BRNO UNIVERSITY OF TECHNOLOGY
VYSOKÉ UČENÍ TECHNICKÉ V BRNĚ

FACULTY OF ELECTRICAL ENGINEERING AND COMMUNICATION
FAKULTA ELEKTROTECHNIKY
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DEPARTMENT OF FOREIGN LANGUAGES
ÚSTAV JAZYKŮ

DIGITAL DETOX AT BRNO UNIVERSITY OF TECHNOLOGY
DIGITÁLNÍ DETOX NA VYSOKÉM UČENÍ TECHNICKÉM V BRNĚ

BACHELOR'S THESIS
BAKALÁŘSKÁ PRÁCE

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Bakalářská práce

bakalářský studijní obor **Angličtina v elektrotechnice a informatice**

Ústav jazyků

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NÁZEV TÉMATU:

Digitální detox na Vysokém učení technickém v Brně

POKYNY PRO VYPRACOVÁNÍ:

Vymezte koncepci digitálního detoxu a analyzujte jeho možný vliv na vzorku studentů a učitelů Vysokého učení technického v Brně.

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Abstract

This bachelor's thesis aims to frame the concept of digital addiction and digital detox and research digital addiction and the experience with digital detox among students and teachers at Brno University of Technology. The thesis consists of a theoretical part, which includes a literature review of digital addiction and digital detox, and a practical part, focused on the research using a questionnaire distributed to students and teachers. The questionnaire survey results showed that more than 70% of respondents spend more than two hours daily on the phone, with Facebook and Instagram being the most used applications. Simultaneously, almost 70% of respondents admitted using the phone more than they originally intended, which suggests possible symptoms of digital addiction. Almost 90% of respondents were aware of digital detox, and about 50% had personal experience with some form of digital detox. Most respondents recommended digital detox, which indicates their awareness of its positive effects.

Keywords

digital detox, digital addiction, dopamine, social media algorithms, compulsive behaviour, smartphones, questionnaire survey

Abstrakt

Cílem této bakalářské práce je popsat závislost na digitálních technologiích a digitální detox a provézt výzkum zabývající se závislostí na digitálních technologiích a zkušenostmi s digitálním detoxem u studentů a učitelů na Vysokém učení technickém v Brně. Práce zahrnuje rešerši literatury na téma digitální závislosti, digitálního detoxu a výzkum prostřednictvím dotazníku, který byl distribuován studentům a učitelům. Výsledky dotazníkového šetření ukázaly, že více než 70 % respondentů stráví více než dvě hodiny denně na telefonu, přičemž nejpoužívanější aplikace jsou Facebook a Instagram. Současně téměř 70 % respondentů přiznalo, že používají telefon více, než původně zamýšleli, což naznačuje možné symptomy digitální závislosti. Povědomí o digitálním detoxu mělo téměř 90 % respondentů a téměř 50 % respondentů mělo zkušenost s nějakou formou digitálního detoxu. Většina respondentů doporučila digitální detox, což naznačuje jejich povědomí o jeho pozitivních účincích.

Klíčová slova

digitální detox, digitální závislost, dopamin, algoritmy sociálních sítí, kompulzivní chování, chytré telefony, dotazníkové šetření

Rozšířený abstrakt

Tato bakalářská práce se zabývá problematikou digitální závislosti a digitálního detoxu, fenoménů, které se začaly projevovat společně s nárůstem digitálních technologií a jejich integrací do každodenního života. Prvním cílem bakalářské práce je popsat digitální závislost, vysvětlit, jak se projevuje, jak vzniká, jaké má dopady na psychiku a jaké mechanismy používají vývojáři aplikací na prodloužení času stráveného na jejich platformě. Práce dále vymezuje koncepci digitálního detoxu, popisuje proces detoxu a diskutuje jeho možné negativní efekty a přínos. Druhým cílem bakalářské práce je realizovat výzkum a zjistit, zda studenti a učitelé na Vysokém učení technickém v Brně vykazují známky digitální závislosti a zda si jsou vědomi tohoto chování. Práce dále zkoumá jejich povědomí o konceptu digitálním detoxu a jaké zkušenosti s tímto konceptem mají. Výzkumné otázky byly definovány následovně:

- Jaké jsou digitální návyky u studentů a učitelů?
- Jak ovlivňuje používání sociálních médií a trávení času online jejich psychiku a akademický výkon?
- Do jaké míry jsou studenti a učitelé obeznámeni s digitálním detoxem?
- Jaké osobní zkušenosti mají studenti a učitelé s digitálním detoxem?

