STUDENTS IN A TEACHER COLLEGE OF EDUCATION DEVELOP EDUCATIONAL PROGRAMS AND ACTIVITIES RELATED TO INTELLIGENT USE OF THE WEB: CULTIVATING NEW KNOWLEDGE

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ABSTRACT

Students in a teacher training college in Israel have developed and taught curricula on the intelligent use of the Web. The educational programs were based on activities thematically related to the world of digital citizenship, such as the rights of the child and the Internet, identity theft, copyrights, freedom of expression and its limitations, etc. This study examines the characteristics, advantages and shortcomings of the educational approaches used by 180 students.

Most of the students chose balanced approaches for developing and teaching curricula on the subject, relating both to the benefits and dangers of using the Web. Quite a few chose a negative critical approach focusing on the dangers and harmful effects of the Internet. A marginal minority chose a positive approach stressing only on the beneficial uses of the Web. In light of the analysis of the students' reflection questionnaires, it is able to identify those factors that assist and those that inhibit the teaching of the subject based on each of the approaches. In addition, recommendations were made for optimally adapting an approach for developing and teaching sub-topics of the curricula, which enhance the advantages and reduce the disadvantages of using web.

Keywords: Digital Literacy, Teacher Education, Student Practice, Web-based Education.

INTRODUCTION

Education for intelligent use of the Internet is a relatively new subject in the educational system and in teacher training.

Despite the growing concern about the dangers of surfing the Web and their effects on adolescents. Studies show that adults, children and adolescents believe that the advantages of the web outweigh its disadvantages (Lamish, Riback and Aloni, 2009; Lenhart, 2005; Livingston and Bober, 2005; Taylor and Kitter, 2010).

In view of the importance of the beneficial and the dangerous uses of the Web, the Byron report (2008) recommends that curricula be included in teacher training to teach students to intelligently use the Web. As a result of these recommendations, teaching materials were developed and student workshops were conducted (Woolward et al., 2009). The findings of studies indicate that people can learn to intelligently use the Web in a variety of formal and autodidactic ways and that e-safety education contributes to a heightened awareness of adults and children regarding the dangers of the Web and the safer behavior of young and older surfers (Ofcom, 2010a & 2010b). In addition, teachers were found to be significant mediators for intelligent use of the Web, particularly among pupils of elementary school age from a low socioeconomic status. The teachers' involvement and their importance as mediators were also found to be culture-dependent (Livingstone, Haddon & Görzig, 2010).

In Israel, education for intelligent use and safety on the Web is relatively new. Very few studies have dealt with this subject (Wadmany & Zeichner, 2009). In contrast, the research described in this article focuses on a multi-annual experiment of students in a teachers training college as part of their regular studies. These students developed various curricula for intelligent use of the Web and applied them in practice in schools.

Description of the Program for Intelligent Use of the Web in the Teachers Training College

This study presents the various programs for educational

intervention developed in a teachers training college to educate both the students (enrolled in the college) and pupils in schools to intelligently and ethically use the Web. The aims of the program were as follows,

- To develop a variety of programs and study material on the subject of the intelligent use of the Web with the aim of enhancing the awareness of students and pupils of the importance of the subject and ways of teaching it.
- To construct different models of educational interventions designed for various populations in order to cope with the entire range of problems connected with the intelligent use of the Web.
- To evaluate the influences of the project on the students' educational and pedagogical attitudes and approaches regarding education for intelligent use of the Web.
- To improve the abilities of the students as future teachers and of their pupils to intelligently use the Web.
- To create a joint learning community of lecturers, pedagogical instructors and students in the college, teachers in schools where the students are interning, school administrators and parents of the pupils.

To fulfill these aims, a joint team was established, comprising of representatives of the college, representatives of the Israeli Internet Union and students. The team's task was to plan a strategy and a mechanism to control the processes and outcomes.

