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## Digital skills and the cyber addiction at primary school

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### Abstract

This paper considers the problem of Internet and more general cyber addiction of primary school children. The aim is to investigate the level of dependency of young children in Internet, computer games and devices. The authors work is part of a project work researching digital skills and media-education at early age. A survey with 274 fourth grade students is described and analysed in the context of the tendency to meet and fall in love with the screen from a younger age. Young children do not recognise the eager to take some digital device at hand as a problem. They cannot really estimate the time spent on games or other online activities. Theoretical review of the problem is done, and the basic aspects of cyber addiction are mentioned. The authors' point of view is that higher digital skills at early age could be a factor for avoiding higher cyber addiction of the children.

**Keywords:** Cyber addiction, early age, digital skills, primary school, dependency.

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## 1. Introduction

Cyber addiction is a phenomenon that is a subject of many research studies. Some of them investigate predictors of it, other—consequences and its connection with bad outcomes. Information technologies are part of nowadays life and it is impossible to keep children away from them. However, it is more important to have sense for using them more as tools for better life, then a medicine against emotional problems.

Young children do not recognise the eager to take some digital device at hand as a problem (Guerra, 2017). They can't really estimate the time spent on games or other online activities. They don't understand the anxiety of their parents and teachers. The knowledge about the cyber addiction is of great importance both for families and teachers because the problem is not only healthy but also social-pedagogical and psychological as well. Time spent on computer games playing is often at the expense of schooling, so the motivation for learning drops too.

The cyber addiction is a huge challenge for the education and family nowadays. It comes with social isolation, health problems and much more. Children lose contact with reality. Their communicative skills do not develop, leading to an inability to deal with conflict situations and to aggressive behaviour in answer. The authors' point of view is that higher digital skills at an early age could be a factor for avoiding higher cyber addiction of the children. Students that participate at a variety of ICT competitions use the computer more as a tool than as a toy. They know how to use information technology intelligently and purposefully. In contrast, most kids spend their free time on the Internet but do not develop their computer skills.

## 2. Literature review

Although Internet is almost everywhere around us today and reflects our lives continuously, we still know little about its influence on our psychological functioning, mental health and well-being. Research studies show that Internet addiction looks different across age, countries and cultures. That's why definition of cyber dependence must be more precise in order to get clearer results when this phenomenon is studied (Poli, 2017). Some authors research relation between: parental variables (gender, age, education, income, professional interests, smartphone attitude and usage), child variables (gender, age, siblings, attendance of educational institution, smartphone addiction of early childhood), mental (emotional disorders, depression, anger) and physical (body imbalance, visual or hearing ability) development. In other words, they search for connection between before and now; between antecedents and consequences of children's smart phone addiction. It looks like when parents' education/income/age are higher and the longer the parents themselves use smartphones, children tend to have higher possibility to be addicted to smartphones. When it depends on child variables, younger children, boys and children that are not attending education institution, predict smartphone addiction. Respectively, students with smartphone addiction show problems in mental (emotional instability, attention deficit and lack of control) and physical (impairments in visual and hearing senses, obesity, body imbalance and lack of brain development) health (Park & Park, 2014).

It was considered that sensation seeking, or poor self-esteem predicts longer Internet use (Armstrong, Phillips & Saling, 2000). Results of another research are quite concrete about relationship between symptoms of mental disorders (and its components) and Internet addiction in high school students without a big difference, pointed on their gender. There is no doubt that Internet addiction has negative consequences for individuals, especially for children. These authors suggest that this phenomenon should be defined as psychological problem more than social or pedagogical (Mohammadkhani, Alkasir, Pourshahbaz, Dehkordi & Sefat, 2017). There is a connection between increasing levels of depression and Internet addiction. But it is not quite clear yet if depression is a consequence or a factor that leads to cyber dependence. It may be suggested that social isolation causes more time in front of the screen, so depression is more like cause than an effect (Young & Rodgers, 1998).

Young (1996) founded symptoms which allowed to compare pathological Internet use and pathological gambling. Respondents declared that their Internet use is replacing severe problems in their real lives that they are not able to manage with. Their attempts to control cyber addiction failed and this is a sign that these IT actions are very compulsive, even unconscious. Young's opinion (2000) is that pathological Internet use includes two forms of Internet addictions: specific pathological Internet usage and general pathological Internet usage (specific usage suggests visiting fixed kind of sites; and general usage becomes permanent usage that includes almost everything).