Teoretická část je rozdělena na dvě hlavní kapitoly, z nich každá sestává ze čtyř podkapitol. V první kapitole je popsána digitální závislost, její projevy, vznik, proč přetrvává a jaké může mít dopady. Kapitola o koncepci digitálního detoxu popisuje přípravu na situace, které podněcují jedince k interakci s telefonem a nabízí různé řešení, jak takovým situacím předejít. Následně jsou prezentovány samotné metody detoxu, na což navazují negativní efekty, které je možné během detoxu pociťovat a pozitivní efekty, které je možné pociťovat po absolvování detoxu.

Součástí praktické části bakalářské práce byl návrh dotazníku, který byl následně distribuován mezi učiteli a studenty na Vysokém učení technickém v Brně. Dotazník byl navržen tak, aby zkoumal vědomé i nevědomé chování respondentů v souvislosti s digitálními technologiemi a jejich povědomí o konceptu digitálního detoxu. Finální verze dotazníku obsahuje otevřené a uzavřené otázky týkající se digitálních návyků, vnímání

digitální závislosti a zkušeností s digitálním detoxem. Celkem se průzkumu účastnilo 129 respondentů, z toho 106 studentů a 23 učitelů.

Dotazníkové šetření odhalilo, že většina respondentů stráví denně na digitálních zařízeních mezi dvěma až šesti hodinami. Mezi nejčastěji používané aplikace patřil Facebook s Messengerem a Instagramem, které se později ukázaly i jako nejobtížněji regulovatelné aplikace. Značná část respondentů se ztotožnila s příkladem multitaskingu (čekání ve frontě), avšak když byli později přímo tázáni, zda tuto techniku provozují, klesl jejich počet o 30 %. Velká skupina studentů i učitelů přiznala, že pociťuje syndrom fantomových vibrací, čemuž odpovídá i většinová shoda s tvrzením, že stráví na telefonu více času, než původně zamýšleli. Dále byla potvrzena korelace mezi trávením času na telefonu před spaním a špatnou kvalitou spánku.

Výsledky, které se týkaly digitálního detoxu ukázaly, že téměř 90 % respondentů má povědomí o tomto konceptu a téměř 50 % respondentů má zkušenosti s technikami digitálního detoxu. Mezi nejčastější metody patřilo využívání sociálních sítí jen pro komunikaci, omezování některých aplikací buď jejím vymazáním nebo nastavením časového limitu. V průběhu digitálního detoxu značná část respondentů nezaznamenala žádné negativní účinky, pouze téměř 18 % respondentů zaznamenalo nárůst úzkosti. Naopak mnoho respondentů zaregistrovalo řadu pozitivních efektů, mezi kterými byla zlepšená pozornost se zvýšenou produktivitou, a dále bylo možné pozorovat zvýšení kvalitu spánku. V poslední otázce více než 90 % respondentů doporučilo digitální detox, což jen potvrdilo pozitivní vnímání této metody.

Závěrem lze konstatovat, že studenti i učitelé vykazují určitou digitální závislost. Studenti patřící mezi mladší generaci vyrůstali s digitálními technologiemi, které se postupně staly součástí jejich životů. Proto je zde možné pozorovat řadu jevů popsaných v teoretické časti. U mladších učitelů byl průběh podobný, ale odpovědi starší generace učitelů ukázaly, že digitální závislost a koncept digitálního detoxu se jich vůbec nemusí týkat.

Kozlovský, D. (2024). *Digital detox at Brno University of Technology.* Brno: Vysoké učení technické v Brně, Fakulta elektrotechniky a komunikačních technologií. s. 41.
Vedoucí bakalářské práce: Mgr. Ing. Eva Ellederová, Ph.D.