Characterization and Description of the Programs for Educational Intervention

The educational activity is focused on two spheres: they are college and the school. Within the college, the lecturers, pedagogical instructors and students developed educational intervention programs aimed at raising the awareness of the students at the college of intelligent use of the Web and to foster ethical and intelligent behavior on the Web. Afterwards, activity in the schools began with instruction by the school staffs on intelligent use of the Web and the application of the curricula developed by students from the different departments of the college. The students taught the programs they had developed in the schools for a few concentrated days devoted to "education for the intelligent use of the web." The educational programs that were developed based on existing activities of the Israeli Internet Union, the Ministry of Education, and others, which were adapted to the needs of the school pupils, as well as on original activities designed by the staff of pedagogical instructors and the students in the college.

The present research is a longitudinal study over a three-year period. It was conducted in keeping up with the qualitative methodology in combination with quantitative analyses.

The research population numbered 180 students enrolled in different departments in a teacher training college. The research was conducted as part of a joint project between the Israeli Network Union, the college and schools.

The process of preparation of the pedagogical instructors and the students at the college, curricula for intelligent use of the Web were developed by the students and the pedagogical instructors. The students applied these curricula while teaching in the schools, under the guidance of the instructors and the teachers at the school.

The present research focuses mainly on the following questions,

- What educational approaches did the students prefer to use in developing the programs and teaching them in the school?
- What factors are supportive and which are an obstacle in teaching intelligent use of the Web?

Theoretical Background

Education for intelligent use of the Web

Many studies show that the Internet has become established as an essential and central channel of communication in the lives of adults and adolescents. Its uses are regarded as vital for integrating into an information and technology as rich society. It fills many essential roles as a source of information, as the means of learning, as the means of participating in a democracy, as a work tool, as the means of social communication and entertainment. Children and adolescents spend many hours on the Internet often, simultaneously using a number of media channels (Livingstone & Bober, 2005; Ofcom, 2010b; Taylor & Kitter, 2010).

As the Internet becomes firmly established in the society, there is a heightened awareness of the dangers posed by its use. These dangers are widely surveyed in the media, in research reports and in discussions held by governmental and regulation agencies in the world, and in Israel (Byron, 2010; Lamish & al., 2009; Gasser, Maclay & Palfrey, 2010). Consequently, parents and adults have become increasingly aware of the dangers of the Internet, and the need to install screening programs and to educate on safe surfing techniques (Ofcom, 2010a).

There is a general consensus that it is impossible to create a totally safe environment on the Web due to its unrestricted nature and the difficulty of supervising it. This view is confirmed by problems that have arisen in regulation and legislation in the wake of the controversy regarding the freedom of expression and its limitations, the costs of technological solutions and disagreements about who should bear the costs of their development and installation, etc. In addition, the study by Law, Shapka & Olson (2010) has shown that the creation of violent messages on the Internet by adolescents is less connected to parental use of technological means of supervision and follow-up, and more to the lack of conversations and relations of trust with the parents. The awareness that the Internet is not a safe place has risen in many Western countries and in Israel which has led to the recognition that education of intelligent use of the Web is a leading and essential solution (Lamish, Ribak and Aloni, 2009). The research literature indicates that parental intervention does not suffice, and parents lack the appropriate educational and technological knowledge and tools. The children conceal information about their activity on the Web from them and they are not up-to-date about the degree of their children's exposure to dangers on the Web. Moreover, most homes have not yet installed screening programs to protect their computers (Lenhart, 2005; Livingstone & Bober, 2005).

The central role of the Internet in contemporary society, as the advantages and dangers in its use, the predominance in the lives of children, the difficulty of creating a safe Internet environment by other means and the weakness of parental education, all underscore the need for safe surfing education within the school alongside other solutions. Research has also shown that Israel parents prefer internet safety education in the schools to be legislative solutions that impair freedom of expression (Lamish, Ribak and Aloni, 2009). The research literature refers to educational programs aimed at educating youngsters to intelligently and ethically use the Internet (Miller, 2006). These programs further improves the youngsters' awareness of the positive and negative influences of Web use on the society and its values (Webb, 2007).

Education on Internet heightens awareness of its dangers, which can be regarded as a type of education that goes against the prevailing logic. Accordingly, teachers will have to use critical teaching approaches, which arouse cognitive dissonance, in order to engender a change in consciousness, along with the accepted teaching methods based on lenient learning (Kumashiro, 2009).

