

Is There a Need for Digital Detox Among Croatian Teachers?

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Abstract

Nowadays, more and more electronic devices are available on the market, which are increasingly accessible to the individual, and one of them is the indispensable device, the mobile (smart) phone, without which digital natives would nowadays be very difficult to survive. The paper is divided into two parts, the theoretical and the research-based. In the theoretical part of the paper, the emphasis is on the impact of smartphones on the individual, and the research part of the paper presents the results of the research conducted on primary school and subject teachers (N=315) in the Republic of Croatia on the use and impact of smartphones on primary school teachers and subject teachers. The results of the research showed that primary school and subject teachers have an intermediate level of digital competencies (60.3%). On average, respondents use their smartphone for work purposes for less than one hour a day (46.7%), and for private purposes, they use it for an average of 1 to 3 hours a day (a total of 56.5%). A total of 16.8% of respondents stated that they consider themselves smartphone addicts, and 28.9% of

respondents believe that they need a digital detox. During the night, a total of 28.6% of respondents leave their smartphone on, and 3.5% of respondents are woken up by notifications on the smartphone during the night.

Keywords: addiction; digital detox; digital literacy; smartphone; teachers.

Introduction

Entering the world of digital (over)abundance requires minimal action from an individual; it only takes one click or touch to access the Internet and an electronic device, in most cases a smartphone. The door to a 'never-ending story' opens wide, allowing entry into a virtual world that quickly adapts to an individual's needs and desires, especially regarding artificial intelligence, which presents significant challenges across all areas of an individual's life, including education. As the number of applications available to nearly all age groups increases, a question arises: to what extent does a handful of information act on the attention of students? Namely, too much information, especially those that occur simultaneously, can be very distracting. For example, one reason is the increase in cognitive demands above the limits of attention capacity, which ultimately leads to the reduction of certain information processed in working memory and forwarded to storage in long-term memory, while the other reason may refer to a very complex relationship between cortex arousal and the efficiency of cognitive processes. It has been shown that there is a curved relationship (Yerkes-Dodson law) between arousal and success in cognitive tasks that describes the inverted U curve. With an increase in arousal, learning success increases for a while, and when the optimal level of arousal of the brain is exceeded, there is a decline in the success of memory, which results in stronger processes of forgetting. To manage information effectively, individuals should prioritise recognising and using relevant information, rather than focusing solely on informational and digital literacy. Given that there is a lot of information circulating on the Internet, it is important to be able to timely identify possible information disorders, which include disinformation, misinformation, and harmful information. Misinformation refers to the sharing of false information without the intention to cause harm; disinformation refers to the conscious sharing of false information with the aim of causing harm; and harmful information is that which is based on reality with the purpose of deliberately causing harm (Council of Europe Portal, 2021).

The COVID19 pandemic has affected almost all spheres of human activity, including the educational system, where classes took place in an online environment. This shift has resulted in children and teachers spending more and more time in front of screens of electronic devices using technology not solely for educational purposes, but also engaging with many available and free communication tools and social networks. Unfortunately, many are unaware of the potential negative consequences this may have on the health of an individual, including the risk of Internet addiction, sleep problems (Liu et al 2019; Rafique et al 2020, Huang et al, 2020; Brautsch et al, 2023), especially if the smartphone is used just before going to bed, which can result in poor sleep quality and inadequate functioning during the next day. Additionally, there are concerns regarding possible mental disorders (Santander-Hernández et al, 2022), such as anxiety and depression (Thomée et al, 2011; Noel et al, 2013), chronic stress (Qiu et al, 2023), loneliness and smartphone addiction (Malaeb et al, 2022; Ratan et al., 2022) and others.

In 2021, 95% of young people aged 16-29 in the EU stated that they use the internet every day compared to 80% of the entire adult population (Eurostat, 2023). The number of mobile subscribers in 2021 in Europe was 474 million (86% of the population), and this figure is projected to grow to a total of 480 million by 2025 (GSMA, 2022).