Davis' model (2001) of pathological Internet use was the first one that has made a difference between generalised pathological Internet use and specific pathological Internet use: gambling, gaming and shopping (Griffiths, Kuss, Billieux & Pontes, 2016). Some of the beginning symptoms of computer addiction are when children become wanton, aggressive, they have prolonged mood changes, emotional imbalance that occurs from the bright burst of happy emotions to the deepest depression. These children have not possibility to accept criticism from their small circle of friends and acquaintances. As every other addiction, cyber addiction changes human lives, usual circle of friends, other activities, interests and hobbies (Weinstein, Dorani & Elhadif, 2015).

It is for sure that disability of self-control shouldn't be excused with younger generations' characteristics. Behaviour of children and adults is determined by social reality around them and all its factors. It is supposed that adults' attitude to Information technologies is more critical because of their living without them. On the contrary, children are born parallel with digital devices existence and they can't live without it (McCordle, 2014).

Another research has given results that are good base of the theory that students in secondary school and high school are spending most of their time in Internet because they have nothing else to do. Lack of control over their behaviour, lack of other physical activity and poor ability to communicate with peers may be an excellent prerequisite for pathological Internet use. Authors underline another very interesting fact as well: students prefer doing something else, but conditions are against them and they look screen all the time because there is no a more interesting alternative (Neverkovich et al., 2018).

The D. Kardefelt-Winther's (2014a) theory about compensatory Internet use is very interesting. The author critiques research studies in these fields because his opinion is that they are not progressive. In his theory, negative life situations lead to higher motivation to go online to alleviate negative feelings. This is a reaction by the individual, wanting to escape of unpleasant reality. From one side, person will probably feel better when 'lives' online to avoid stress, depression and bad mood, but the author believes that outcome will not be good. If Internet addiction is framed and investigated as a coping strategy than a compulsive behaviour, research studies may be useful (Kardefelt-Winther, 2014b). This theory has other followers. A research, started from the assumption that one of the major reasons for Internet use is to relieve psychosocial problems as loneliness for example, proves that: people who are lonely or did not have good social skills could develop strong cyber addiction and outcomes are negative—they become more lonely, because loses their real friends and so on (Kim, LaRose & Peng, no date).

Prevention of pathological Internet use should target not only children but adolescents at risk as well. All educational subjects that are part of the formative environment of addictive person should take part in prevention or treatment programme (that means: parents, teachers, peers, brothers, sisters and even pets). All risk factors must be eliminated and protective one should be activated (Vondrackova & Gabrhelik, 2016). There are researchers who think of the problem about cyber addiction as being concealed by respondents. There is no matter, how low percent are, because they mean thousands of teenagers that are in front of the screen all the time, instead of spending time with their friends, doing sports, studying their lessons or other. It is very important that these children not to be marginalised. A social-pedagogical intervention is necessary that includes: self-control of the time spent online; rational use of Internet, more as a tool for better life than as reality's substituent; social competence developing; living in real world; frequent contacts with parents, relatives, peers, friends; wider circle of interests; awareness of cyber addiction consequences; more educational activities (Rebisz & Sikora, 2016).

