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Analyzing the Digital Addiction of University Students through Diverse Variables: Example of Vocational School

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Abstract

Today, when information technologies are evolving rapidly, digital platforms such as computers, the internet, social media and smartphones have become essential parts of our lives. These digital platforms are intensely used by people with a variety of ages. Students mostly use digital platforms to communicate, navigate on social media and playing online and offline games. The digital platforms, which are used for those diverse aims, influence our lives and especially create addiction for students. In this context, the students of vocational schools may be negatively influenced by the intense usage of digital platforms. This study in this regard aims to examine the digital addiction levels of vocational school students and the degree of this addiction based on their genders, departments, school years and levels of income. A survey method was used in this study. 318 foundation degree students from different departments at Sakarya University and Sakarya University of Applied Sciences participated in this study. In order to collect data, a demographics form and the "Digital Addiction Scale", developed by Kesici and Tunc (2018), were used. The results of the study suggest that the participants have a medium-level addiction. While the students have a mid-level addiction at overuse, non-restraint, emotion situation and sticking sub-dimensions, they have a low-level addiction at inhibiting the flow of life. The digital addiction of vocational school students does not differ according to their school years, genders and income levels of their families but differ by their departments. It is advised that for today's students to use digital courses in an accurate and effective way, new educational methods should be used, and students, parents, teachers and administrators need to be trained to learn the negative psychological and physical effects caused by digital addictions such as the internet, smartphones, computers and social media addictions.

Key words: Digital platforms, Digital addiction, Vocational school students

Introduction

In this technology era, almost every age group intensely uses the technology opportunities presented to them. Computers, the internet, mobile devices, smartphones and social media are leading these new technologies. These technologies have become indispensable parts of people's lives (Çalışkan, Yalçın, Aydın & Ayık, 2017), and also called "digital devices" in the literature. Digital devices and particularly their applications have a significant place in individuals' daily lives. The important point here is to use them to effectively. If they are used properly, they will ease our lives; but if not, they may cause negative effects on all users especially the youth and the children (Arslan, Kırım, Karaman & Çetinkaya, 2015). Antisocial individuals who are alone and who stay away from social life are an example of the negative results of improper technology use. Furthermore, these people may have physical disorders in the long run. Another negative result is that the improper use of digital technologies leads to digital addiction.

The concept of addiction is defined as the inability to stop or control a substance or behaviour (Egger & Rauterberg, 1996). Addiction is a desire and an aspiration resulting from a substance being taken up with repeated doses and increasing amounts, not to eliminate the symptoms of an organic disease. In the event of an interruption, a number of unimaginable mental and physical disorders occur (Ziyalar, 1999). In other words, addiction is a recurrent chronic brain disease characterized by the search and use of impulsive substance or virtual exercise, despite its harmful consequences (Tarhan & Nurmedov, 2011). In the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) criteria, prepared by the American Association of Psychologists, the concept of addiction has been extended and it has taken the form of Substance Use and Addictive Disorders. With this change, the first time in the DSM, it was officially recognized that substance addiction syndromes as 'behavior' syndromes were not only dependent on substance. In this way, not only substance addictions, but also

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compulsive behaviours with substance abuse and compulsive behaviours (pathological gambling habits, internet addiction), which did not follow with substance abuse, entered the same categorical classification (Markel, 2012). In this regard, addiction can be defined as people losing control over any object, person, tool or device and the idea that life cannot continue without it. Main three elements of addiction are explained as (Toraman, 2013):

- An uncontrolled desire to obtain the substance under any circumstances and situations,
- The indispensability to increase the time and amount of the substance (tolerance)
- The psychological and physiological need for the used material and its effects (abstinence).

If the individual is addicted to something, this addiction and the usage of it influence most of his/her life. Thus s/he spends most of his daily life dealing with it sometimes forgetting her/his responsibilities (Kodaman & Dinç, 2016). Today the types of addictions such as the internet, computer, social media, video and digital games and smartphones are usually of digital ones. All of these could also be named as “digital addiction”.

