CHILDREN IN FRONT OF SCREENS: ALONE OR IN COMPANY? DESKTOP OR HYBRID COMPUTER? CHILDREN'S VIEWING AND BROWSING HABIT

By

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ABSTRACT

The viewing and browsing habits of Israeli children age 8-12 are the subject of this study. The participants did not have a computer at home and were given either a desktop or hybrid computer for home use. Television viewing and internet surfing habits were described, examining whether the children did so with their parents, family members, and friends. For this mixed-measure study, (n=1,248) participants across Israel were assessed in two rounds. During the second round, 128 interviews were conducted with the children. Findings revealed the children were afraid of being criticized for their choice of programmes, the characters they admire, and the sites they browse, and this fear causes them to avoid dialogue, joint viewing, and browsing with others. Findings show that, the sharing habits adopted by children who had no computer in the home and were provided with one were affected not only by the new computer itself, but also by the manner of interaction with their parents and by the television viewing habits they had acquired before the computer reached the home. It was recommended that criticism and judgment be reduced, and be replaced with an existential discussion with the children, and to formulate together ways to create clear boundaries without punishment, empathizing the children's free will and finding activities that meet their need for autonomy, competence, and relatedness.

Keywords: Low Socio-economic Status, Digital Divide, Internet, Hybrid Computer, Children, Viewing Habits, Browsing Habits, Needs.

INTRODUCTION

Numerous studies concerning children and the media reveal that many children block the channels of communication and cooperation with their parents. At the same time, the boundaries between privacy and sharing with other children have been blurred, and they share matters that are liable to cause damage to themselves and others (Agosto and Abbas, 2015; Duerager and Livingstone, 2012; Livingstone and Das, 2010; Livingstone, Marsh, Plowman, Ottovordemgentschenfelde, and Fletcher-Watson, 2015; Watkins, 2009; Zilka, 2014, 2016).

In this study, the author examined the viewing and sharing habits adopted by children who previously had no computer in the home and who received such a computer. The author checked whether they tended to involve their parents and additional members of the family, and what surfing habits they adopted jointly with their friends. The aim of the study was to describe the habits of children aged 8-12 while surfing the Internet and watching television, and their habits of sharing these activities with their parents, plus other members of their family, and friends, as well as the use of computers by children who did not have one at home and who received a desktop or hybrid computer for home use. This section reviews the relevant literature that served as the basis for this study, which promulgates the Self-Determination Theory (SDT), the basic psychological need theory, and the uses and gratifications theory.

Media Viewing and Browsing Habits

Many studies (Clark, 2013; Duerager and Livingstone, 2012;

Lim, 2016; Zilka, 2014) about children and various media, children and television, children and social networks, and so on, show that, on one hand, children feel that the various media are an additional sphere to compensate and satisfy their needs, but on the other hand, it exposes them to more complex conflicts than ever before, blurring the boundaries between private and public, intimacy and sharing, adaptation to environmental norms, and autonomous choice. Incorrect amount of exposure may lead to adaptation transforming into imitating others, autonomy into avoidance and even alienation, and the need to express an opinion or protest into a need for silence. The blurring of the boundaries between expression and silence at times creates difficult situations of verbal abuse, intimidation, boycotts, spreading of rumours, seduction, shaming, and more. Numerous studies (Agosto and Abbas, 2015; Duerager and Livingstone, 2012; Livingstone and Das, 2010; Watkins, 2009; Zilka, 2014) show that many children block the channels of dialogue and cooperation with their parents and other adults. At the same time, however, their boundaries between privacy and sharing with other children are blurred, and they share things that cause harm to themselves and others. Today, more than ever, because of the complexity of the environment in which children live, it is important for adults to become involved in the child's life, to provide content, support, and direction. Studies (Duerager and Livingstone, 2012; Zilka, 2014) show that children feel that their immediate environment is unable to provide them with enough information about how to behave in this world, and that these feelings are intensified after watching various television programmes.

According to the SDT, there are three basic needs for growth and development: autonomy, competence, and relatedness. The need for autonomy, independence, and choice has to do with finding interest in what one does, with expressing opinions and emotions. The need for competence is the need to feel capable to cope with skills, goals, and objectives, to experience oneself as capable of implementing and executing plans. Relatedness is the need to feel part of a group, to have a sense of being protected, secure from physical and emotional harm, accepted and loved, as opposed to being rejected and alienated. The fulfillment of these basic needs is essential for a child's well-being (Deci and Ryan, 2000; Patrick, Canevello, Knee, and Lonsbary, 2007; Vansteenkiste and Ryan, 2013; Weinstein, Przybylski, and Ryan, 2012). According to the uses and gratifications theory, a media consumer is a thinking and rational being, who chooses from a variety of media, decides what to expose oneself to and what to forego, and shapes one's consumption habits according to one's needs (Leung, 2013; McQuail, 2010; West and Turner, 2007).