Smartphones have become a ‘must have’ for both digital natives and digital immigrants. Social networks are present in the daily life of an individual, especially in the younger and middle-aged generations, because if you are not present on the social network, you almost do not exist. Many individuals are aware of their dependence on smartphones and other electronic devices. In addition to the timely prevention of possible addiction, which should certainly be present from the age of kindergarten, it is also critical to raise awareness of possible issues and accordingly use some of the possible techniques and activities that would certainly reduce the time spent on mobile and other electronic devices, such as more socialising, walks, spending time in nature, exercising mindfulness, breathing techniques, reading books, hobbies, sports, etc. The term that is increasingly used today is also digital detox, which refers to the conscious reduction or complete separation from digital devices. Digital detoxification signifies intermittent separation from IT and describes strategies that help reduce engagement with IT (Mirbabaie et al., 2022). Digital detoxification (Anadpara et al., 2024) led to positive changes in addiction and health outcomes, which persisted later.

Research methodology

Research objective

This study aimed to examine the attitudes and reflections of primary classroom and subject teachers who teach in elementary schools in Croatia on the use of smartphones in teaching, how often they use smartphones for work and private purposes, how they assess their digital competencies, whether they consider themselves addicted to smartphones, whether they need a digital detox and whether they use a smartphone just before going to bed. The survey sample consisted of a total of 315 respondents.

The research was conducted on the territory of the Republic of Croatia in 2022/2023. Research participants were introduced to the aim and purpose of the research. The rules of procedure during the research were defined at the very beginning: the respondents were given written instructions on how to fill in the measuring instrument, they were guaranteed anonymity and the possibility of giving up on further answers, and it was explained to them that the data obtained from this research will be used exclusively for scientific purposes. The terms used in this paper, which have gender significance, regardless of whether they are used in the female or male gender, equally cover the female and male genders. For the purposes of this research and data collection, a Google form was used. The data obtained in this study were processed using the IBM SPSS Statistics 20 statistical package.

Sample

The survey was conducted on a sample of a total of 315 respondents. With regard to gender, a total of 6.3% (20) men and 93.7% (295) women participated in the study.

Measuring instrument

The measuring instrument consisted of three independent variables: gender, primary classroom/subject teaching, and year of service. It also comprised 16 dependent variables related to the research phenomenon, two of which are open-ended. For this paper, a total of 8 variables will be presented.

Dependent variables:

1. How do you assess your digital competencies? (V1)
2. On average, how much time per day do you use your smartphone for work? (V2)

3. On average, how much time per day do you use your smartphone for private purposes? (V3)
4. I have been told by others that I use my smartphone too much. (V4)
5. I consider myself a smartphone addict. (V5)
6. At night, the smartphone is switched on. (V6)
7. Messages on my smartphone wake me up at night. (V7)
8. I need a digital detox. (V8)

In the instrument, in addition to the dependent variables, a five-level scale was used for a Likert-type assessment. For each particle, a response scale was offered, and the research participants opted for one of the offered answers: 1 = completely disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree and 5 = completely agree. All items in the measuring instrument are positively formulated.

Study findings

Table 1 Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
M	20	6.3	6.3	6.3
F	295	93.7	93.7	100.0
Total	315	100.0	100.0	

Table 2 Primary classroom/subject teaching

		Teaching		Total	
		Classroom teaching	Subject teaching		
Gender	M	Count	7	13	20
		% within gender	35.0%	65.0%	100.0%
	F	Count	142	153	295
		% within gender	48.1%	51.9%	100.0%
Total	Count	149	166	315	
	% within gender	47.3%	52.7%	100.0%	

A total of 47.3% of respondents are classroom teachers, and 52.7% of respondents are subject teachers, of which a total of 35 percent of men are classroom teachers and 65 percent teach subjects.

The work experience of respondents who are classroom teachers ranges from less than 5 years of work experience in the profession for a total of 46.6% of respondents in classroom teaching to 53.4% of respondents in subject teaching. The obtained results indicate that most respondents who are classroom teachers have from 25 to 29 years of service (63%), whereas subject teachers have from 10 to 14 years of service (62.3%).

Table 4 presents the responses to the question regarding self-assessment of digital competencies.

Table 4 How do you assess your digital competencies?