For example, use of the internet very intensive, desire to be constantly on the internet, being unhappy and nervous and exhibit aggressive behaviour towards the environment when there is no internet to show an indication of internet addiction (Arisoy, 2009). From this point of view, internet addiction is a different type of digital addiction. When we look at the social media, which is another digital medium, individuals use social media more and more every day and they confront some negative situations such as addiction. Social media addiction is expressed as a type of addiction that shows similar characteristics to substance addiction patterns (Tang and Koh, 2017). So that individuals use social media for any reason whatsoever and they confront some negative situations as a result of this use. Smartphone addiction can be considered as a kind of technological addiction (Lin, Chang, Lee, Tseng, Kuo & Chen, 2014). Smartphone addiction can be defined as excessive use of the phone, inability to interfere with the desire to use it, problems with stopping or disabling usage, being stressed when not in use, and not telling the correct use time (Kwon, Lee, Won, Park, Min, Hann, Gu, Choi & Kim, 2013; Savcı & Aysan, 2017). Today, all this technology can be considered in the context of digital addiction on environments or devices. Lee & Chae (2007) described the extent of digital addiction as follows: If an individual is taking photos of his / her meal every day and taking care to share it on the Internet, if everything is shared via social media, it is digitally dependent if it is believed to get information about the people he does not know much about (Eryılmaz & Çukurluöz, 2018).

Digital addiction has emerged and spread wide as a result of the rise of digital technologies in our age and the integration of mass media into digital technologies (Arslan et al., 2015). Instead of taking part in a dynamic life, digital addiction requires continuity of a static life in terms of requiring dependence on a continuous screen, and in this respect, it can lead to many physical discomforts due to a sedentary life (Kabakçı, Odabaşı & Çoklar, 2008). Especially youngsters of our age use Twitter all the time including midnight, send SMS even in the bathroom or control his / her phone while having a conversation with a friend (Kaltiala-Heino, Lintonen & Rimpela, 2004). As a result of these behaviours, digitally addicted individuals are rapidly increasing day by day and now they are counted on among the dependencies in the world. The number of digital addicted people is nowadays increasing, and they are deemed to be among “addicted ones” although once they were not.

Some studies about digital addiction suggest that young people and adults feel unsatisfied and out of place when they cannot use their phones, control their e-mails and share something on social media courses (Laura & Richard, 2004; Mossbarger, 2008). Digital addiction therefore negatively influences the academic success of university students, force them to waste more time on virtual platforms and harm their relationship with their families and friends (Anderson, 2001; Sanders, Field, Diego & Kaplan, 2000). Various studies about digital addiction may help with diluting the effects of digital addiction. Eryılmaz and Çukurluöz’s (2018) research demonstrates that high school students are directly addicted to social media and indirectly to mobile phones and the internet. Arslan et al.’s (2015) study about measuring the digital addiction levels of university and high school students also suggests that their addiction level to social media, internet and mobile phone is high. Kalamani and Bat (2016) also examined the addiction levels of university students and argue that their addiction is high. Yılmaz, Şahin, Haseski and Erol (2014) analysed the addiction levels of high school students according to diverse variables and the results show that the majority of the students are mid-level internet addicted. Balcı and Gülnar (2009) report that more than half of the participants are internet addicted at a problematic degree. However, Aktan (2018) found out that social media addiction among university students was not that high. Gül and Diken (2018) analysed the social media addiction of science teacher candidates and found that their addiction level was medium level. Yusufoglu (2017) analysed the effects of smartphones, internet and social media on daily lives and especially on leisure times of school of economics and administrative sciences students. The outcomes of the study suggest that the students spend much time with their smartphones, but they

do not have the socialisation level they expect and that they create a serious addiction feeling. Aljomaa, Qudah, Alburan, Bakhiet and Abduljabbar (2016) also reached similar results which state that 48% of the participants are smartphones addicts.

Today, students from almost all ages are confined to digital platforms. This confinement particularly creates a danger for the university students who will soon get a start in business. However, studies which examine the addiction levels of vocational school students who are described as "semi-skilled workers", are scarce in the literature (Çiftçi, 2018; Vurgun & Akpınar, 2018). Therefore, it is important to conduct a study to learn the digital addiction levels of vocational school students.

Vocational school students can work in different fields after graduation. For this reason, it is important to determine the time spent in the digital environment of the vocational school students. If this period reaches the degree of addiction, in other words, digital addiction individuals may create problems for the units they work for. In order to avoid such an addiction in the future, the determination of digital addiction situations while being a student can help to prevent the negativities in working life.