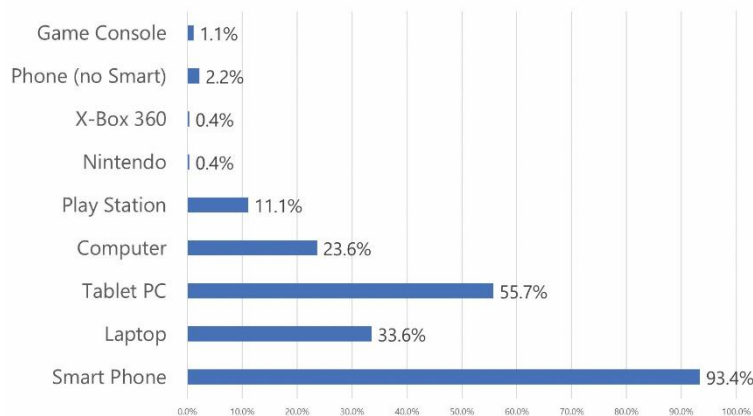
### 3. Methodology of research

To investigate the level of dependency of young children in Internet, computer games and devices, a survey with 274 fourth grade students was conducted. The respondents are 155 girls (56.6%) and 119 boys (43.4%), distributed in age as follows: 9-year old—22%, 10-year old—54% and 11-year old—24%. The questionnaire developed consists of four sections: A—demographic module (question concerning gender, age and the hometown’s size), B—technologies access module (number and kind of personal devices possessed, access to other devices, frequency of use of devices and purpose of use of devices), C—behavioural module (activities that could replace devices usage and students’ reactions to parents’ restrictions concerning the use of digital devices) and D—emotional module (feelings when devices are not available, feelings when using a device, preferences and interests). The survey is conducted in controlled environment—students answer to questionnaire during school classes in their classrooms. Students respond individually and independently. Each student fills in separate questionnaire.

### 4. Results

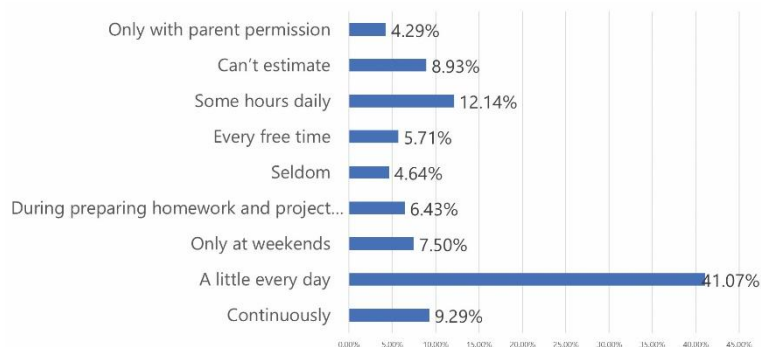
Most common device that students have access to is the smartphone (Figure 1). Students with smartphones have also tablets (55%), laptops (34%), personal computer at home (24%) and play stations (11%). 100% of students that have both—smartphone and tablet, have also laptops. Even more—50% of these students (having smart phone, tablet and laptop) have also personal computer at home.

It is becoming more and more difficult to talk about Internet dependence because information technologies are all around us, giving the opportunity to improve our quality of life, shorten distances, save time and money and create more contacts. From this point of view, it is very difficult to imagine the modern life without a computer and a telephone. Therefore, it should be clear whether the easy access to technologies is not an excuse for the time spent online.



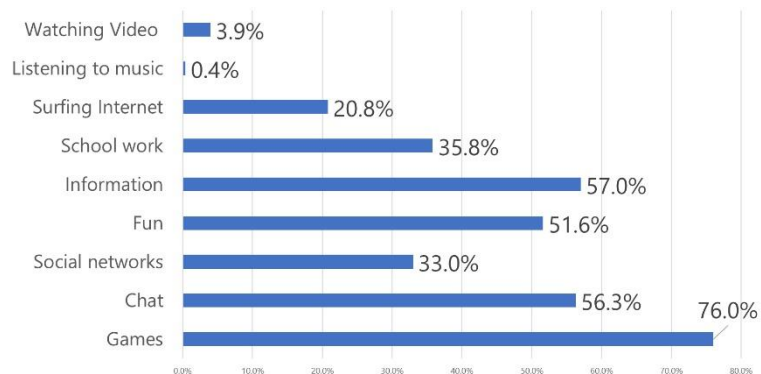
**Figure 1. Percentage of students that possess devices listed**

Almost half of the children say that they use their devices a little every day (Figure 2). If we summarise the students’ answer could conclude that they use digital devices as follows: seldom—5%, very often—15%, only for school and with parent’s permission—18%, a few hours a day—55%. Relatively small is the number of respondents who say that they have a phone in hand every single minute. However, these results are worrying because they show that the problem of cyber-addiction is probably not widespread but affects children from an early age. Playing games or staying online all the time is not a good sign, especially in early age.