Children need to understand the society in which they live, and television programmes answer this need and serve as an alternative to the socialization process that the child experiences. Researchers have been aware of this socialization source already at the beginning of the second half of the 20th century (Bandura, 1971, 1986; Nobel, 1976), claiming that television programmes provide a kind of extended family that represents the whole of society as a microcosm, similar to that which children once had when their lives were part of an extended family within a tribe or a clan, but without fear of embarrassment or perhaps even demeaning criticism. Television shows serve as a stage to a large number of constant and changing characters with which the child interacts para-socially. Para-social interactions can provide an opportunity for examining possibilities of 'how to behave' in different and varying situations, and in the eyes of children they play a role similar to that of real social interactions. They provide essential social learning, i.e., how to respond to members of an extended social group, how to integrate into society, and how to avoid certain situations. Although television programmes may present models for any social role, they do not offer the viewer a mirror image of himself, or feedback that is essential for complete development (Leung, 2013; McQuail, 2010; West and Turner, 2007; Zilka, 2014).

The child feels that social networks (Zilka, 2014) extend his ability to communicate with others and empower the feeling of being socially connected. They provide a sense of belonging, experiences of close friendships, and a sense of social acceptance, as opposed to feelings of loneliness and alienation. These kinds of interactions create in the

child a sense of self-worth, of being needed, of contributing significantly to the environment. They also provide an opportunity to demonstrate abilities and to receive appreciation and feedback from the environment, thus adapting and developing the appropriate skills for the new environments and the society in which the child lives. Studies (Duerager and Livingstone, 2012; Livingstone, 2015; Livingstone et al., 2015; Zilka, 2014) indicate that the media in general, and social networks in particular, occupy a growing role in children's lives. Social networks make up yet another social sphere, similar to and based on face-to-face friendships, but different, without clear rules, without principles and clear boundaries; it is a new sphere that creates a feeling of familiarity. In the interviews, the children said that the social networks create an alternative and compensatory sphere that satisfies their interpersonal needs. But the children operate in an environment that gives them a sense of vast space, without limits, offering countless possibilities. It is easier to hurt people online than 'face-to-face'. The frequent use of these networks, spending many hours a day without clear enforced boundaries or supervision, may lead users, who are not defined initially as users at risk, into difficult situations of risk and harm to others.

Concerned parents often try to restrict entry to various sites and to limit television watching, but this leads to a deterioration of the relationship between parents and children, and increases the distance and misunderstanding between them. The children are exposed, through the various media, today more than ever before, to different models of parenting, of human behavior, and of children's behaviour. Today, more than in the past, the parent's role is more complex and less clear (Coyne, Robinson, and Nelson, 2010; Thomas, Cooke, and Scott, 2005; Zilka, 2017). A child whose television viewing is unbalanced (watches many hours, prefers to watch contents and messages alone, without parents and friends) can be harmed (Conners-Burrow, McKelvey, and Fussell, 2011; Haridakis and Rubin, 2009; Hough and Erwin, 2010). The American Academy of Pediatrics recommends that parents limit their children's television viewing time, remove the television and/or computer from the children's room, and offer the children alternative activities that are tailored to their needs (American Academy of Pediatrics, 2001). Research (Evans, Jordan, and Horner, 2011) shows that parents tend to accept the recommendation to remove the television and/or computer from the children's room and to limit their viewing hours, but fail to find alternative activities. Moreover, the children perceive the limits on their television viewing and removal of the television and/or computer from their room as punishment, a perception that results in conflict between parents and children. Parents reported quarrels and difficulties, and rejection by their children of proposed alternatives. Restricting viewing is difficult to implement, causes many conflicts, and is usually ineffective, because children find other means or other places to watch the programmes and surf the websites they choose.

Disadvantaged Populations

Disadvantaged populations are defined as populations of low socio-economic background in a state of 'multiple deprivation', referring to a correlation between variables such as income, housing, education, center and periphery, access to the digital environment, etc. (Ching, Basham, and Jang, 2005; Livingstone and Sefton-Green, 2016).

The project 'A Computer for Every Child' was launched in 1996 to provide new computers, software, and PC training for children from disadvantaged communities who did not have a computer at home. For the two decades since, children have had access to computers at home, giving them leverage for achieving equal opportunity and narrowing the digital divide. One of the main objectives of distributing computers to children, who did not have a computer at home was to provide the child with an equal opportunity to realize his personal, economic, and social potential in the short and long term, thereby improving his ability to integrate into the global socio-economic-cultural fabric. Through the 'Computer for Every Child' program, desktop and hybrid PCs were distributed in order to provide children with a computer of their choice. Studies have shown (Aladjem and Nachmias, 2011; Brandt, 2015; Bulger and Livingstone, 2013; Cochrane, Narayan, and Oldfield, 2013; Conners-Burrow et al., 2011; Jacobs, 2013; Jacobson and Macke, 2013; Session, Ja Her, and Raine,

2011; Wei, Teo, Chan, and Tan, 2011; Zilka, 2012, 2011) that a computer at home, whether a desktop or a hybrid, is likely to reduce the digital divide and lead to equal opportunities. The digital divide is defined as the gap created between those who have access to the digital environment and those who do not. The Internet, as a revolutionary and interactive mass medium, has implications for society and for culture, politics, and economics, for the public's right to know and the right to privacy, for censorship and the collapse of hierarchical information, for equality of opportunity and social mobility, for interpersonal communication and mass communication, etc. (Castells, 2009; Goyal, 2010; Sascha, James, and James, 2011; Smith, 2009; Zilka, 2012).