This study aims to examine vocational school students' digital addiction levels based on diverse variables. The research questions include the followings:

1. What are digital addiction levels of vocational school students?
2. How do their digital addiction levels differ in terms of:
 - a. their school years,
 - b. genders,
 - c. departments,
 - d. monthly family income?

Methodology

Research Model

The survey method was used in the study. Survey methods are the research approaches which aim to depict a current or past situation as it is. The object or participant which/who is the main issue of the research is considered in line with their contexts (Karasar, 2005).

Participants

The 318 foundation degree students who participated in this study are from different departments at Sakarya University and Sakarya University of Applied Sciences. Table 1 shows the demographic information of the participants.

Table 1: The characteristics of the participants

	Variables	f	%
Grade	1. Grade	194	61,0
	2. Grade	124	39,0
Gender	Male	130	40,9
	Female	188	59,1
Departments	Business Management	27	8,5
	Finance	69	21,7
	Computer Programming	29	9,1
	Computer Aided Design and Animation	30	9,4
	Child Development	62	19,5
	Immediate Aid	21	6,6
	Opticianry	57	17,9
	Graphic-Design	23	7,2
Monthly Family Income	Less than 1500 TL	35	11,0
	1501-2500 TL	126	39,6
	2501-3500 TL	74	23,3
	3501-5000 TL	51	16,0
	More than 5000 TL	32	10,1
Total		318	100

Totally, data were collected from 318 students. 130 of the participants (40,9%) were male and 188 of them (29,1%) were female. While 194 (61,1%) of these students were 1st years, 124 (39%) of them were second grades.

Data Collection Tool

In order to collect data, the demographic form developed by the researcher and the “digital addiction scale” developed by Kesici and Tunc (2018) has been used. The scale consists of 19 items, which are rated on 5-point Likert-type scale (1. Strongly Disagree, 2. Disagree 3. Undecided 4. Agree 5. Strongly Agree). The scale was structured on 5 factors and these factors are: overuse (5 items), non-restraint (5 items), inhibiting the flow of life (3 items), emotional state (5 items) and not being able to give up (4 items). The lowest score in the scale is 23 and the highest is 115. It is pre-assumed that higher levels obtained from the scale indicate more inclination to being digitally addicted. In the original study, the Cronbach Alpha reliability coefficient of the scale was found as .874, and the scale explained 59.51% of the variance. The χ^2/df ratio was 2.326 and other fit indices were satisfactory (Kesici & Tunc, 2018). The internal consistency of vocational school students was calculated as .893 after applying the scale.

Data Analysis

In the digital addiction scale, the highest score for each item is 5 and the lowest one is 1. High scores relatively indicate that the digital addiction level of the individual is high (Kesici & Tunc, 2018). For this reason, as demonstrated in Table 2, in order to comment about and evaluate the digital addiction levels of vocational school students, three ranges of assessment and criteria were determined over the overall value.

Table 2. Assessment criteria of digital addiction

Evaluation Criteria	Evaluation Range
Low Level	1,00 – 2,33
Medium Level	2,34 – 3,67
High Level	3,68 – 5,00

The data collected from the students were analysed via SPSS 22.0 (Statistical Package for the Social Sciences). The significance of data analysis has been calculated as .05. The digital addiction levels of vocational school students have been determined through the digital addiction scale. Independent sample t-test was used while examining the differences in terms of the variables, which have two different sub-groups, and one-way analysis of variance (Anova) test was used while examining the differences in terms of the variables which have more than two sub-groups.

Findings and Discussions

This study aimed to examine the digital addiction levels of vocational school students. The assessment regarding the different variations of this addiction are given in the following sections:

The Digital Addiction of Vocational School Students

Table 3 provides the vocational school students’ scores of digital addiction scale.

Sub- Dimensions	\bar{X}	sd
Overuse	2.48	.82
Non-restraint	2.44	1.00
Inhibiting The Flow of Life	2.16	.87
Emotional State	2.50	.90
Dependence	3.58	.97
General	2.58	.68

According to the analysis, the average of the digital addiction levels of vocational school students has been found as 2.58. It is possible to state that the digital addiction levels of vocational school students are at medium-level. When the sub-dimensions of the scale are examined, it can be seen that the digital addiction of the vocational school students is at medium level, with 2.48 for “Overuse” sub-dimension, 2.44 for “Non-restraint”

sub-dimension, 2.50 for “Emotional State” sub-dimension and 3.58 for “Dependence” sub-dimension. However, their digital addiction is at low-level at “Inhibiting the Flow of Life” sub-dimension with 2.16.