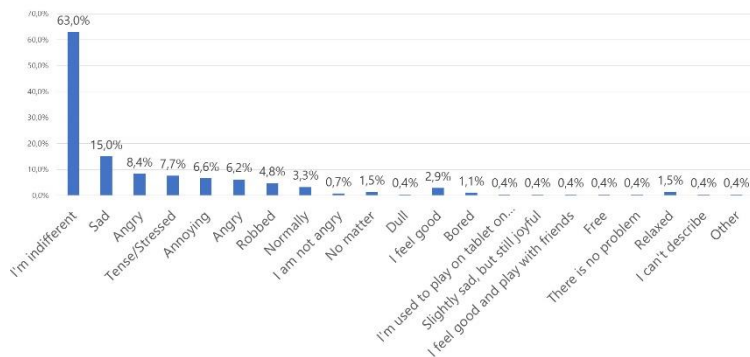
**Figure 2. Students' point of view about frequency of technologies use**

Students use digital devices for different purposes, but mostly for fun and games, and less for searching for information and school preparation (Figure 3). Here is a key feature of addiction: the search for pleasure, not a professional engagement. In this sense, it can hardly be said that the students' interest in the virtual world is scientific. It is more connected with searching for alternative forms of entertainment.



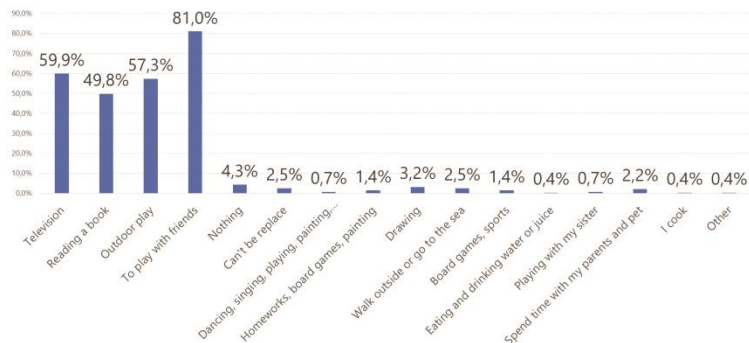
**Figure 3. Purposes of technologies usage**

Almost every student marked that he/she feels indifferently when is unable to use its devices because he/she can do many other things (Figure 4). These results provide an opportunity to compare cyber-dependence with other dependencies, and rather the behaviour of the addict who does not see or recognise the problem. Relatively fewer children say they feel sad, angry, tense, nervous, angry and robbed. Observations, however, show that anytime that the child is not involved in the learning process, it reaches its phone. There is another interesting phenomenon: the other students do something else, but passing by a child playing on the phone, they immediately 'stick' to it. This can be seen every day in the contemporary Bulgarian school.



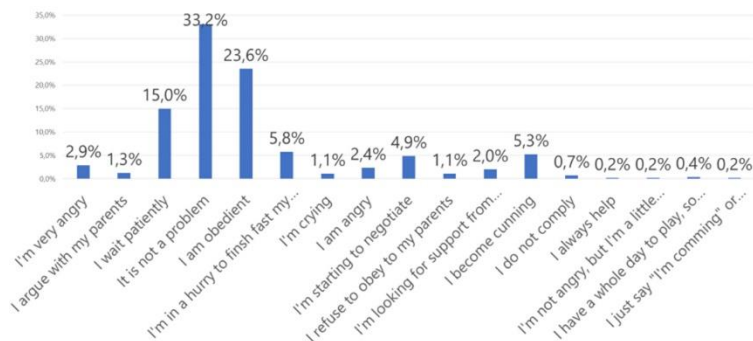
**Figure 4. Students' feelings when they are offline**

It turns out that the most suitable alternative to staying online is outdoor games, sports, walks, pets, younger brothers or sisters (Figure 5). Many children are replacing the computer gaming by watching TV, which is not a good option because it prolongs the screen time and may be pointed as a part of digital addiction. The remote control has buttons as well and action of pushing them is similar to playing on the computer or Play station. Unfortunately, this is another symptom of dependency.