1. The Present Research

The purpose of the present study is to describe the browsing and viewing habits of children aged 8-12 from various localities across Israel, and their habits of sharing with their parents, family members, and friends, the watching of television shows and surfing the Internet, and the use of the computer among children who did not have a computer at home and received a desktop or a hybrid computer to use at home.

In the course of 2014-2015, the children received new computers and a fast Internet connection. All computers, whether desktop or hybrid, contained identical software and learning environments. Hybrid computers consisted of a tablet, computer with a keyboard and mouse in addition to the touch screen, a Windows operating system, Microsoft Office, fast Internet, and more.

2. Method

2.1 Research Population

The study involved two measurements. The sample consisted of (n=1,248) respondents who had received computers during the years 2013-2014. The first measurement took place before introducing the computer into the home; the second one approximately a year later. All the children were enrolled in regular primary schools. Of the 598 respondents in the first measurement, 246 (41%) received hybrid computers and 352 (59%) received desktops. In the second measurement, of 650 participants who responded, 212 (32%) had received hybrid computers and 438 (68%) desktops. Of the respondents, 286 were boys and 298 girls. Some of the children had access to computers and the Internet in school. The author found no differences in the number of hours spent on the computer in school between the first and second measurements; in other words, there was no difference in the number of computer hours in school. The effect of computer training in school on the children was manifest in both the first and the second measurements.

2.2 Statistical Analysis

To compare the change in successive indices between the two groups following the intervention, the author conducted a series of variance analyses to determine the difference between the measurements and within each measurement. The intra-measurement factor was time (before, after) and the inter-measurement factor was the group: children who received a hybrid computer as opposed to those who received a desktop. Statistical distributions of the variables tested were presented for questions relating to the children's reports concerning changes in their activities. These included distribution, descriptive statistics, and correlations between variables, regression between the indices themselves and the indices of the socio-demographic variables, and chi-square tests.

A qualitative analysis was conducted surrounding on the themes of autonomy, competence, and relatedness, based on the SDT.

2.3 Research Tools

Each participant was asked to answer a 53-item questionnaire. In addition, during the second measurement, 128 personal interviews were conducted with 50 children who had received a desktop computer, and 78 children who had received a hybrid. Interviewees were equally divided between boys and girls. The author saw more children who received hybrid computers than children who received desktop computers, because the hybrid computer is a relatively new medium, and because during the interviews we found differences in accessibility between the two groups of children, those who received a desktop and those who received a hybrid computer.

Based on the research tools, the author formulated representative indices using exploratory factor analysis with

Varimax type orthogonal rotation.

Following are the research tools according to the research topics:

1. Type of computer: desktop or hybrid, one question.

2. Media usage habits: 40 items. Answers were rated on a 5-point Likert scale (1 to 5). Sample questions indicating viewing hours/week (1=none, 5=more than 15 hours): the extent of computer use at home; the extent of surfing the Internet; time spent watching YouTube. Sample questions that were rated on a scale of 1 to 4 (1=none, 4=almost always): Do you sit alone at the computer? Do you use the computer with one of your parents? Do you use the computer with one of your siblings? Do you use the computer with friends?

The questionnaire produced two key metrics: habits of computer usage, habits of surfing the Internet, and habits of watching television (20 items); sharing with parents, siblings, and friends (20 items).

3. Personal information, 12 items, such as age, gender, sector, number of people at home, and more.

Computer type: children received new computers and a fast Internet connection. The desktop and hybrid computers that were distributed contained identical software and learning environments. Hybrid computers consisted of a tablet computer with a keyboard and mouse in addition to the touch screen, a Windows operating system, Microsoft Office, fast Internet, and more.

2.4 Procedure

1. During 2013-2014 new computers (desktops and hybrids) with fast Internet connection were given to children who did not have a computer at home.

2. The children were given a training course of 45 hours before receiving the computer.

3. During the final lesson of the course, the children completed the first measurement questionnaire and received the computer.

4. One year after receiving the computer, the children completed the second measurement questionnaire.

5. 128 children were interviewed comprehensively, of which 50 had received a desktop computer and 78 a hybrid computer. The group was equally divided between boys and girls.