	Digital competencies				Total
	Unde-veloped	Entry level	Middle level	Advanced level	
Classroom teaching	1 0.7%	8 5.4%	99 66.4%	41 27.5%	149 100.0%
Subject teaching	1 0.6%	4 2.4%	91 54.8%	70 42.2%	166 100.0%
Total	2 0.6%	12 3.8%	190 60.3%	111 35.2%	315 100.0%

Table 4 shows that most respondents, a total of 60.3%, assess their digital competences at an intermediate level. A total of 35.2% of them opted for an advanced level of digital competencies. Furthermore, the data obtained show that a total of 5.4% of classroom teachers and 2.4% of subject teachers, therefore a total of 3.8% of respondents, assess their digital competence at a beginner's level, and a total of 0.6% of them, of which 0.7% of classroom teachers and 0.6% of subject teachers, assess it as underdeveloped.

The obtained results of the chi-square test: $\chi^2 = 8.354$, $df (3)$, $p = 0.039$. The results obtained can be considered statistically significant.

The next variable regarded the amount of time spent on the smartphone for work purposes (V2). The obtained results showed that classroom teachers (44.3%) and subject teachers (48.8%) use a mobile phone less than 1 hour on average (daily) for work purposes; the mobile phone is used 1 to 3 hours by a total of 39.6% of classroom teachers and 36.7% of subject teachers, it is used from 3 to 5 hours by 8.7% of classroom teachers and 9.6% of subject teachers, and from 5 to 7 hours by 4% of

classroom teachers and 3.6% of subject teachers. A total of 3.4% of classroom teachers and 1.2% of subject teachers do not use a smartphone for work purposes at all. Considering the years of service of respondents who do not use a smartphone at all for work, it is evident that these are respondents with 30 TO 34 years of service (a total of 11.8% of them).

The obtained results show the following values of the chi-square test: $\chi^2 = 2.249$, $df(4)$, $p = 0.690$.

The next variable was related to the average daily use of smartphones for private purposes (V3). The results obtained show that a total of 20.1% of classroom teachers and 17.5% of subject teachers use a smartphone for these purposes for less than 1 hour a day; a total of 53% of classroom teachers and 59.6% of subject teachers use a smartphone for 1 to 3 hours for private purposes; 20.8% of classroom teachers and 18.7% of subject teachers use it for 3 to 5 hours; 2.7% of classroom teachers and 2.4% of subject teachers use it for 5 to 7 hours; 2% of classroom teachers and 1.8% of subject teachers use a smartphone for private purposes for more than 7 hours; and 1.3% of classroom teachers do not use it at all. The results of the chi-square test are: $\chi^2 = 3.356$, $df(5)$, $p = 0.645$.

Table 5 The results obtained on smartphone addiction

	I consider myself a smartphone addict.					Total
	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	
Classroom teaching	63	34	20	21	11	149
	42.3%	22.8%	13.4%	14.1%	7.4%	100.0%
Subject teaching	67	35	43	16	5	166
	40.4%	21.1%	25.9%	9.6%	3.0%	100.0%
Total	130	69	63	37	16	315
	41.3%	21.9%	20.0%	11.7%	5.1%	100.0%

The obtained results indicate that a total of 21.5% of classroom teachers and 12.6% of subject teachers consider themselves smartphone addicts. A total of 20% of respondents are undecided, of which 13.4% are classroom teachers and 25.9% are subject teachers. A total of 63.2% do not consider themselves smartphone addicts.

The obtained results of the chi-square test: $\chi^2 = 10.573$, $df(4)$, $p = 0.032$. The results obtained can be considered statistically significant.

The following variable in Table 6 referred to the question of whether respondents leave their smartphone switched on at night.

Table 6 At night, the smartphone is switched on.