Analysing the Digital Addiction of the Students in terms of their School Years

The independent sample t test analysis results which demonstrate if the digital addiction of the vocational school students differ in terms of their school years are given in Table 4.

Table 4: The digital addiction of the students in terms of their grade levels

Sub-Dimensions	Groups	n	\bar{X}	Sd	df	t	p
Overuse	1 st Grade	194	2.48	.82	316	.179	.858
	2 nd Grade	124	2.47	.82			
Non-restraint	1 st Grade	194	2.42	1.00	316	-.320	.749
	2 nd Grade	124	2.46	1.01			
Inhibiting the Flow of Life	1 st Grade	194	2.18	.90	316	-1.067	.287
	2 nd Grade	124	2.22	.82			
Emotional State	1 st Grade	194	2.53	.90	316	.602	.547
	2 nd Grade	124	2.47	.90			
Dependence	1 st Grade	194	3.59	.98	316	.318	.750
	2 nd Grade	124	3.55	.97			
Digital Addiction (General)	1 st Grade	194	2.58	.68	316	-.065	.949
	2 nd Grade	124	2.59	.68			

Table 4 suggests that the digital addiction level of vocational school students does not show a significant difference in terms of their school years [$t(316) = -.065, p > .05$]. There is also no significant difference in the sub-dimensions of the scale for the digital addiction of the students based on their school years.

Analysing the Digital Addiction of the Students in terms of Gender

The independent sample t-test analysis results which demonstrate if the digital addiction of the vocational school students differ in terms of their gender are given in Table 5.

Table 5: The digital addiction of the students in terms of gender

Sub-Dimensions	Groups	n	\bar{X}	Sd	df	t	p
Overuse	Male	130	2.34	.81	316	-2.586	.010
	Female	188	2.58	.81			
Non-restraint	Male	130	2.28	1.01	316	-2.306	.022
	Female	188	2.54	.99			
Inhibiting The Flow of Life	Male	130	2.11	.85	316	-.906	.366
	Female	188	2.20	.88			
Emotional State	Male	130	2.55	.90	316	.819	.413
	Female	188	2.47	.91			
Dependence	Male	130	3.41	.96	316	-2.585	.010
	Female	188	3.69	.96			
Digital Addiction (General)	Male	130	2.49	.65	316	-1.946	.052
	Female	188	2.64	.69			

Table 5 suggests the digital addiction level of vocational school students does not show a significant difference in terms of their genders [$t(316) = -1.946, p > .05$]. In addition, the digital addiction of the vocational school students does not differ significantly at two sub-dimensions: with [$t(316) = -.906, p > .05$] at inhibiting the flow of life and with [$t(316) = .819, p > .05$] at emotional state. Yet, meaningful difference at digital addiction levels of the vocational school students is present in terms of their gender at the following sub-dimensions: overuse sub-dimension with [$t(316) = -2.586, p < .05$], non-restraint sub-dimension [$t(316) = -2.306, p < .05$] and dependence sub-dimension with [$t(316) = -2.585, p > .05$]. In other words, girls are more addicted than boys in overuse, non-restraint and dependence sub-dimensions.

Analysing the Digital Addiction of the Students in terms of Departments

The one-way analysis of variance (Anova) test results which demonstrate if the digital addiction of the vocational school students differs in terms of departments have been given in Table 6.

Table 6: The digital addiction of the students in terms of departments

Sub-Dimensions	Source of Variance	Sum of Squares	df	Mean Squares	F	p	Significant Difference
Overuse	Between Groups	5,162	7	,737	1,110	,356	-
	Within Goups	205,944	310	,664			
	Total	211,106	317				
Non-restraint	Between Groups	14,212	7	2,030	2,063	,047	2-4
	Within Goups	305,141	310	,984			
	Total	319,353	317				
Inhibiting The Flow of Life	Between Groups	17,163	7	2,452	3,427	,002	2-3
	Within Goups	221,817	310	,716			
	Total	238,980	317				
Emotional State	Between Groups	8,463	7	1,209	1,498	,167	-
	Within Goups	250,220	310	,807			
	Total	258,683	317				
Dependence	Between Groups	13,221	7	1,889	2,050	,049	6-1
	Within Goups	285,579	310	,921			
	Total	298,800	317				
Digital Addiction(General)	Between Groups	6,841	7	,977	2,174	,036	6-1 6-3
	Within Goups	139,372	310	,450			
	Total	146,213	317				