Pedagogical Approaches for Teaching and Learning in the Internet Environment

The present study, which deals with education for intelligent use of the Web by students learning to be teachers, is based on pedagogical approaches from the sphere of communication and media, derived from theoretical assumptions relating to their influence on the individual and the society. These approaches can be divided into three categories (Masterman, 2001; Piette and Giroux, 2001):

- Approaches favoring communication and the media, which positively relate to means of communication and their outcomes and prepare the pupil to integrate into the media industries, by emulating the formats, genres, characteristics of the outcomes and the work processes that are accepted in the media industry (Buckingham, 1987).
- Approaches that are critical of the communication and media. These ideological approaches criticize the robust, negative influences of the media and often conceive of the pupil as a passive victim of the manipulations on the media. These approaches emerge from a clear perception of good and bad and expose the pupils to shocking, negative outcomes of the media with the aim of deterring them from making negative use of the media and to immunize them against these negative effects. They also aim to

bring about a change in the patterns of consumption of the media and to contribute to an improvement in it and in the society (Wolf and Melamed, 2008).

- Balanced and neutral approaches enable a free and open dialogue in the classroom about the influences of the media (Buckingham, 1993), based on multi-sided criticism that examines both positive and negatives aspects and on neutral critical tools of text analysis (Bazalgette, 1992).

Methodology

The Research Tools and Data Analysis

In the present study, a variety of research tools were employed to collect data in order to obtain a rich and comprehensive description of the processes of learning and teaching experienced by the students in the college and the schools.

The research tools included reflection questionnaires, interviews, observations, lesson plans and student learning outcomes. Using these, the research examined the attitudes of the students at the college regarding education for intelligent use of the web, their educational-pedagogical approaches in developing curricula on the subject and teaching them in the school. In addition, it examined the factors that support the teaching of intelligent use of the web.

In this research, authors used the Phenomenographic method (Marton,1986) for data analysis, and categorized statements based on an ongoing comparison and search for similarity, disparity and complementarity between them. In the present study, all the responses of the students to the open questions in the reflection questionnaire were analyzed to find similarities between them. The categories were determined according to the students' positive, negative and balanced attitudes towards the Internet, to their educational and pedagogical approaches and their experience in the schools. In the quantitative data analysis of the research discussed in this article, authors categorize educational and pedagogical attitudes from the field of communicative education derived from the theoretical assumptions in the literature, which deal with the influence of communications and media on the individual and the society.

These approaches can be divided into three categories (Masterman, 2001; Piette and Giroux, 2001) :

- Approaches in favor of communications and the media (Buckingham, 1987). This category includes statements of students who related only to the benefits and contributions of the Internet.
- Approaches critical of the media (Wolf & Melamed, 2008)

This category included statements of students who related only to harmful effects, disadvantages and shocking stories resulting from use of the Web.

- Balanced and neutral approaches based on multi-sided criticism and neutral tools of text analysis (Buckingham, 1993 ;Bazalgette, 1992). This category included statements of students who related to both the positive and negative aspects of Internet use.

An analysis of the interviews of about 60 students chosen randomly from the research population, focused on the students' attitude towards Internet use, their view of the importance of teaching the subject, the difficulties and obstacles they see in teaching the subject to school pupils, and their satisfaction with the intervention programs.

Results

Pedagogical Approaches to Teaching and Learning in the Web Environment

In an analysis of the students' statements and their lesson plans it is possible to discern three educational-pedagogical approaches: positive, negative and balanced.

The findings show that the majority of the students (52%) selected balanced educational-pedagogical approaches, 42% chose negative one-sided approaches and only 6% chose positive one-sided approaches that stress the advantages of the Internet without relating to its disadvantages.