	At night, the smartphone is switched on.					Total
	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	
Classroom teaching	45	29	26	15	34	149
	30.2%	19.5%	17.4%	10.1%	22.8%	100.0%
Subject teaching	54	20	51	19	22	166
	32.5%	12.0%	30.7%	11.4%	13.3%	100.0%
Total	99	49	77	34	56	315
	31.4%	15.6%	24.4%	10.8%	17.8%	100.0%

During the night, a total of 32.9% of classroom teachers and 24.7% of subject teachers (a total of 28.6% of all respondents) leave the smartphone on. A total of 17.4% of classroom teachers and 30.7% of subject teachers ‘neither agree nor disagree’ with the statement (a total of 24.4% of all respondents). During the night, the smartphone is switched off by a total of 47% of respondents, of which 49.7% are classroom teachers and 47.5% are subject teachers. The obtained results of the chi-square test: $\chi^2 = 12.739$, $df(4)$, $p = 0.013$. The results obtained can be considered statistically significant.

Table 7 Messages on my smartphone wake me up at night.

	Messages on my smartphone wake me up at night.					Total
	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	
Classroom teaching	117	14	13	5	0	149
	78.5%	9.4%	8.7%	3.4%	0.0%	100.0%
Subject teaching	135	12	12	3	3	165
	81.8%	7.3%	7.3%	1.8%	1.8%	100.0%
Total	252	26	25	8	3	314
	80.3%	8.3%	8.0%	2.5%	1.0%	100.0%

A total of 88.6% of respondents (87.9% of classroom teachers and 89.1% of subject teachers) answered that messages on their smartphone do not wake them up. A total of 8% of all respondents chose the statement ‘neither agree nor disagree’, while a total of 3.5% of all respondents stated that they are woken up by messages on their smartphone at night (3.4% of classroom teachers and 3.6% of subject teachers).

The obtained results of the chi-square test: $\chi^2 = 4.175$, $df(4)$, $p = 0.383$. Table 8 shows the results obtained on digital detox.

	I need a digital detox.					Total
	Strongly disagree	Dis-agree	Un-decided	Agree	Strongly agree	
Classroom teaching	44	29	26	16	34	149
	29.5%	19.5%	17.4%	10.7%	22.8%	100.0%
Subject teaching	54	20	51	19	22	166
	32.5%	12.0%	30.7%	11.4%	13.3%	100.0%
Total	98	49	77	35	56	315
	31.1%	15.6%	24.4%	11.1%	17.8%	100.0%

There is a total of 28.9% of respondents, of which 33.5% of classroom teachers and 24.7% of subject teachers believe that they need a digital detox. A total of 24.4% of respondents ‘neither agree nor disagree’ with the statement, of which 17.4% are classroom teachers and 30.7% are subject teachers.

A total of 46.7% of respondents believe that they do not need a digital detox (49% of classroom teachers and 44.5% of subject teachers).

The obtained results of the chi-square test: $\chi^2 = 12.739$, $df(4)$, $p = 0.013$. The results obtained can be considered statistically significant.

Discussion

The use of smartphones is becoming more and more present in all generations every day. According to statistical data from the Statista agency (Taylor, 2023), according to the estimate of smartphone ownership, the smartphone input rate in the Republic of Croatia is projected to increase constantly from 2023 to 2028 by a total of 4.8%. The forecast is that the increase in 2028 will be 87.2%. Considering the use of smartphones, access to the Internet,

social networks, and also numerous applications, the question arises as to the level of digital literacy of teachers who teach in the lower grades of primary school (classroom teachers) and those who teach in the upper grades of primary school (subject teachers). The European Digital Competence Framework for Educators (DigCompEdu) describes what it means to be a digitally competent educator and provides reference guidelines for the development of digital competences specific to teachers and other types of educators in Europe (Carnet, 2020).

The results of the research conducted on a sample of 315 respondents showed that classroom teachers and subject teachers are at an intermediate level of digital competencies (60.3%, of which a total of 66.4% are classroom teachers and 54.8% are subject teachers). Compared to classroom teachers (27.5%), subject teachers have developed more advanced skills (42.2%). It is also interesting that a total of 0.6% of respondents rated their digital competencies as underdeveloped, and 3.8% as a beginner's level of digital literacy. Considering the obtained results, we were interested in whether this is related to years of service in the profession, and the obtained data showed that a total of 2.4% of respondents with 20 to 24 years of service and 1.9% of respondents with 15 to 19 years of service rate their digital competencies as underdeveloped. Certainly, one of the goals should be that all teachers have developed at least an intermediate level of digital competencies with a tendency to move to an advanced level of digital literacy as soon as possible.