Prohlášení

Prohlašuji, že bakalářskou práci na téma *Digitální detox na Vysokém učení technickém v Brně* jsem vypracoval samostatně pod vedením vedoucí bakalářské práce a s použitím odborné literatury a dalších informačních zdrojů, které jsou všechny citovány v práci a uvedeny v seznamu literatury na konci práce.

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V Brně dne 24. května 2024 ....

Dominik Kozlovský

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Introduction

Digital devices and social media platforms have become an inseparable part of everyday life, which raises concerns about their potential impacts on well-being and performance. The phenomenon of digital addiction (which is not addiction per se) arises with personalised content served by machine learning algorithms using persuasive design strategies to maximise users' time spent on platforms. Concerns over excessive electronic device usage have prompted the introduction of digital detox to address compulsive behaviour and regain control over technology.

This bachelor's thesis aims to describe the symptoms of digital addiction, explain its causes and effects, present strategies for digital detox to eliminate compulsive behaviour and determine whether students and teachers at Brno University of Technology

- exhibit signs of digital addiction,
- are aware of their behaviour and
- have experience with digital detox.

My motivation for choosing the topic of digital detox was simple. I found myself in situations where I spent over four hours per day on social media while my academic results gradually deteriorated. Consequently, I started studying my behaviour, habits, motivation, and triggers, and with that knowledge, I could create a plan to gradually decrease time spent on digital devices and focus more on academic performance. Hence, as I undergo the digital detox, I want to spread knowledge about digital addiction and its pervasive techniques. In the practical part, I want individuals to realise that they may be addicted and present a solution.

The thesis is divided into a theoretical part and a practical part. The theoretical part begins with a definition of addiction and its symptoms, a description of the role of dopamine, and the reinforcing effects of algorithms and personalised content. The next chapter explains the impacts of digital addiction on well-being and performance. This is followed by the introduction of the digital detox and the crucial preparatory stage to achieve the best results. The subsequent chapter describes the process and possible negative effects. The last chapter of the theoretical part discusses the positive effects observed when individuals break their digital habits.

The practical part of the thesis formulates the research objectives, defines the research questions and describes the research methodology, including the design of the questionnaire. The final version of the questionnaire was divided into three sections: 1) basic information about the respondents; 2) an analysis of the respondents' habits, routines, well-being, interaction with digital devices and awareness of addictive behaviour; and 3) the respondents' awareness of digital detox and possible techniques they employed, including the effects they experienced during and after the detox. Finally, the thesis includes the research results and their interpretation.

Theoretical Part

1   Addiction, its symptoms, causes and effects

The American Psychological Association (n.d.) defines addiction as:

> A state of psychological or physical dependence (or both) on the use of alcohol or other drugs. The term is often used as an equivalent term for substance dependence and sometimes applied to behavioural disorders, such as sexual, Internet, and gambling addictions.

According to Tyler (2018), adds that addiction is a chronic malfunction of the brain system involving aspects of motivation, reward, and memory. It is associated with an intense desire for a particular substance or activity, especially when it leads to an obsessive and compulsive pursuit of fulfilment while ignoring potential consequences. Over time, addictions have the potential to seriously interfere with an individual's life. People experiencing addiction often find themselves susceptible to recurring patterns of relapse and remission, shifting between intense and more moderate usage. Despite these shifts, addiction tends to worsen over time.

When defining the concept of addiction related to digital devices and social media, it is crucial to note that individuals are not addicted to social platforms or devices. Hilliard (2023) comments that addiction to social media is predominantly associated with the dopamine-inducing social contexts offered by social networking platforms. Engagement with social media platforms elicits the same neural activity as that induced by gambling and recreational drug consumption, thus encouraging users to prolong the time spent on these platforms to the maximum extent possible.

Kuss and Griffiths (2017) underscore the prevalent interchangeability between the terms "addiction", "addictive", "compulsion", and "problematic social media use", among researchers in this field. Nevertheless, the term "addiction" specifically refers to the presence of criteria such as mood modification, salience, tolerance, withdrawal symptoms, conflict, and relapse, as they appear to apply to both substance-related and behavioural addictions.