3. Analysis of Findings

The aim of the study was to describe the browsing and viewing habits among Israeli children aged 8-12, who did not have a computer at home and who had received a desktop or hybrid PC to use at home. The study also described, the children's habits of sharing with parents, family, and friends the watching of television shows, surfing the Internet, and using the computer. The second measurement was conducted about a year after the children had received the computer to use at home.

To examine the differences between the indices of the study, a series of variance analyses was conducted between and within the measurement groups. The within-groups factor was time (before, after); the between-groups the factor was group: children who receive a hybrid computer and those who received a desktop computer.

4. Personal or Family Computer

The children were asked (measurement II) whether they felt that the computer was theirs or whether it belonged to the entire family. Most of the children answered that they felt that the computer belonged to the entire family. Of the children who received a desktop computer, 438 wrote that they felt that the computer was the family's, compared to 15 children who wrote that they felt that the computer was mainly theirs. Of the children who received a hybrid PC, 161 wrote that they felt that the computer was the family's, compared to 51 who wrote that they felt that it was mainly theirs. In the interviews, the children who said that the computer was the family's gave a reason for this feeling. Of this group, 65% said that they would like the computer to be 'more' theirs and less everybody else's; 35% wrote that they had a sense of togetherness, of belonging to the family, that the computer was part of the togetherness, of the family, like the television set. There were no differences between the groups.

When asked whether they spent time alone at the computer at home when they used it, 95% wrote that they were often or almost always alone. There were no differences between the groups.

When asked whether they used the computer together with their parents, 66% answered that they often used the computer with one of their parents. When children were asked whether they used the computer together with their parents, significant differences appeared between the groups F (1,643) = 4.80, p= 0.02 of the children who received a desktop (M = 2.63, SD = 0.57) reported sharing it with their parents, compared to the children who received a hybrid computer (M = 2.51, SD = 0.78). There were significant differences between the groups when they were asked whether they use the computer together with their siblings F (1,643) = 22.87, p = 0.00 of the children who received a hybrid PC (M = 2.96, SD = 0.9) reported sharing the computer with siblings, more than did the children who received a desktop computer (M = 2.68, SD = 0.55). In the interviews, the children indicated that they used the computer together with other family members, playing together, and helping find content on the Internet. Children said that they taught their younger siblings to work with the computer, play computer games, draw, learn to read, and the like.

Analysis of the interviews revealed that 78% of the children indicated helping their parents locate content, find a job, shop online, and so on. For example, a child reported that when his mother was unexpectedly laid off, he looked together with her at different sites to help her find alternative work, and he also signed her up on various websites. He said that, she found a job through one of the websites where he had submitted her information. Another girl said that, she had worked with her parents to help them write a resume using a website that instructs you how to do so, and helped them find a job.

In the interviews, the children described their computer usage and television viewing habits, and whether they did it alone or with other family members. The children were given a course of 45 hours on how to use a computer, and the interviews revealed that they felt better qualified to work with the computer than their parents and siblings. They felt bothered when they needed to help their parents or teach their younger siblings. The interviews revealed that, they felt that they were 'investing' their time in their parents and younger siblings, and it seemed to them like a lot of time. But when they were asked to quantify the time, it turned out that they devoted little time to it, although they felt that it was 'just too much for them'. The interviews disclosed that the children prefer to surf the web alone (112 of 128). They felt freer to click without having to explain why they clicked one link or another. They felt that when they browsed with others they were 'held up', they did not surf where they wanted, that is, without having to think too much about what they are clicking, and without having to discuss matters that interest their parents, but not them, and without having to explain how they had 'arrived' at a specific website. Sitting alone in front of the computer gave them a sense of freedom. An important point was their difficulty in facing criticism. The majority of the children (114 of 128) interpreted their parents' questions as criticism and not as the parents' desire to understand.

As far as watching television was concerned, the children said that, they enjoyed watching with other family members, provided they did not 'put down' the characters or the programmes they liked. They wanted to feel 'like at the movies', where they sit with others but do not talk, because it is disturbing. (A sample quote: 'When my parents start to say bad things about a character that I like, I really get upset. It annoys me and it hurts me. And then it leads to a fight'). The children reported that parents limited their television viewing and restricted their browsing the Internet, and that their parents unjustifiably deprived them of things they wanted to do. In the interviews, the children (87 of 128) reported that their parents did not listen to them, did not understand them, and did not understand their needs. Their parents did not understand that there are sites where all their friends surfed and television programmes that all their friends watched, and that they 'must' have access to these sites and programmes. The children (93 of 128) claimed that their parents were usually too busy to them, to quash the programmes and the characters they liked, to make fun of the websites where they chose to surf, and so on.

5. Viewing and Browsing Habits

The children were asked how many hours per week they usually spent on the Internet, watching television, and more.