Characteristics of the Positive Educational-Pedagogical Approach:

This approach, which emphasizes only on the positive aspects of the Internet, was adopted by few students. An analysis of their statements and lesson plans shows that in their lessons these students emphasized the benefit of

Internet use and the solutions for safe surfing: "According to students thought through the computer and the Web, we need to illustrate the alternative to the dangers of the Internet." "To persuade people that something is good for them, you have to give them examples from everyday life to show how that can benefit them." Students who employed this positive approach did not expose their pupils to examples of negative use of the web. From their statements, authors identified the following educational aims: To teach the pupils how to surf safely, to provide them with tools with which to protect themselves against a variety of dangers on the Web, to increase the advantages and reduce the disadvantages of Internet use. In order to achieve these aims, the students demonstrated to their pupils how to effectively find information on the web, taught them solutions and rules that enable safe surfing and referred them to sites that enable safe surfing and contain important information that has educational value. This positive approach is based on the idea that "parents need to trust the child and to minimally intervene."

The positive approach focuses on the advantages of Internet use, on teaching the pupils through active surfing and introducing them to favorable uses on safe Internet sites of educational value. This approach deliberately or otherwise avoids the negative effects of frightening the pupils and dispels any resistance on their part which might be aroused by criticism of Internet use which they like so much.

Characteristics of the Negative Educational-Pedagogical Approach:

This approach stems from a clear distinction between good and bad and a perception of the teacher as an authoritative figure, who possesses the knowledge and the ability to differentiate between what is good and what is bad. According to this approach, which is similar to immunization, the teacher presents the negative aspects of the Internet to the class in order to prevent or to "cure" its ill effects on the pupils. Some teachers bring moderate negative examples to illustrate the bad influence of the Web, while others bring extreme examples to shock the pupils and to create a dissonance that will change their perceptions and behavior. This is one-sided negative criticism of Internet use and its implications.

The statements of students advocating this approach indicate that the Internet is presented as a source of danger, and the aim of their lessons is to prevent or lessen the dangers of its use: "The pupils should know the dangers entailed in Internet use and try to minimize these dangers as far as possible." Consequently, the aims of teaching based on this approach are "to arouse awareness of the dangers"; "to educate the pupils to the right values and tools of criticism"; "to show the pupils extreme aspects to dissuade them…to make sure they never find themselves in that situation."

The students who favored this approach used negative, shocking examples of Internet use that reflected a sharp perception and clear-cut values for the purpose of "instilling values of what is forbidden, what is permitted, and educational morals." The aims of the approach are to create awareness of the dangers and to impart safety rules for Internet use.

This approach stems from a clear distinction between what is correct and what is incorrect: "It is vital to instill in the pupils the correct moral values and to provide them with critical tools for proper behavior and intelligent use of the Web."

There was an extreme expression of this approach in lesson plans that dealt with the encounters with strangers on the web. The pedagogical strategies intended to cope with a major difficulty that a large number of students reported on: "The problematic stage is to learn and to prove that the dangers really exist"; "It is hard to convince pupils and to make them understand the dangers" or to cause them to internalize that "dangers on the Internet are real." "The hard part in teaching is the pupils' responses;" Sometimes the difficulty in instilling an awareness of the danger perceived as resulting from the gap in knowledge and experience between the student and the pupil: "How can I make children, who are at home in the world of the Internet and know it even better than I do, understand the various dangers that can befall them in seconds?"

This difficulty primarily arises from the gap that creates dissonance between the positive image of the web in the view of some of the students and the necessity to focus on the dangers. As one of the students said: "It bothered me a lot

that the web is a good thing that I quite like and feel linked to, and I have to tell the pupils that it's not good." Students whose actions clashed with their beliefs regarding the dangers on the web said: "I tried to ignore my feelings and to sound as credible as possible, even if I don't agree with the subject."

There are several advantages in using an extreme, terrifying story as a means of teaching. Sometimes pupils only understand the danger after a shock. One of the students said about herself: "As a result of Ofir Harum's story, I went through the process of understanding how dangerous the Web can be." It creates identification and interest: "The presentation of dangerous incidents that every adolescent can identify with and arouses interest". A shocking story also can be a deterrent and may change the adolescent's behavior: "We have to demonstrate the dangers to them in order to deter them from experimenting on the web." And a real news item helps to "get that across and create a sense that the danger is real."