1.1   Symptoms of addiction

Zahariades (2018) points out that addiction produces traces, and it manifests in ways that are easy to recognise if it is clear what to look for. Several traces vary according to addiction. For instance, addiction to a smartphone may have symptoms that differ from those

experienced by a video game addict. Having said that, some signs of technology addiction are similar across the board.

Zahariades (2018) lists the common symptoms indicating that people have become addicted to digital technologies:

1) People instinctively reach for their smartphones when they hear ringing or experience vibrations, irrespective of the source, be it an email, text message, or notification. Anticipating potentially engaging content, they feel compelled to inspect these prompts immediately.

2) People become anxious if they refrain from promptly inspecting their phones upon receiving a notification. For instance, when the phone vibrates during a conversation, an immediate impulse to check it is triggered. As time elapses, this compulsion intensifies until people eventually succumb to it. As these addictive tendencies progress, people may find themselves scrutinizing their phones even without any prior notification, driven by an apprehension of potentially overlooking important information.

3) When they are unable to access the Internet, people experience withdrawal symptoms comparable to those experienced by users of illicit substances. As the duration of offline periods extends, the severity of mood swings, and potentially even depression, intensifies.

4) People feel euphoric when engaging with their social media platforms. Upon encountering positive or intriguing negative news, dopamine is released in the brain, producing a heightened sense of elation. As people continue to scroll through the application, the brain receives successive and substantial surges of dopamine.

5) People always carry their phones or tablets, even when going to the toilet. Occasionally, they may leave their device behind, which leads to disappointment as they contemplate the potential for utilizing that time for activities that bring them happiness.

6) People choose to watch videos, text their friends, or play games instead of sleeping, which is a crucial element in the process of rejuvenation. They spend hours at night in front of a screen instead of sleeping, which often results in feelings of fatigue the following day. Most screens emit blue light interpreted by the brain as daylight, thereby triggering the release of wakefulness-promoting substances that impede the body's ability to slumber.

1.2 Causes of addiction

As Hilliard (2023) notes the origin of addiction hinges upon one key component, the feeling of reward derived from dopamine release. This pleasurable feeling is the primary motivator for repetitive engagement, where repetition subsequently fosters tolerance. The emergence of tolerance causes a desire for higher doses of dopamine, resulting in an extended period spent on the device. Consequently, individuals find themselves in a repeating pattern of craving for excitement and relief tied to all sorts of effects discussed in Chapter 1.4.

Dopamine

Wise and Robble (2020) define "dopamine" as a neurotransmitter, a biochemical agent that affects various aspects of human behaviour, motivation, reinforcement, and learning processes. In learning, dopamine has a crucial role in modulating behaviour by intensifying the response to essential resources, such as food or water, engendering positive feelings. Moreover, upon encountering potential threats, the dopamine level drastically decreases, thereby giving a sense of fear essential for survival. Using this mechanism of reward and punishment, living organisms equipped with the capability to synthesise dopamine acquire the capacity to learn, predict, and make decisions based on previous experience.

Nevertheless, dopamine also plays a significant role in the development of addiction. As mentioned above, the discovery of food raises dopamine levels, motivating individuals to repeat the action. Failure to repeat the action may result in experiencing withdrawal symptoms, further reinforcing the motivation to repeat. In other words, if the substance or activity boosts dopamine levels, the brain tends to adapt to this stimulation, becoming more resistant to higher dopamine levels, leading to an increased requirement of the substance or activity.

Dopamine rush

Zahariades (2018) says that a dopamine rush occurs when the brain releases a significant amount of dopamine in response to a stimulus, resulting in an intense feeling of pleasure and reward. In the digital world, it is associated with a response, be it a notification, message, email, like, retweet, new follower, or BeReal. It is hard to avoid those as when downloaded, these applications require people to allow notifications, thus facing a constant stream of information that is very easy to become addicted to.

Dopamine loop

As explained above, the dopamine rush is a sudden significant increase in dopamine that gives an intense feeling of pleasure. However, the brain is motivated to repeat the process and this time it requires more. Lee Health (n.d.) further states that "this cycle of motivation, reward, and reinforcement is a 'dopamine loop' that gets users seeking, looking, craving rewards and more of them." The human brain lacks a proper mechanism for self-regulation due to its predisposition to associate pleasurable feelings with substances or activities that are useless for the body. It is hard to break this loop, as when time passes and, for example, the phone has not been checked, feelings of withdrawal may come. As a result, TikTok had to add a feature that reduces its addictive algorithm, as explained later in Chapter 1.4.