Table 1 findings show that, there are significant differences

Average frequency spent on…	Measurement I		Measurement II		
	Avg	Variance	Avg	Variance	F
Spent with friends after school	1.30	0.98	1.19	0.65	F=1.41, n.s.
Watching television	1.83	1.28	1.53	0.99	F=14.51, p<0.001
Watching YouTube	1.1	1.13	1.32	0.77	F=10.59, p<0.001
Watching DVDs	0.58	0.99	0.26	0.56	F=46.46, p<0.001
Watching movies and computer programmes	1.03	1.13	1.39	0.93	F=24.48, p<0.001
Surfing the Internet	1.26	1.24	1.54	0.97	F=12.30, p<0.001
Listening to the radio	0.19	0.54	0.02	0.19	F=45.72, p<0.01
Reading a newspaper	0.28	0.59	0.05	0.24	F=60.02, p<0.001
Reading a book	0.81	0.89	0.90	0.43	F=2.80, n.s.
Talking on the phone	1.40	1.20	0.75	1.03	F=63.26, p<0.001

Table 1. Main Effect of Measurement Time

between the two measurements in the average leisure time spent on various forms of entertainment. At the time of the first measurement, the children spent more time watching television and DVDs, listening to the radio, reading the newspaper, and talking on the phone than they did at the time of the second measurement. By contrast, the average leisure time spent on surfing the Internet, watching YouTube, watching movies, and using computer programmes increased from measurement I to measurement II.

Table 2 findings show that, there are significant differences between the two groups of children in the average leisure time spent on various types of entertainment. The children who received a hybrid computer spent more time, on average, than the children who received a desktop computer on every activity, except for reading a book and talking on the phone, in which the children who received a desktop computer spent more time on average. As seen in Figure 1, there was a gender difference in watching

Average frequency spent on…	Hybrid PC		Desktop		
	Avg	Variance	Avg	Variance	F
Surfing the Internet	2.09	1.17	1.36	0.97	F=88.52, p<0.001
Spent with friends after school	1.39	0.96	1.11	0.64	F=23.94, p<0.001
Watching television	2.11	1.23	1.33	0.88	F=109.77, p<0.001
Watching YouTube	1.53	1.02	1.09	0.75	F=50.01, p<0.001
Watching DVDs	0.55	0.72	0.26	0.66	F=33.74, p<0.001
Watching movies and computer programmes	1.61	1.24	1.05	0.72	F=65.90, p<0.001
Reading a book	0.79	0.70	0.92	0.56	F=8.85, p<0.05
Talking on the phone	1.38	1.16	0.71	1.05	F=70.53, p<0.001

Table 2. Main Effect of Computer Type

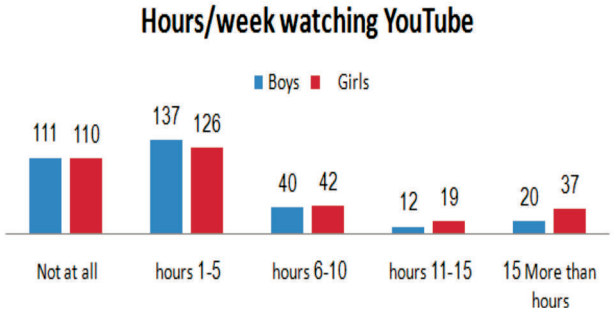

Figure 1. Watching YouTube

YouTube, with boys spending less time watching YouTube.

Figure 1 shows that on average, boys spent less time watching YouTube (1.04) than did the girls (1.24).

5.1 Interaction Effect

Figure 2 shows that, the children who received a hybrid computer speeds up surfing the internet more then does a desktop computer.

Figure 3 shows that, the children who received a hybrid computer watching YouTube more then does a desktop computer.

Figure 4 shows that, the children who received a hybrid computer watching movies and using computer programmers more then does a desktop computer.

