start of the co-laboratory by providing at least three contributions. For the current study the triggering question was:

'*What dangers do children and youth face with the expansion of Cyberspace in their lives?*'.

During the face-to-face meeting, participants provided all their responses to the triggering question, which were recorded using specialized software called Cogniscope II™ (40). Responses were required to be one sentence-per-idea only. Ideas were collected from all participants one at a time in robin-round order. A list of all ideas was produced, printed and handed over to all participants at the end of this step.

After the ideas were recorded, participants were asked to cluster them based on similarities and common attributes that they share. The clustering table was subsequently printed and given to all participants, who were asked to choose five ideas that they believed were the most important. The ideas that

have been voted made it to the next phase, where participants were asked to decide *whether solving one problem would make solving another problem easier*. If they answered yes with great majority an influence was established on the tree of ideas. The way to interpret such an influence is that an idea at the root of the tree is a deep driver, i.e., a root causes.

Stakeholders can develop an efficient strategy to address the problem at hand taking into consideration, to the degree possible, the root causes.

IV. Results

A. Production and list of ideas

Participants produced 58 ideas regarding potential internet risks children and youth may encounter on the internet. The ideas included tangible dangers that can arise from incorrect behavior exhibited while using internet, easy access to games or content that is inappropriate for certain ages, addiction, confusion of reality etc. All ideas are listed and clarified in meaning in Appendix 1.

B. Clustering

After listing, ideas have then been clustered by the participants into fourteen categories based on similar characteristics and attributes that ideas shared. The fourteen categories that represent the 58 ideas are:

Cluster 1: Seduction
Cluster 2: Personal Data
Cluster 3: Problematic Content
Cluster 4: Addiction
Cluster 5: Blurred Reality
Cluster 6: Harassment/Intimidation
Cluster 7: Exploitation
Cluster 8: Desensitization
Cluster 9: Inappropriate Entertainment
Cluster 10: Social Pressure
Cluster 11: Physical Problems
Cluster 12: Educational Issues
Cluster 13: Antisocial Networks
Cluster 14: Social Consequences

All ideas that have been categorized in each cluster are shown in appendix 2. Considering the diversity of clusters, it becomes profound that internet risks appear in terms of: seduction where one stranger can manipulate and seduce a young child; revelation and stealing of personal data; problematic content that can appear on the net; addiction, which becomes more frequent nowadays in children; blurred reality in which children cannot distinguish between real and fake information on the internet; harassment/intimidation, such as cyberbullying, exploitation, desensitization, inappropriate entertainment especially through playing games not appropriate for certain ages; social pressure; health problems; educational problems; antisocial networks and social consequences that the internet can have upon the lives of children. All these clusters indicate a wide variety of problems that require specialists and relevant stakeholders to study further and identify the root causes of all these issues in order to tackle the problem at its heart.

C. Voting

After clustering all ideas, participants were asked to vote the five risks that they thought are the most important to be faced by children. The voting procedure yielded the following results:

Idea #18: Child Pornography	5 votes
Idea #04: Addiction	4 votes
Idea #05: Conversing with strangers	4 votes
Idea #03: Access to fictitious or false information that appears to be true	3 votes
Idea #26: Submission of behaviours and opinions	3 votes
Idea #45: Easy access to games inappropriate for certain ages	3 votes
Idea #01: Grooming (2 votes	
Idea #09: Watching of inappropriate content	2 votes
Idea #27: Publishing of personal data	2 votes
Idea #54: Confusion between true and false Information	2 votes
Idea #07: Confusion between real and imaginary world	1 vote
Idea #10: Cyber bullying	1 vote
Idea #13: Access to illegal content	1 vote
Idea #16: Intimidation	1 vote
Idea #17: Anonymity	1 vote
Idea #19: Permanence of the Internet	1 vote
Idea #32: Promotion of wrong idols	1 vote
Idea #48: Exposure to racist content	1 vote
Idea #49: Opportunities to create racists groups	1 vote
Idea #51: Encouragement for hurtful acts (ex. suicide)	1 vote

Out of the 58 ideas, 20 received one or more votes. Described scientifically as *spreadthink* or *divergence* (ST or D respectively), the value, in this case of 28%, is a measure of disagreement.