(1: Business Management, 2: Finance, 3: Computer Programming, 4: Computer-enhanced Design and Animation, 5: Child development, 6: Immediate Aid, 7: Opticianry, 8: Graphic-Design)

Analysis results suggest that the digital addiction level of vocational school students differ significantly in terms of departments [F (7-310) = 2.174, $p < .05$]. The LSD test results, performed to find out the significance of the differences among departmental groups, demonstrate that the means of Immediate Aid department students ($X = 2,90$) are significantly higher than Business Management ($X = 2,36$) and Computer Programming ($X = 2,34$) departments. There is also a significant difference at some sub-dimensions of the scale: with [F(7-310) = 2.063, $p < .05$] at non-restraint sub-dimension, with [F(7-310) = 3.427, $p < .05$] at inhibiting the flow of life sub-dimension and with [F(7-310) = 2.050, $p < .05$] at dependence sub-dimension. The results of LSD test reveal that the digital addiction of finance department students is significantly higher at non-restraint sub-dimension than Computer-enhanced Design and Animation students. It is also higher among finance department students at inhibiting the flow of life dimension compared to Computer Programming and Graphic-Design departments. However, at dependence sub-dimension, the digital addiction of Immediate Aid students is higher than Business Management students. On the other hand, there is a significant difference at the digital addiction of the vocational school students in terms of their departments at Overuse sub-dimension by [F(7-310) = 1.110, $p > .05$], and at emotional state sub-dimension [F(7-310) = 1.498, $p > .05$].

Analysing the Digital Addiction of the Students in terms of their Monthly Income

The one-way analysis of variance (ANOVA) test results which demonstrate if the digital addiction of the vocational school students differs in terms of their monthly income have been given in Table 7.

Table 7: The digital addiction of the students in terms of their monthly income

Sub-Dimension	Source of Variance	Sum of Squares	df	Mean Squares	F	p	Significant Difference
Overuse	Between Groups	1,088	4	,272	,405	,805	-
	Within Goups	210,018	313	,671			
	Total	211,106	317				
Non-restraint	Between Groups	5,001	4	1,250	1,245	,292	-
	Within Goups	314,352	313	1,004			
	Total	319,353	317				
Inhibiting The Flow of	Between Groups	5,546	4	1,387	1,859	,117	-

Life	Within Goups	233,434	313	,746			
	Total	238,980	317				
	Between Groups	6,023	4	1,506			
Emotional State	Within Goups	252,660	313	,807	1,865	,116	-
	Total	258,683	317				
	Between Groups	7,198	4	1,799			
Dependence	Within Goups	291,602	313	,932	1,932	,105	-
	Total	298,800	317				
	Between Groups	3,442	4	,861			
Digital (General)	Within Goups	142,771	313	,456	1,886	,113	-
	Total	146,213	317				
	Between Groups	3,442	4	,861			

Analysis results suggest that the digital addiction level of vocational school students does not differ significantly in terms of their monthly income [$F(4-313) = 1.886, p > .05$]. In addition, it does not differ significantly in sub-dimensions: at Overuse sub-dimension by [$F(4-313) = 1.245, p > .05$], at inhibiting the flow of life dimension sub-dimension by [$F(4-313) = 1.859, p > .05$], at emotional state sub-dimension by [$F(4-313) = 1.865, p > .05$] and inhibiting the flow of life sub-dimension by [$F(4-313) = 1.932, p > .05$].

Discussion and Conclusion

This study examined the digital addictions of vocational school students in terms of different variables and it concludes that the addiction level of the participating students is medium. The results also indicate that the participants display a medium-level addiction in the sub-dimensions of non-restraint, overuse and emotional state. Nevertheless, their addiction is at low-level in the sub-dimension of inhibiting the flow of life. Based on these results, it is possible to state that the digital addictions of the students (internet, computer, social media, video and digital games and smartphones) refer to a problematic use of digital tools and platforms. Furthermore, it is observed that students use these tools and platforms excessively, and they cannot keep themselves away from them.