But there are also drawbacks in excessively frightening the pupils. It can result in denial and disbelief of the danger: "It won't happen to me". This led a number of students, to try to soften the shock by proposing solutions for safe surfing. "Students have to shock them but students have to soften the effect with smart, appropriate solutions." Or to play down the dangers by presenting beneficial uses, like those suggested in the balanced critical approach.

Characteristics of the balanced educational-pedagogical approach:

The balanced educational-pedagogical approach in part, aims similar to those of the negative approach. In this case too, the students are interested in raising the awareness of the dangers in Internet use and instilling safer habits of use in the pupils. But the basic assumptions differ-the Internet, the teacher's authority, trust in the pupils, teacher-pupils relations, the operative aims and the perception of a good lesson. In this approach, the relationship between teacher and pupil is more dialogic and egalitarian.

The Internet is perceived and presented as having both advantages and disadvantages: "The Internet is the mirror of reality, and has a dark side as well as a good, lit-up side." The aim of teaching with this approach is to arouse awareness of both these sides: "To be aware of both the advantages and disadvantages of the web." Students also expressed anger and opposition to the one-sided negative approach based on disadvantages and intimidation. The author noted that, "When I read articles about the Internet, 99% were about its dark side and that angered me because it created the sense that there is nothing positive about this media, and that's not true".

Even if the aim in this approach is to arouse awareness of the dangers and of the rules for safe surfacing, the way to arrive at it is indirect, balanced, dialogic and free of any annoying preaching: "The responsibility is to inform, not to prevent"; "to recommend, and not to coerce." The role of the teacher is "to provide points for thought and to cause the pupils to think twice before each of their actions on the Internet." According to the balanced approach, the lessons should be conducted "as a class discussion so that the pupils will internalize the subject better"; "it should be a joint activity of the pupils so they won't feel they are being preached to, but that we really want them to use the Internet in the best possible way."

In fact, a balanced, dialogic strategy is an alternative to the use of extreme, shocking and deterring examples in order to make pupils aware of the dangers and of safety rules. As one student explained: "my main concern was how to present the subject to the pupils so they would understand that on the web, alongside the many advantages, there are also quite a few dangers."

An example of a lesson based on the balanced approach is a "trial" in which the Internet is the defendant. The class simulated a courtroom and put the Internet on trial. It was divided into the following sub-groups as follows a defense attorney who pointed out the advantages and benefits of web use, a prosecutor who pointed to the dangers and disadvantages of web use. Afterwards, a vote was held in the class to decide on the verdict. At the end of the lesson, the class jointly formulated rules for safe surfing on the web.

The factors that support and those that inhibit teaching intelligent use of the Web

Supportive factors

The students' statements reveal a number of factors that support the teaching of the subject. It seems that the first challenge is "to arouse the pupils' interest in and

identification with the subject being taught." The students suggested a number of means for achieving this as follows,

- To present an interesting story that illustrates the dangers and/or safe surfing. They suggested "interesting examples or serious cases that happened"; "The case can be a real event"; "a personal story or an event from the past experienced by pupils when surfing". If there are no real stories [about safe surfing] the story can be fictitious.
- To talk and discuss – "a discussion helps to internalize the subject."
- To frighten the pupils by means of an "extreme realistic story, that is shocking and deterring."
- To gain experience – "to experience real participation in a chat and to present the result in class"; "to experience through simulations of situations."
- To tell the students something they don't know or are not aware of and "to add to their knowledge and give them the tools they need"; "to refer them to links to many sites that contain much (professional) knowledge that can be helpful to them."
- To get the pupils to participate in order to minimize any objection to education for intelligent use of the Web: "It is need to make the pupils active participants so they won't feel preaching to them, but rather really want them to use the Web in the best way"; "to get the pupils to actively participate."
- To get teachers and parents to participate: "As a teacher and parent it is important to be aware of the dangers posed to adolescents on the web. We have to find a way to get that across to them without making them feel threatened."
- To reinforce the teacher's knowledge base and possibility to use computerized tools: "the tools the teacher should have a broad base of knowledge and a good command of it."

The students believe that the process of preparation they experienced was important and has enhanced their awareness of the various dangers and also provided them with new knowledge. Nonetheless, some of them felt they lacked in-depth professional knowledge and command of technological tools and/or technological tools with which to make surfing safer.