5.2 Sharing with Friends

Figure 5 shows that, the Seventy percent of the children

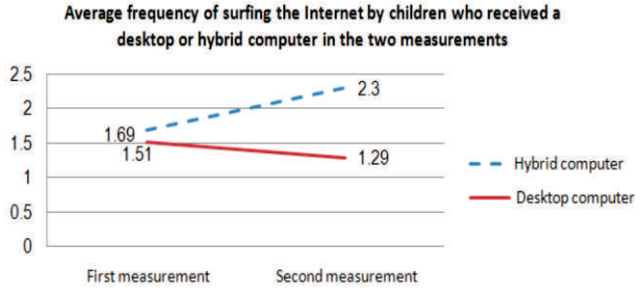

Figure 2. Surfing the Internet

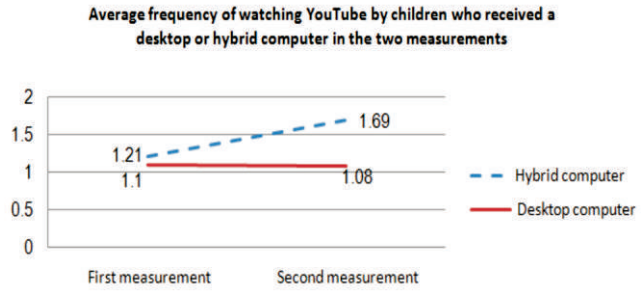

Figure 3. Watching YouTube

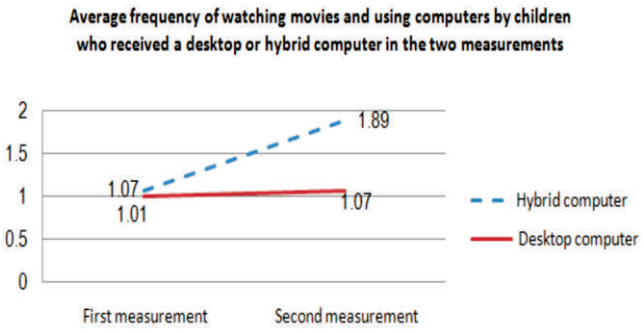

Figure 4. Watching Movies and using Computer Programmes

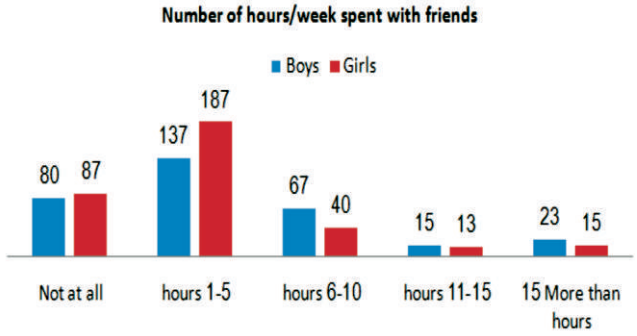

Figure 5. Sharing with Friends after School

answered that they often used the computer together with friends. No differences were found between the groups on whether they used the computer together with friends. In the interviews, the children described their computer usage and television viewing habits, alone or with friends. When sharing with friends, they mostly play together. At times they search for content for school or topics that interest them, but they mostly play computer games or games available online.

There was a difference between the genders in spending time with friends after school. On average, boys spent more time with friends (1.27) than did girls (1.07).

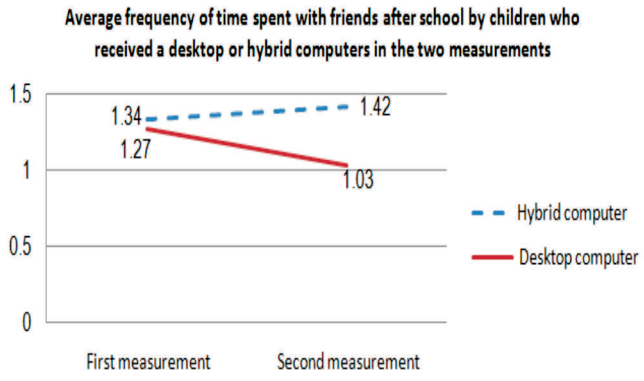

Figure 6. Spending time with Friends after School

Figure 6 data show that, children divide their time between a variety of activities available to them. Most children allocate between one to five hours per week to a substantial portion of the activities. Seventy percent of the children wrote that they often use the computer together with friends. No difference was found between the children who received a hybrid and those who received a desktop computer.

In both first and second measurements children indicated what their needs were and what their expectations were upon receiving a computer for home use. It transpired that all the children's needs concerned the three themes of SDT: autonomy, competence, and relatedness.

6. Discussion

The aim of the study was to present the browsing and viewing habits among Israeli children aged 8-12, who did not have a computer at home and who had received either a hybrid or desktop computer for home use. The study also examined their habits of sharing their activities with their parents, family, and friends when watching television, surfing the Internet, or using the computer. The first measurement was made upon receiving the computer; the second measurement was conducted about a year after having received the computer.

When the children were asked (measurement II) whether they felt that the computer was theirs or the family's, most of the children answered that they feel that it belonged to the family. When interviewed, the children who felt that the computer belonged to the entire family noted the reason for this feeling: 65% said that they wanted the computer to be "more" theirs and less everybody else's, and 35% said that they had a sense of togetherness, of belonging to the family, and that the computer was part of the family togetherness, as was the television set. Most of the children stated that they spent time alone at the computer at home, and that they often used the computer with one of their parents, or together with their siblings. In the interviews they said that, they used the computer together with other family members, that they played together, and helped find materials on the Internet. Children stated that they taught their younger siblings to work on the computer, play

computer games, draw, learn to read, and so on. They helped their parents search for information, jobs, shopping etc. But the interviews revealed that 78% of the interviewees felt that they 'invested' a great deal of their time in their parents and younger siblings, and that it seemed to them to be too much. When they were asked to quantify the time, it turned out that they devoted only little time to this activity, but they felt that it was' just too much for them'. The children were given a 45-hour computer course, and in the interviews they expressed the feeling that they knew more about the computer than did their parents and siblings. They stated that they feel put upon when they need to help the parents or teach their younger siblings. The children said that they preferred to surf the Internet alone. They felt freer to click without having to explain why they chose one link and not another. They felt that when they browsed, others 'held them up' and they did not surf where they wanted to, that is, without having to think too much about what they clicked. In-depth discussions showed that, criticism was a main difficulty. Children interpreted their parents' questions as parental criticism and not as a desire to simply understand. They felt that, they did not know enough to 'confront' their parents and to show them what to do. In their own words, they were afraid of 'failing' to meet their parents' expectations.