The digital addictions of vocational school students do not differ significantly in terms of their school years. In other words, there is no difference in the digital addiction levels of the first- and second-year students. This result is similar to the results of other studies in the literature. For example Eryılmaz and Çukurluöz (2018) also found out that there was not a significant difference according to students' school years. Çalışkan et al. (2017) similarly state that there is not a significant difference at smart-phone addiction levels of teacher candidates at Teaching Computer and Education Technologies Department in different grades.

Similar to the results as to the variable of school years, the digital addictions of vocational school students also do not differ significantly in terms of gender. This result is similar to the results of other studies in the literature. For example, Arslan et al.'s study (2015), while the video game and social media addiction of high school and university students differ in terms of gender, they found no significant difference between the negative influence of digital addiction on the life. Balcı and Gülnar (2009) also found no significant difference between internet addiction of university students in terms of gender. Aktan (2018) analysed the social media addiction of the university students and he also found no significant difference between university students in terms of gender. Nevertheless, Yılmaz, Şahin, Haseski and Erol (2014) found a significant difference between high school students in terms of gender. Göldağ (2018) analysed the digital game addiction levels of high school students and found a significant difference between them in terms of gender. Eryılmaz and Çukurluöz (2018) did not find a significant difference between the digital platform addictions of high school students in terms of gender. In the literature review, while some studies state that there is not a significant difference at digital platforms' addiction in terms of gender (Çalışkan et al., 2017; Gül & Diken, 2018; Kuyucu, 2017; Minaz & Çetinkaya Bozkurt, 2017), some others indicate the opposite (Çakır, Balta & Horzum, 2008; Doğan & Tosun, 2016; Ekinci, Yalçın, Özer & Kara, 2017; Hakoama & Hakoyama, 2011; İnan, 2010; Kawasaki et al., 2006; Park & Lee, 2014).

Another result of the study demonstrates that the digital addictions of the vocational school students differ significantly in terms of departments. The students of Immediate Aid are more addicted than those who study Business Management and Computer Programming. In this regard, Abu Jedy (2008) also found out that the smartphone addiction of the students differs according to the programs they study. Aktar (2018), connately, concludes that the digital addiction of university students shows an alteration according to their departments. However, Karasu, Bayır and Çam (2017) in their research found that there was no difference between the internet addiction of the university students with reference to their departments.

This study also found out that the digital addiction of the vocational school students does not show differ significantly in terms of monthly income. This result is similar to the results of other studies in the literature. For example, Arslan et al. (2015) explored the digital addiction levels of high school and university students and found out that there was not a correlation between their addiction and family monthly income. Nevertheless, Göldağ (2018) concluded his study stating that the digital addiction levels of high school students showed a significant difference with reference to their families' monthly income. Ekinci, Yalçın, Özer and Kara (2017) also reported the same result and found out that the digital addiction levels of the students and their families' monthly income were correlated. Some other studies in the literature also report a significant correlation between family income and digital addiction levels (Balıcı & Gülnar, 2009; Çakır, Balta & Horzum, 2008; Karasu, Bayır & Çam, 2017).

In today's technology age, individuals of almost any age use digital environment. As a result, individuals spend a long time in digital environments. In this study, it has been seen that in similar studies in the literature, individuals are dependent on digital environment such as internet, social media and smart phone in different ways. It is also known that students use digital environment for different purposes from the beginning of their university education. For this reason, it is concluded that there is no difference between the digital addictions of the students according to their class levels, gender and income levels. One of the main reasons is that students use digital tools such as smart phones, social media and internet in their friends.

Based on the results discussed above, it is possible to express that the vocational school students seem to face a digital addiction problem. Although there might be some other reasons for this addiction, one of the prominent causes may that they are very much engaged with information technologies such as smartphones, internet, social media and digital games. Therefore, some provisions need to be taken for preventing the increase of this addiction. Along with this, students, parents, teacher and administrative staff should be informed that digital addictions such as smartphone, the internet, social media addictions might be harmful on their physics and psychology in the long run. Since this study was conducted with vocational school students, it also gives insight about the digital addiction levels of other age groups and may contribute to the literature looking for the causes of digital addiction.

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