Nowadays, a smartphone is an indispensable device that most teachers use for personal and work purposes. The use of a smartphone for work purposes shows that a large part of the respondents uses it on average for less than one hour per day (46.7%), while a total of 2.2% do not use it for work purposes at all. It is interesting to note that no group studied uses it for more than seven hours for work purposes. The use of a smartphone for private purposes showed that most respondents use it on average from 1 to 3 hours a day (a total of 56.5% of them, of which 53% are classroom teachers and 59.6% are subject teachers). The obtained data which show that a total of 0.6% of all respondents use the smartphone on average for more than seven hours a day for private purposes, and all of them are subject teachers (1.3%) are also interesting. Excessive smartphone use can lead to addiction. Some of the factors that can lead to Internet addiction (Gangadharan et al., 2022) are individual and environmental. Individual factors refer to personality, behaviour, ways of dealing with problems, ways of experiencing the world around you, etc., while environmental factors refer to the design of websites and video games that keep users online as long as possible. Smartphone addiction is an inexhaustible topic of many studies.

Although today many studies relate to mobile phone addictions in the younger population, especially teenagers, research has shown that teachers are also addicted to smartphones and use them to play games, have fun, and surf (Fukuda et al., 2023); that addiction in teachers who teach in secondary schools in Hungary is correlated with mental disabilities, burnout (Feher et al., 2024), and lower quality of life (Pohl et al., 2021); and loneliness, especially during the last pandemic, which is associated with Internet addiction (Karakose et al., 2022). In the survey, a total of 16.8% of respondents stated that they consider themselves addicted to a smartphone, while a total of 63.2 respondents believe that they are not addicted, and a total of 20% of them stated that ‘I neither agree nor disagree.’ Excessive use of smartphones can lead to mental disorders such as depression and anxiety (Demirci, Akgönül, and Akpınar, 2015, Guo et al., 2020). Smartphones are also used just before going to bed, and they disrupt the sleep of some respondents during the night. Smartphones, when used judiciously, can enhance the teaching experience. However, unchecked usage can lead to stress, burnout, and cognitive decline. By fostering a culture of mindful technology use, educational institutions can ensure that smartphones remain tools for empowerment rather than sources of strain.

A total of 32.9% of classroom teachers and 24.7% of subject teachers (a total of 28.6% of all respondents) leave their smartphone on at night, while a total of 3.5% of all respondents answered that messages on the smartphone wake them up during the night (3.4% of classroom teachers and 3.6% of subject teachers). The use of a smartphone just before going to bed can affect the quality of sleep (Arshad et al., 2021), i.e., it impairs the quality of sleep (Alshobaili & AlYousefi, 2019; Kheirinejad et al., 2022), which can lead to lower concentration and fatigue the next day.

The terms that are increasingly mentioned in the media today are “digital detox,” “digital wellness,” “offline,” “go old school,” “go analogue,” “log off,” “unplug,” “go tech-free,” and other synonyms that indicate the need for people to “rest and move away” from the excessive use of digital technology. “Social media detox” is a term that refers to the intentional (voluntary) cessation of the use of social media in order to improve mental well-being and functionality.

In the survey, a total of 28.9% of respondents, of whom 33.5% were classroom teachers and 24.7% were subject teachers, answered that they need a digital detox.

The obtained results certainly indicate the need for enhanced teacher education in the adoption of digital competences with the aim of raising the level of digital literacy to the highest level. Furthermore, special attention should be given to raising teachers’ awareness about the potential for Internet addiction, and they should also focus on adopting techniques for the proper use of digital technologies, as well as strategies to distance themselves from these technologies when necessary.

Conclusion

According to the European Framework of Digital Competences for Educators called 'DigCompEdu' (Redecker, 2017), there are six main areas that include different aspects of teachers' professional activities and relate to: professional engagement focused on the use of digital technologies for communication, cooperation and professional development; digital resources and materials (from finding, making and sharing them); learning and teaching (application of digital technology in learning and teaching); monitoring and evaluation; empowerment of students (better involvement of students using digital technologies, personalized learning, active participation of students in the learning process); enabling the development and guidance of students' digital competences (responsible and creative use of digital technology). The results presented in this study showed that, on average, teachers rated their digital competencies as intermediate. A survey (Dinçer, 2024) conducted on a sample of 102 respondents of natural science teachers showed that basic technologies they use in teaching, such as smart boards and software for making presentations, are not enough.