Fear of Missing Out

Zahariades (2018) describes the fear of missing out (FOMO) as a persuasive motivator for people to pick up their phones. It is also widely used in marketing where phrases such as "time-limited, limited number of, until the stocks run out" are used. People may experience anxiety, fearing that if they refrain from making a purchase, they might miss an opportunity to purchase an item they desire and save money. In a more adverse scenario, they might gain something they did not even know they wanted. The same principle applies to the topic of digital detox. As previously noted, smartphone produces vibrations prompting an immediate urge for anticipation, compelling individuals to promptly inspect their phones. If not so often, this results in fear of missing out (FOMO), accompanied by the underlying concern that significant information or events are passing them by.

Nevertheless, a more serious aspect emerges in this scenario. FOMO might lead story viewers to perceive that their own lives lack the excitement, adventure, or noteworthy experiences deemed share-worthy on social media platforms. As a result, they may feel compelled to post anything even remotely exciting, and, regrettably, some individuals resort to enhancing their images by utilizing tools such as optical illusions, makeup, filters or Photoshop.

Information overload

In the past, the human brain rewarded individuals for discovering information about predators as it meant survival. Pentina and Tarafdar (2014) state that the amount of information contained in a single Sunday edition of the *New York Times* today is higher than

the amount of information the average person in the 19th century acquired in their entire lifetime. This contrast highlights the exponential growth in information accessibility and the unpreparedness of the human brain. Zahariades (2018) observes that nowadays, individuals overwhelm their minds with a continuous stream of information regarding updates on their favourite celebrities, global news, and the latest scandals. Additionally, individuals increase the amount by configuring notifications on social media and subscribing to channels, newsletters, blogs, and websites.

Social expectations

The expectation to possess a smartphone depends on the specific social group to which an individual belongs, be it a school, office, or group of friends. Nevertheless, contemporary society not only anticipates smartphone ownership but also demands active engagement in social media posting and online presence. Failing to meet this standard may cause some individuals to feel less relevant, as they do not adequately demonstrate how their life is exciting. Beard (2011) notes that people on social platforms create their Internet personas that reflect only their self-image or how they want the world to see them while completely excluding factors that could potentially compromise their online image. The younger generation is particularly susceptible to this type of behaviour as they are often unsatisfied with their physical appearance or personal characteristics. Consequently, individuals tend to share partially accurate content or complete fiction about themselves. As a result, social media platforms often feature people who appear to have impeccable appearances and behaviours. However, it is essential to acknowledge that these online personas, whether in the form of pictures, videos, or statements, may be subject to manipulation, editing, and omission of contextual or less favourable background circumstances.

Accessibility

The accessibility of the Internet is a double-edged sword, as it allows people to stay in touch with their friends, families, and communities. Simultaneously, it provides an unlimited source of information available at any time. This use of the Internet is entirely appropriate. On the other hand, Zahariades (2018) argues that as access to the Internet becomes easier, people are more susceptible to distractions. The most common scenario is during a meeting, work, lecture, or housework when a notification appears, and the focus shifts from previous activities to the notification. Individuals often force themselves to multitask, resulting in the focus on both the activities and the reading or responding to the notification.

The issue concerns not smartphones, but there is an opportunity to purchase smartwatches connected to phones, thereby enabling the display and management of notifications. Additionally, smart rings can connect to the phone and display messages. Therefore, even if people are busy and likely to miss their phone notifications, these devices significantly reduce this chance. Nevertheless, these gadgets can monitor heart rate, quality of sleep, blood oxygen levels, and progress during exercise, which might be useful if the individual knows how to process the gathered data.

1.3 Social media's algorithms

In the contemporary digital world, large amounts of data are collected. Balaji et al. (2021) say that social media corporations reach around petabytes of data. These are "cookies" collected by network sites and contain various types of data, including IP address, search history, shopping history, and typing history. With that amount of data, human workers cannot process all of it, so developers started to implement machine learning algorithms. These algorithms sort, compare and find correlation and behavioural patterns until they can predict individuals' next move on the Internet.