According to numerous studies, the average degree of *spreadthink* is 40%. Therefore, one can conclude that the participants of this study have demonstrated significantly less divergence than average in their ideas regarding the issue. This suggests that the participants exhibit a greater-than-usual degree of consensus; their understanding and interpretation of problems and their relations is more similar than the average. This was expected as the participants were chosen as experts in internet safety.

The results of the voting procedure were used to select ideas for the subsequent process of mapping. The participants were able to structure all 20 ideas, which had received one or more votes. The resulting “Tree of Influences” demonstrates the basic ideas, which could provide indications in answering the triggering question. The tree or map is characterized by 3 levels of influence.

D. Tree of influences

The tree of influences is made up of 6 different levels shown in figure 1.

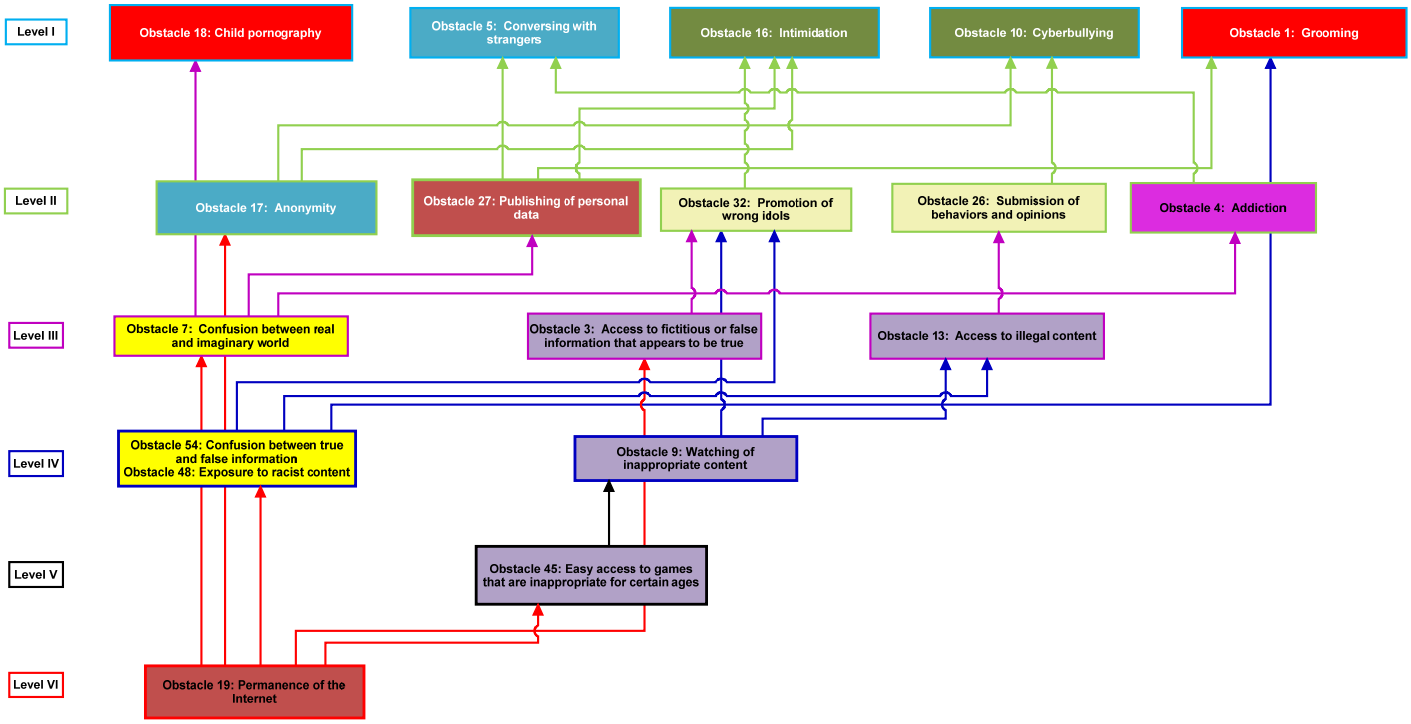

Fig. 1: Tree of Influences on Internet risks for children

The ideas on the lower levels are those with the highest degree of influence. The participants agreed that these ideas were more influential and that any action related to the subject of Internet Risks should give them priority consideration:

Idea #19: Permanence of the Internet
Idea #45: Easy access to games that are inappropriate for certain ages
Idea #54: Confusion between true and false information
Idea #48: Exposure to racist content
Idea #09: Watching of inappropriate content

In particular, idea #19: Permanence of the Internet, which sits at level VI, is the one with the greatest influence. The repercussions derived from the permanence of the internet need to be considered seriously, because they practically feed all internet risks. Directly affected from the permanence of the internet is the easy access to games that are inappropriate for certain ages (idea #45: Easy access to games that are inappropriate for certain ages). As it was exemplified during the co-laboratory, children that easily access games inappropriate for their age, could be affected by factors present in the game (violent behaviour, bad language, etc) and could imitate what they experience in the game in real life. This could have significant negative consequences not only in their own lives, but also in the lives of others. Therefore, allowing children to access games only appropriate to their age can protect the youth from several hidden dangers that the Internet might entail.

In addition, idea #54: Confusion between true and false information, is also considered as highly influential since it was described as a threat when people believe everything they find on the Internet even though it might be false or fake, without using critical thinking. Idea #48: Exposure to racist content was also considered as highly influential as it could help enhance prejudice and violence against minority groups. Idea # 9: Watching of inappropriate content, may result into traumatic experiences especially for younger children when they might come across photos or videos that are not appropriate for their age.

As a word of caution, we should state that although most of the descriptors did not receive any votes and are therefore missing from the Tree of influence, this should not mean that they are less important or that they should not be considered as risks. However, the focus in designing scenarios and/or curricula for educating children better start from factors that made it to the root of the.

V. Conclusion

The goals of the co-laboratory were achieved in the following ways:

1. One list of factors was generated in response to the Triggering Question;
2. The factors were clarified in plenary, thus enabling participants to achieve a better understanding of the views of other members and greatly expand their own horizons regarding positives of internet use;

3. The factors were clustered in an interactive manner, thus providing opportunities for further and deeper clarifications of salient distinctions between separate ideas. The process is crucial for what we call "evolutionary learning" (i.e., during the process participants "lose" connection to their own personal ideas and stereotypes in favour of a collective and shared thinking);
4. Participants voted for the factors that they considered most important. They subsequently managed to "structure" all these ideas and produce an influence map. It must be noted that co-laboratories rarely manage to "structure" all ideas that receive votes;
5. An influence map has been produced for the Triggering Question, containing 20 ideas in the form of a trees of Influence;
6. The participants had time to discuss the influence map and in general agreed that the arrows in the map made sense to them;
7. More importantly, the structured dialogue process empowered the participants to identify and understand the risks of internet use.

APPENDIX

APPENDIX 1:

Potential risks that children and youth could face with the expansion of cyberspace in their life generated by the participants:

1. **Grooming**
   Clarification: Adults find a way to through the Internet to approach underage children with the purpose of sexually abusing them.
2. **Identity theft**
   Clarification: Personal information that is published on the Internet can be exploited and abused by people.
3. **Access to fictitious or false information that appears to be true**
   Clarification; Because of the large amount of information that exists on the Internet some information that is wrong or fictitious can be appear as true and valid.
4. **Addiction**
   Clarification: They devote a lot of time on the Internet. They may play games for hours, or chat with people (strangers and familiar) or surf the net without any purpose.
5. **Conversing with strangers**
   Clarification: Through the use of various synchronous / asynchronous communication programs, children and young people may give personal information to complete strangers that want to harass them or exploit them.
6. **Phishing**
   Clarification: Stealing and use of a person's personal data without that person's approval.
7. **Confusion between real and imaginary world**
   Clarification: Some websites offer children the opportunity to move in an imaginary world with negative consequences.
8. **Double identity**
   Clarification: Through virtual games, children play roles that can possibly develop in real life also.
9. **Watching of inappropriate content**
   Clarification: Children can watch content (violent, sexual) on the Internet that is not appropriate for their age.
10. **Cyber bullying**
    Clarification: Especially young people how now another means for harassing people of their age.
11. **Alienation from natural environment**
    Clarification: The excessive use of the Internet can have negative consequences in the social development of a person.
12. **Easy approach from proselytizers**
    Clarification: Links to religious/racist websites are widely apparent on websites with educational material.
13. **Access to illegal content**
    Clarification: In their search for software, users end up in websites that are illegal and dangerous. Illegal downloading of software.
14. **Addiction to violent games**
15. **Addiction to online gaming**
    Clarification: Children play online games for hours every day and most of the times they receive wrong values and bad examples.
16. **Intimidation**
    Clarification: Through various social networking sites, children may become victims of intimidation by classmates/friends with whom they communicate.
17. **Anonymity**
    Clarification: Everyone can hide behind the anonymity of the Internet and maybe children know people that can put them in trouble (physical or spiritual).
18. **Child Pornography**
    Clarification: Easier access from criminals in their attempt to find children and produce child pornography.
19. **Permanence of the Internet**
    Clarification: Pictures, photos, videos stay on the net.
20. **Desensitization**
    Clarification: The excessive exposure to inappropriate content causes desensitization.
21. **Access to websites that promote bulimia/anorexia**
    Clarification: There are websites that promote anorexia/bulimia with advice on how to hide them from family and friends.
22. **Access to websites with black magic/Satanism**
23. **Access to websites with electronic gambling**
    Clarification: It can easily be done through the Internet.
24. **Social Isolation**
    Clarification: Children spend so much time on the Internet that they don't have time to socialize with other children.
25. **Difficulty in managing information**
    Clarification: The vast amount of information that exists on the net, makes it many times very difficult for children to be able to manage it and evaluate it.
26. **Submission of behaviors and opinions**

Clarification: Children are driven through social networking sites to express certain behaviors and opinions from mimicking, without critically accepting them.

27. **Publishing of personal data**
    Clarification: Children often provide complete strangers with personal data without realizing it (i.e. through the use of Social Networking Sites).
28. **Immediate multiplication of personal data**
    Clarification: Personal information on the internet can immediately not only disperse around the internet but also multiply.
29. **Possible continuous monitoring through GPS on telephones**
30. **Possibility of use by terrorists**
    Clarification: They can use the Internet for i.e. kidnapping a child.
31. **Mimicry**
    Clarification: Access to bad examples and mimicking of bad values.
32. **Promotion of wrong idols**
    Clarification: Children visit websites of popular singers, models, soccer players and create wrong idols that they are trying to mimic.
33. **Loss of school work due to virus on the computers**
    Clarification: Viruses on the computers are most of the times the primary reason of consequences in the school life of children, since they can lose their school assignments from them.
34. **Creation of fake friends**
    Clarification: In Social Networking Sites, children add as friends many people known or unknown to them, and this way the true meaning of the word "friend" is lost.
35. **Financial fraud**
    Clarification: Scam emails that are sent with the purpose to extract money from people.
36. **Hacking of webcams and video recording**
37. **Putting pressure through chain messages**
38. **Easy promotion of irresponsible consumerism**
    Clarification: The Internet is another means for advertisements that can encourage children to ask for products.
39. **Sight problems**
    Clarification: Excessive use of the internet can cause sight problems.
40. **Distortion of the language**
    Clarification: In their online communication young people are using a special form of language that is also transferred to their everyday oral communication and in their written communication.
41. **No realization of the true dangers**
42. **[DELETE]**
43. **Alteration of the quality of communication due to the possibility for frequent interaction**
44. **Limitation of creativity and critical thinking**
    Clarification: When children are given a topic to work with at school, they prefer to go and find something ready on the internet instead of creating something on their own. This then poses a limit in their creativity and critical thinking.
45. **Easy access to games inappropriate for certain ages**
    Clarification: Many games are age limited but since there is no control, children can easily access and play games inappropriate for their age.
46. **Sexting**
    Clarification: Sending and/or receiving of messages of sexual content.
47. **Criminal activities like piracy become accepted**
48. **Exposure to racist content**
49. **Opportunities to create racists groups**
50. **Easy access to websites that teach you how to create explosives**
51. **Encouragement for hurtful acts (ex. suicide)**
52. **Increase of social inequality**
    Clarification: Since not all children can have the same access and same potentials in using the internet, it becomes a means of social inequalities to increase.
53. **Focused advertisement**
54. **Confusion between true and false information**
55. **Addiction to electronic gambling**
56. **Physical diseases in the wrist**
    Clarification: The excessive use of the computer may cause wrist problems.
57. **Back problems**
    Clarification: The excessive use of the computer can cause back/neck problems.
58. **Difficulty in critical evaluation of the validity of information**