The need for tailored, practical training programmes and better infrastructure is emphasised.

Given the increasingly rapid development of digital technologies and their integration into the educational system, there is a need for enhanced, permanent, lifelong education of teachers in the adoption of digital competences with the aim of raising the level of digital literacy to the highest level in the shortest possible period of time to be able to use and implement them in a timely manner. This approach is essential not only for improving teaching effectiveness but also for fostering an environment where students can thrive in a digitally driven world. To achieve this, educational institutions and educational policies must prioritise the development of comprehensive professional development programmes that focus on digital literacy. These programmes should be designed to accommodate the diverse needs of teachers, offering flexible learning opportunities that can be tailored to individual skill levels and learning preferences. Furthermore, collaboration among educators, technology experts, and curriculum developers is crucial in creating a cohesive framework that integrates digital competencies across various subject areas. In conclusion, the rapid advancement of digital technologies necessitates a proactive approach to teacher professional development. By investing in lifelong education and fostering a culture of continuous learning, educators can equip themselves with the necessary skills to navigate the complexities of the digital age, ultimately benefiting both their professional growth and the educational experiences of their students.

With digital technologies, smartphones are increasingly present in almost all social spheres, including teaching. The smartphone has become a ‘must have’ device, and more and more actions take place through the use of numerous available applications, but excessive use for both private and work purposes can also result in many difficulties that can primarily relate to the health of the individual, especially when it comes to addiction (Ibrahim, 2024; Buctot, 2020), nomophobia (Gonçalves, 2020; Al-Mamun, 2023; Oraison, 2024), FOMO (fear of missing out), information overdose, anxiety and depressive disorders (Hashemi et al., 2022), sleep problems (Zhu et al., 2024; Su et al., 2024; Anosike et al., 2024), fatigue, poor concentration, etc.

Education on the proper and purposeful use of smartphones, as well as a person’s awareness of having overused them and opting for a digital detox, can result in early prevention and have a positive impact on the individual’s health, including improved sleep quality, reduced stress and anxiety, enhanced concentration, and better overall mental well-being. By fostering awareness and promoting intentional use of digital devices, it is possible to mitigate the adverse effects of excessive smartphone usage, which leads to healthier lifestyles and improved mental health outcomes.

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Postoji li potreba za digitalnim detoksom među hrvatskim učiteljima?

Sažetak

U suvremenom društvu sve je veći broj elektroničkih uređaja dostupnih pojedincima, a među njima se izdvaja neizostavan uređaj – mobilni (pametni) telefon, bez kojega bi današnjim digitalnim urođenim bilo teško funkcionirati. Rad je podijeljen u dva dijela: teorijski i istraživački. U teorijskom dijelu naglasak je na utjecaju pametnih telefona na pojedinca, dok se u istraživačkom dijelu prikazuju rezultati istraživanja provedenog među učiteljima razredne i predmetne nastave u Republici Hrvatskoj (N = 315), s ciljem ispitivanja njihove uporabe pametnih telefona i percepcije njihova utjecaja.

Rezultati istraživanja pokazali su da učitelji razredne i predmetne nastave posjeduju srednju razinu digitalnih kompetencija (60,3%). U prosjeku, ispitanici koriste pametni telefon u poslovne svrhe manje od jednog sata dnevno (46,7%), dok ga u privatne svrhe koriste između jednog i tri sata dnevno (ukupno 56,5%). Ukupno 16,8% ispitanika izjavilo je da se smatraju ovisnima o pametnom telefonu, dok 28,9% ispitanika smatra da im je potreban digitalni detoks. Tijekom noći 28,6% ispitanika ostavlja uključen pametni telefon, a 3,5% ispitanika budi se zbog obavijesti koje primaju tijekom noći.

Ključne riječi: digitalni detoks; digitalna pismenost; ovisnost; pametni telefon; učitelji.