Children also said similar things about surfing with friends. They spoke about the difficulty in facing their friends' criticism with regard to their surfing capabilities, their skills in computer games, and so on.

As far as watching television was concerned, the children said that, they enjoyed watching together with other family members, provided that they did not 'put down' the characters and programmes that they liked. Again, the fear of criticism about what they chose to watch and the characters they liked has led them to avoid discussions. But the children stressed that they liked having 'people around'. The fear of criticism has also been mentioned in previous studies (Leung, 2013; McQuail, 2010; West and Turner, 2007). It is therefore recommended to reduce criticism and judgment as much as possible and to hold an existential dialogue with the children, to clarify for them the fact that those surrounding them are aware of their problems and their needs, and to treat them with care and respect.

The children reported that their parents often limited their television viewing and Internet browsing. They reported that their parents interfered with them without any justification. There was considerable concern over criticism. This finding is consistent with those of previous studies (Leung, 2013; McQuail, 2010; West and Turner, 2007). The children were afraid of criticism, disapproval of their choices, of expressing their opinions about the characters of the programmes they watched, and so on. Therefore, parents need to speak with their children and explain to them the intention behind any prohibition or limitation to which they are subjected. In this way, children will understand that there is cause and effect, and will develop a sense of order, rules, and discipline, as opposed to one of chaos, disorder, lack of discipline and of clear rules. Limitations accompanied by an explanation are the parents' tool to give children a sense of purpose and competence, that life has meaning. Parent must stimulate in children a sense of responsibility, as opposed to no sense of responsibility toward themselves and their environment; a sense of personal and collective identity, as opposed to anonymity; a sense of belonging, sharing, and relationships, as opposed to indifference, alienation, and rejection. To maintain a dialogue, the adults must understand the children's way, and be aware of their capacities and of where the children are situated. At times, it is necessary to explain things gradually and not all at once, to find the right moment to tell the children things that are difficult for them to comprehend. Children ought not to be burdened when they are tired or busy. Rather, parents should initiate joint activities, reassure the children, and only at the right moment reveal to them slowly whatever they have difficulty absorbing. Children should be allowed to respond, request clarifications, and ask questions. Together, parents and children should find ways to create clear boundaries without punishment.

Parents should make every effort to meet the needs of the children and not only try to prevent them from browsing, viewing programmes, and visiting websites. Children choose to watch television programmes and surf the

websites that meet their needs. A needs analysis using the approach of the SDT found that all children referred to needs related to autonomy, competence, and relatedness, especially for their sense of belonging (Tables 3, 4, and 5). Although the children preferred to watch television and surf alone, they need a sense of belonging. Some of them meet this need through the television, with the programmes serving as a stage to a large number of constant and changing characters with which the children create para-social interactions (a relationship that children develop with figures in the programmes that they like). Others interact online (on Facebook and other social networks). The children referred mainly to the need to be socially a part of their class, to be equal with their peers. Seventy percent of the children stated that they often used the computer together with friends. At the time of the first

Topic: Autonomy	Quotations: Measurement I	Quotations: Measurement II
Need for autonomy	So that I am not limited because I don't have a computer.	I can get to the websites that I want. I manage with the computer by myself.
Feeling of self-expression	So that I have what to do and don't get bored.	There is so much to do with the computer. I never get bored.
Choice	To learn with the computer things that I don't know.	I learned so many new things and I'm still learning new things.
Interest in what they are doing	So that I'm interested in doing homework.	I succeed better in school because I look for interesting material and it challenges me to learn more. I'm better at doing homework on my own with the computer without help from others.
Possibility to choose my own way	I'll be able to do my own work like everybody else	I feel more comfortable because when I go away I don't have to worry about when I'll do my homework because I take my computer with me.
To express my opinions and feelings	Everybody talks about their computers and I don't understand.	Today I feel more confident in talking with everyone, I'm not afraid that they'll talk about things that I don't understand.