Inhibiting factors

The students' statements reveal a number of factors that inhibit teaching intelligent use of the web.

- Lack of interest in the subject which has become somewhat time worn: "The especially difficult stage is that of arousing the pupils' interest. Because this subject has been in the headlines for a number of years and the kids generally feel it has been talked about enough."
- To persuade the pupils that the dangers of surfing are real and relevant to them. This difficulty may also system from the students' lack of familiarity with the world of the pupils and with the "sites they surf on." In addition, it may also arise from the popular view that the Internet is extremely beneficial so that drawing attention to the dangers in its use is opposed to the prevailing logic (Kumashiro, 2009).
- Contradictions between the student's position and the demands of the job: "The more difficult stage is to hear things that are supposed to be passed on to others".
- Contradiction between the student's knowledge and experience and what he/she is called upon to teach.

The students' statements show that they find it hard to teach controversial subjects. In addition, there is the problem of where to place boundaries on issues that are contentious – "it's difficult to know where to draw the lines."

- The pupils' privacy is invaded: "The subject is vexing because it invades the adolescents' privacy, goes into things they prefer to keep themselves and suddenly talking about it in public somewhat contradicts the idea of a safe web and confidentiality."
- The complexity of the subject and the planning of the lesson time is a significant difficulty: "The thing that is most bothered during the development process was the Spread of the subject since there are so many sub-topics." "What bothered the most was the time frame and planning the lesson time". "It's not easy to learn and teach such a broad, charged subject."
- Technical obstacles such as the lack of well-equipped

computer classes that would enable the pupils to properly experience safe surfing, and the lack of a broad, in-depth infrastructure of knowledge.

- The gaps in knowledge, in the attitudes and use between the students and the pupils often created conflicts: "Today pupils know much more than the teachers as far as computers are concerned. That confidence causes them to feel disdainful of the lesson before it even starts."
- The difficulty of coming out against things the pupils love to do: "It's hard to get the kids to give up the things they most like to do on the Web, those things that pose the greatest danger."
- The greatest obstacle of all which is the pessimistic and cynical attitude towards the ability to influence surfing habits and behavior.
- Awareness of the severity of the dangers may lead the pupils to despair and have the opposite effect: "The existing dangers caused frustration and a lot of apprehension. The very fact that the Internet with all of its technological advantages can also be so dangerous nearly made despair."

From the students' view, a good lesson on the subject of education for intelligent use of the web should maneuver between the different approaches to teaching, and employ a variety of means: "A good lesson is an intensive, fascinating lesson in which there are no dead moments. The teacher should be emotional. The teacher need to get shocked but also to soften the effect with smart, appropriate solutions. There are needs to be a lot of 'action' that will keep the pupils' attention so that they won't feel it is like a sermon, but rather a rationale for a safer, better way of life." "And the methods should be adapted to the nature of the subject, to the attitude of the pupils as well as those of the teacher towards the Internet and its advantages and dangers."

Discussion and Conclusions

The study described in this paper presents and interprets the educational-pedagogical approaches of students who develop curricula on the intelligent use of the Web and apply them in the schools where they are working as practice teachers during their studies. The students feel that the subject of intelligent use of the Web is an important but sensitive and complex one that calls for specialization and experience. The findings show that, certain subjects require in-depth knowledge and that is reflected in the students' statements when they relate to factors that inhibit the teaching of intelligent use of the Web in school. These factors stem mainly from their relatively limited familiarity with the subject both pedagogically and professionally.

The findings show that, a minority of the students chose educational pedagogical approaches that emphasized on only the positive aspects of the Internet and ignored the possible negative effects of the exposure of adolescents to its disadvantages and inappropriate content. The reason they gave for this choice was that the pupils should be informed about the beneficial uses of the Web and not the harmful ones. However, Leistyna & Alper (2009) claim that this approach introduces Myths Glorifying Technology into the educational system without any criticism or reflection.