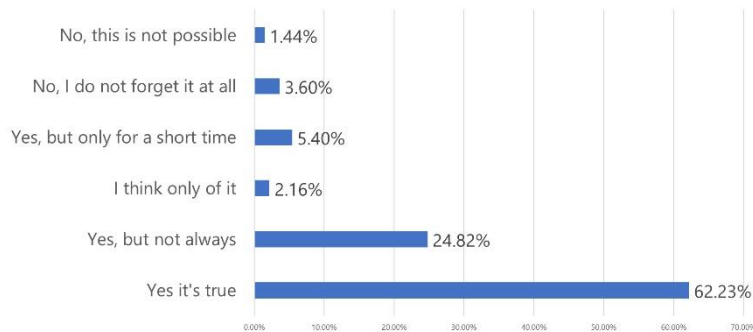
**Figure 5. Replacing actions**

Clearly, most of the respondents react negatively when their parents restrict access to their digital devices (Figure 6). If we summarise the results shown in the diagram, we could see that negative reaction have 50% of kids, while positive—34%. Remaining 16% are indifferent to such situations. This fact is very worrying because it shows that for children, it is often difficult to break away from virtual reality and they are in a hurry to return to it as soon as possible. There are students who enter into a dispute with their parents when they try to impose control. Some of them even do not obey the will of their parents and oppose them. Others cheat or negotiate, get angry, cry, seek the support of other adults (grandmother, grandfather). We must pay attention to this fact: there are children who can't get away from their activities online because it causes them constant discomfort, which makes their behaviour unacceptable and they may hurt (physically or non-verbally) people around them, even members of the family and other relatives. These students are aware of their behaviour but do not want or are not able to change it.



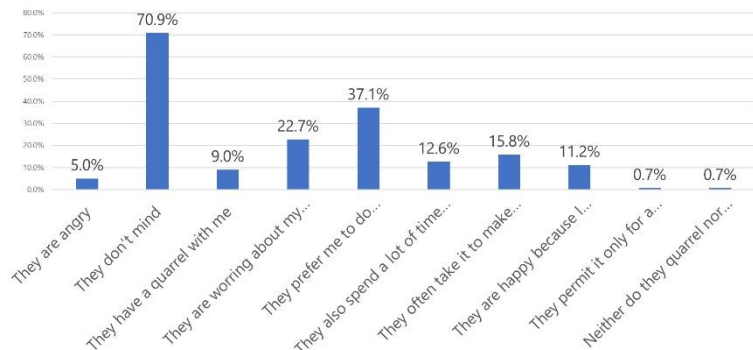
**Figure 6. Students' feelings when they are told by their parents to stop playing**

Unfortunately, not all students forget about phone games when they are playing outside (Figure 7). Some of them believe that it is impossible for something else to attract their attention, which is a disturbing result. It is not uncommon to see small children on playgrounds sitting on the benches and looking at their phone screens or asking their parents to give them a phone to play because they have nothing else to do and are so bored.



**Figure 7. Playing outside and thinking about the phone**

Parents' control is not always enough (Figure 8). Students are sure that their parents don't mind when they are online. Some parents also spend a lot of time online and set an example for their children. But there are students who quarrel with their parents and they must take off the phone. This is an indication of a complete lack of self-control. Parents' control is extremely important when children are online. It is compulsory not only to avoid cyber addiction but also to guarantee students' safety as well.

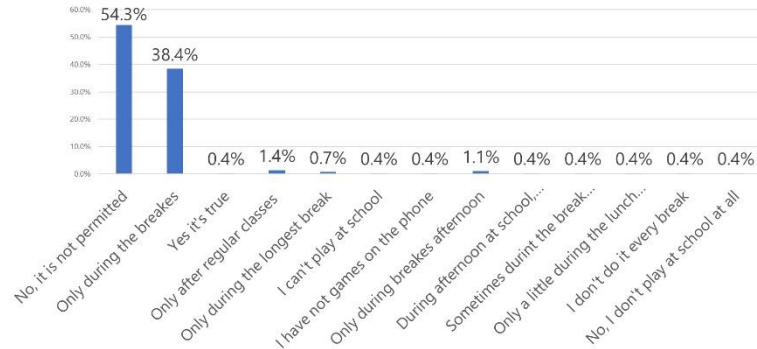


**Figure 8. Parents' control**

Most students marked that it is absolutely forbidden to play on the phones at school (Figure 9). This is an extremely good form of control that, however, does not always go on at home. Some of the children emphasise that they can play during the break or after classes. Few are those who use the