Table 3. Autonomy

Topic: Competence	Quotations: Measurement I	Quotations: Measurement II
To feel able to cope with skills and objectives	To be able to get information. I'm afraid that I won't succeed in coping with the computer. I have the feeling that finally I'll be able to succeed better now in coping with my studies than I have been in the past.	I feel wonderful when I need information. I go to the computer, search and find things that surprise me and excite me.
To feel capable of carrying out plans	So that I can do my homework on the computer. So that I understand when children talk about things on the computer.	I prepare homework on the computer. I find it more efficient. Today I'm a computer champion. I explain to other kids what needs to be done and how to do all sorts of things on the computer.
To be able to cope with acquiring new skills and competences	I hope that everything I learned in the computer course will help me in my studies.	I constantly learn new things when working on the computer and all the time I find material on the Internet that is important for my studies.

Table 4. Competence

Topics: Relatedness	Quotations: Measurement I	Quotations: Measurement II
The need to feel like everyone else	I'll be able to communicate with friends through the computer.	Now I feel like the rest of my friends.
The need to feel part of a group	So that kids can come to my house to play on the computer.	I help friends through Facebook to do homework and to organize activities, like going to the movies.
Feeling of protection and security	So that I feel comfortable and secure with my school friends and not different from everyone.	Now I feel more "in" and am less fearful of the kids in my class.
Being wanted and loved as opposed to rejected and alienated	I will be more accepted. Maybe my class will appreciate me more. Maybe they'll agree to include me in their conversations about computers.	The computer helped me make contact with the kids in my class. I feel more accepted now. I don't feel stupid anymore when they talk about computers. I understand a lot of things about computers.

Table 5. Relatedness

measurement, children stated that they expected to succeed socially after having received the computer. In the second measurement and in the interviews, the children described how the computer changed their place in the fabric of the class that they communicated better with their classmates, that they proposed activities on Facebook for all the children in the class, that they helped choose movies and leisure activities. The children stated that after having received the computer it was easier for them to participate in events and to plan class events, and that more than ever they felt a part of the fabric of the class.

The findings show that, children have a strong need to feel that they belong socially, to be a part of the fabric of the class, to feel valued by their classmates, and so on. Having a computer at home heightened their sense of their ability to have this need met. The computer also provided children with an answer to their need for autonomy. (Quotations illustrating the children's narratives: I'm doing better in school because I look for interesting materials and that stimulates me to learn more; I'm able to do my homework by myself with the computer, without the help of others; I'm more confident today talking with everybody, I'm not afraid that they'll talk about things that I don't understand; I have so many things to do with the computer, I never get bored). The children's responses make it clear that there is a connection between belonging and their capabilities, as well as between belonging and autonomy, particularly belonging with the kids in the class, and belonging and everything that is related to their integration into the fabric of the class. The findings reveal that providing a home computer helped children feel that they belong and that they are connected socially, and affect to a certain degree their wellbeing.

The data also show that, children divide their time between the many diverse activities available to them. It was found that most children spent between one and five hours per week with friends, boys more so than girls, and watching YouTube, girls more so than boys. Children devoted more time to watching television and surfing the Internet than to any of their other activities. There was a change in their leisure time habits between the two measurements: the children watched more television and DVDs and talked more on the phone at the time of the first measurement than of the second measurement. The average leisure time spent on surfing the Internet, watching YouTube, watching movies, and using computer software increased from the first measurement to the second. It was found that, children who received a hybrid computer spent more time on average browsing the web with friends, watching television, watching YouTube, and watching movies on the computer than did children who received a desktop computer.

6.1 Desktop or Hybrid: Reducing the Digital Divide

The findings showed that, there were significant changes between the two measurements in browsing habits on the computer, and that the digital divide was reduced to some extent. Similar findings on the reduction of the digital divide have been found in other studies (Aladjem and Nachmias, 2011; Brandt, 2015; Bulger and Livingstone, 2013; Cochrane, Narayan, and Oldfield, 2013; Conners-Burrow et al., 2011; Jacobs, 2013; Jacobson and Macke, 2013; Session, Ja Her, and Raine, 2011; Wei, Teo, Chan, and Tan, 2011). It was found having a computer at home contributed towards narrowing the digital gap and creating a better chance for equal opportunities. Differences were found between the groups: the: children who received a hybrid computer spent more time on average surfing the Internet, with friends, watching television, watching YouTube, and watching movies on their computer than did children who received a desktop computer. This suggests that, a hybrid computer speeds up the reduction of disparities and promotes a wider use of the computer for work and for surfing the Internet, than does a desktop computer.

Conclusion

The findings show that, the sharing habits adopted by children who had no computer in the home and were provided with one were affected not only by the new computer itself, but also by the manner of interaction with their parents and by the television viewing habits they had acquired before the computer reached the home.

It was found that, children are afraid of criticism and judgment and therefore avoid more extensive sharing with

parents, siblings, and friends when watching television and surfing the Internet. It is therefore desirable to reduce criticism and judgment as much as possible, and to conduct a dialogue with the children. It is advisable to maintain a dialogue, and to formulate together ways to create clear boundaries without punishment, empathizing with the children's free will and finding activities that meet their need for autonomy, competence, and relatedness.

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