Those students who chose negative educational-pedagogical approaches enjoyed a great advantage because they were able to use intimidation which provokes their pupils' attention and can induce changes in awareness and surfing behavior resulting from cognitive dissonance. However, these approaches overlook the fact that most people perceive Web use as an essential, effective tool (Livingstone & al, 2012; Taylor and Kitter, 2010). This discrepancy also triggered arguments between the students and the pupils, as the latter often regarded the dangers as trivial and the students' warnings as unreliable and as preaching. In addition, excessive frightening of the pupils can have negative side effect such as despair, a sense of helplessness and denial. Consequently, negative critical approaches are able to arouse more resistance to learning the subject than the other approaches. Unbalanced criticism of the Web and the difficulty of criticizing something the pupils really like are obstacles to the learning process (Wadmany & Zeichner, 2009). The difficulties of setting clear limits to screen inappropriate content are familiar from the attempts to regulate television programs and Internet sites intended for children (Lamish et al 2009). The gap between intentions, words and

deeds is a well-known problem in teaching and learning (Friere, 2009).

Majority of the students were in favor of more balanced educational-pedagogical approaches, which would mitigate the disadvantages of the negative approaches and the resistance to learn the subject. They noted that, balanced approaches evoke interest through active experience and an open dialogue. The pupils arrive on their own at the understanding that there are dangers on the Web and that they ought to adopt rules of safe surfing.

The students' educational approaches reflect the theoretical debates between advocates of critical approaches with a defined ideological and ethical agenda and those favoring constructivist and balanced approaches based on a free dialogue and neutral tools for critical analysis (Buckingham, 2007; Luke, 2003).

Byron (2008) suggests that the educational-pedagogical approach of online safety campaigns can be adapted to the age of the pupils and the level of their awareness of the dangers on the web. In this view, approaches conveying a sharp, shocking message are more appropriate for pupils who are completely unaware of the dangers on the Internet. More balanced approaches, which relate to the advantages and disadvantages of the Internet and include the acquisition of tools and knowledge, are more suitable to pupils who are already aware of the dangers. Therefore, they are better suited to pupils in secondary schools, who usually are more aware of the dangers than younger children.

In order to prepare students to develop curricula on intelligent use of the web and to apply them in the classroom, a designated course should be developed in all teacher training colleges, in keeping with Byron's (2008) recommendation. In this framework an optimal systematic approach should be planned, based first of all on familiarity with the pupils' attitudes towards the advantages and disadvantages of web use. Only then should educational activities be planned with educational-pedagogical approaches suitable for the level of awareness and behavior of the pupils. During the training process, reference should be made to the supportive factors and inhibiting factors in planning and teaching intelligent use of the web in the school. The findings of the present study support the findings of other studies that indicate that the accumulative practical experience gained by the students in the schools enabled them to adapt their modes of action and teaching approaches in relation to learning and teaching processes (Hargreaves, Lieberman, Fullan, 2010; Fullan, 2012; Wadmany, 2012). The present project advocates the construction of a consistent, systematic holistic training program to help students invest personal meaning in developing and applying educational intervention programs on intelligent and ethical use of the web. It also is in favor of enabling personal contact and a close relationship between the lecturers and the students, who represent the college, as well as between the teachers and the pupils, who represent the educational field.

The present study describes and follows up how varied curricula on intelligent use of the web influence the perceptions and educational-pedagogical approaches of students studying to be teachers. The range of programs and activities made it possible to build different models of educational intervention for a variety of populations for the purpose of coping with the range of problems entailed in intelligent use of the web. The students studying in the college, planning and gaining experience in these various educational activities are the future agents of change in the schools.

On the application level, the results of the study are useful in shaping learning environments that make intelligent use of the Web and in planning models of learning and teaching in this sphere, while at the same time insightfully relating to the differences between different educational intervention programs. Cooperation between a college and a school provides the school and the academic institution with an opportunity to connect, to expose the teachers and students in the college as well as the teachers and pupils in the school to be updated, relevant knowledge, to enable them to deeply understand the subject and to oblige them to continue acting to heighten the awareness of school pupils. The findings of the study open a window for understanding the experiences of the pupils and are helpful in developing mechanisms of curricula that may

improve the abilities of the students as future teachers and their pupils to use the web intelligently and prudently.

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