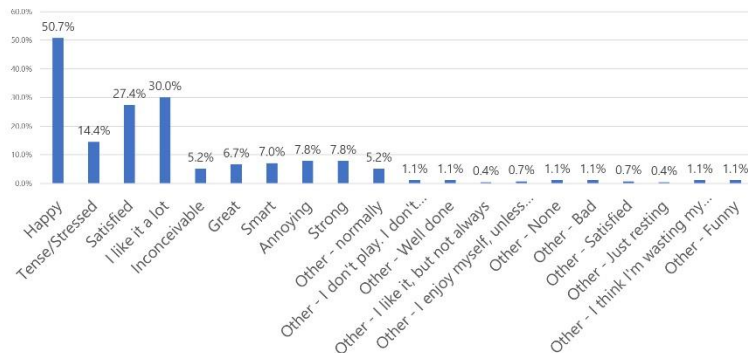


phone only to get in touch with their parents. It is necessary a regulation to be established for all schools and all classes about not using phones there, so children to be able to concentrate on their school activities.



**Figure 9. Playing with the phone at school**

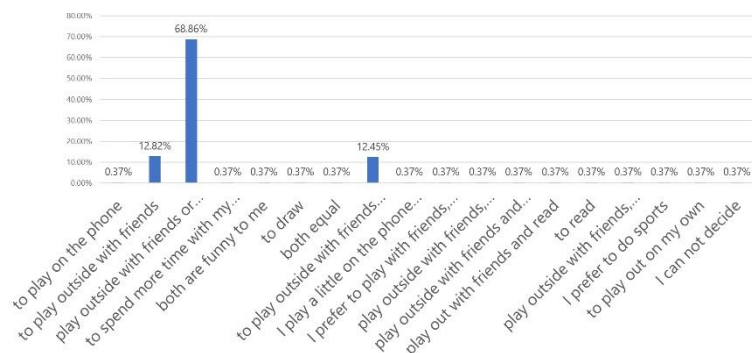
Playing games online makes children happy (Figure 10). They feel good and satisfied. They really like it. But some of them become nervous, stressed and they go on. There is a final phase in addiction when doing something brings no joy but only pain and bad feelings. However, the addicted person is not able to stop doing it.



**Figure 10. Students' feelings when playing on the phone**

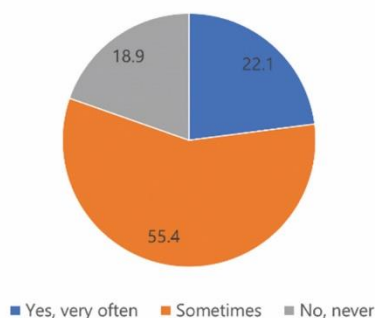
There is no certain difference in students' preferences regarding online gaming and outside games, as well as online friends and friends outdoor (Figure 11). Many of them like both. Others say that they play online with their real friends. If we summarise the answers of the students, 82% of kids prefer playing with other children outside, while 18% prefer to contact Internet friends. Despite the small percentage, it shouldn't be ignored those of them who categorically prefer to play electronic games instead of playing outside and to keep anonymity on the Internet rather than creating face-to-face friendships. Even the percentage is relatively small, the age at which this is happening is rather disturbing.





**Figure 11. Students’ preferences about playing online or playing outside**

A greater number of children say they only sometimes get their mood better when they’re sad and start playing on their phones (Figure 12). Fewer students mark that this happens very often, and there are also several children for whom this is not applicable. According to many studies, the impact on the person’s emotional state is an indication of dependence. In this sense, there is a very strong connection between: taking the phone from the child and aggravating his mood, as well as improving his emotional state as soon as he gets immersed in the virtual reality. Over time, this becomes a feeling the person begins to strive for, regardless of anything else.



**Figure 12. Connection between playing on the phone and good student’s mood**

## 5. Conclusion

Study shows that children who use information technologies to get information or prepare for school projects spend their time online quite purposefully. They say that this time is not at the expense of their other activities. In fact, they use digital devices for self-improvement rather than other needs as improving mood for example. They usually go out of the virtual space when they do their job and do not show symptoms of dependence. This research doesn’t aim to check how many students are addicted to the Internet and digital devices, but it searches for symptoms of dependency in everyday use of smartphones, computers, tablets and play stations.

It has to be double-underlined that small percent are not comforting. Fact that there are students who are not able or are afraid to live in reality is terrible. That’s why we should work harder on improving digital skills of small children, so they to realise the difference between using digital devices for getting better life, but not for escaping from life. In the 21st century, it is impossible to live without the Internet. But it has to serve to us and not the opposite.

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