APPENDIX 2:
Clusters of factors that appear as dangers on the Internet

Cluster 1: Seduction
- Grooming (1)
- Conversing with strangers (5)
- Phishing (6)
- Easy approach from proselytizers (12)
- Anonymity (17)
- Financial fraud (35)
- Sexting (46)

Cluster 2: Personal data
- Identity theft (2)
- Permanence of the Internet (19)
- Publishing of personal data (27)
- Immediate multiplication of personal data (28)
- Possible continuous through GPS on telephones (29)
- Hacking of webcams and video recording (36)

Cluster 3: Problematic Content
- Access to fictitious or false information that appear to be true (3)
- Watching of inappropriate content (9)
- Access to illegal content (13)
- Access to websites that promote bulimia/anorexia (21)

- Access to websites with black magic/Satanism (22)
- Easy access to games not appropriate for certain ages (45)
- Exposure to racist content (48)
- Easy access to websites that teach you how to create explosives (50)

Cluster 4: Addiction
- Addiction (4)
- Alienation from natural environment (11)
- Addiction to violent games (14)
- Addiction to online gaming (15)
- Addiction to electronic gambling (55)

Cluster 5: Blurred Reality
- Confusion between real and imaginary world (7)
- Double identity (8)
- Creation of fake friends (34)
- Confusion between true and false information (54)

Cluster 6: Harassment/Intimidation
- Cyberbullying (10)
- Intimidation (16)
- Putting pressure through chain messages (37)

Cluster 7: Exploitation
- Grooming (1)
- Child Pornography (18)

Cluster 8: Desensitization
- Desensitization (20)
- No realization of the true dangers (41)
- Criminal activities like piracy become accepted (47)

Cluster 9: Inappropriate Entertainment
- Access to websites with electronic gambling (23)
- Easy access to games inappropriate for certain ages (45)
- Addiction to electronic gambling (55)

Cluster 10: Social Pressure
- Submission of behaviors and opinions (26)
- Mimicry (31)
- Promotion of wrong idols (32)
- Putting pressure through chain messages (37)
- Easy promotion of irresponsible consumerism (38)
- Encouragement for hurtful acts (ex. suicide) (51)
- Focused advertisement (53)

Cluster 11: Physical Problems
- Sight problems (39)
- Physical diseases in the wrist (56)
- Back problems (57)

Cluster 12: Educational Issues
- Difficulty in managing information (25)
- Loss of school work due to virus on the computers (33)
- Distortion of the language (40)
- Limitation of creativity and critical thinking (44)
- Difficulty in critical evaluation of the validity of information (58)

Cluster 13: Antisocial Networks
- Possibility of use by terrorists (30)
- Opportunities to create racists groups (49)

Cluster 14: Social Consequences
- Social Isolation (24)
- Alteration of the quality of communication due to the possibility for frequent interaction (43)
- Increase of social inequality (52)

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