Youyou et al. (2015) conducted a study that compared human judgement of other people's personalities with a computer database of individuals' likes on Facebook processed by a machine learning algorithm. They discovered that computers require only 10 likes to outperform an individual's co-worker, 100 likes to know more than an individual's friends, and 300 likes to know more than an individual's partner. Furthermore, 500 likes are required to reach the maximum accuracy of the computer prediction. This study from 2015 used only Facebook likes to judge individuals' personalities. Contemporary algorithms with enormous databases have disproportionally more data. This chapter discusses how algorithms are used, their causes, and how they affect people.

Personalised content

This method seems to seek the best content for a given person. As it partially does, the algorithms' purpose is calculating individuals' content on the "main page" or "for you" page to display in order of the post so that the person stays on the platform as long as possible. Facebook and Instagram excel in this category as they collect various information about their users to tailor a custom feed with well-organised posts. For example, an individual is a biker, and their friends and favourite celebrity posted photos of their bikes. If both posts appeared

at the top of the page, the individual would become interested but, after a short time, lose interest and leave Facebook. As a result, the platform may show a photo of a celebrity at the top of the page, engaging individuals to continue on the platform. When interest is about to decline, Facebook shows a photo of friends raising their levels of dopamine again, prolonging the time spent on the platform.

One notable application that exceeds Facebook and Instagram algorithms is TikTok, one of the most downloaded applications on both the Google Store and App Store. A short-form video-sharing platform that has, over its existence, gained massive popularity in all age groups. TikTok developers mastered their algorithm so well that people spent hours watching short videos without noticing. Concurrently, the algorithm seamlessly operates in the background, analysing every user's interaction, be it watch time on each video, likes, shared comments, follows, and rewatching.

Intermittent reinforcement

Wigmore (2018) states that intermittent reinforcement "is the delivery of a reward at irregular intervals, a method that has been determined to yield the greatest effort from the subject." It deviates from the pattern of providing a reward for desired behaviour or according to a consistent schedule, instead opting for rewards distributed at seemingly unpredictable intervals. Developers of social media platforms are keenly aware of this phenomenon and actively use it in the design of their platforms. The application of intermittent reinforcement is a calculated strategy to maintain users' prolonged engagement with their platforms. By delivering rewards at irregular intervals, these platforms benefit from the principles of motivation and anticipation. For example, Facebook used to display new photos that individuals' friends posted at the top of the page. This strategy was effective in engaging the user and motivating them to return. Nevertheless, after a few posts, the user might have left Facebook due to either satisfaction or boredom. Consequently, the developers invented an algorithm (further discussed in Chapter 1.4) that calculates in which order Facebook should show the post to convince users to spend time on the platform.

Rabbit holes

The Cambridge Dictionary (n.d.) defines rabbit holes as "a complicated or difficult situation, especially one that is difficult to get out of". In the context of digital addiction, this term refers to a situation where the algorithm has gathered enough data about an individual to recommend content tailored to their preference, so most incoming content revolves around

a specific topic. This phenomenon was investigated by journalists from *The Wall Street Journal* (2021), who conducted an experiment involving 100 bots with predefined fields of interest hidden from the application. Reinforcing current interest may not be harmful per se when, e.g., the individual is a dog enthusiast, and as the algorithm is processing the gathered data, it evaluates that the person especially likes golden retrievers. As a result, people end up in rabbit holes, where the For You page will be full of videos regarding golden retrievers.

On the contrary, people grappling with depression may find themselves immersed in a rabbit hole that significantly reinforces their emotional state, compelling them to stay longer on the platform. Moreover, journalists discovered that individuals interested in politics may end up in rabbit holes featuring extreme right- or left-wing content with extremist opinions, conspiracy theories, and misinformation. The algorithm's tendency to show users content aligned with their existing preferences may limit exposure to diverse perspectives.

1.4   Effects of addiction

The previous chapters have explained the symptoms, causes of addiction, and persuasive techniques used to engage and retain individuals on social platforms. Consequently, people are constantly exposed to blue light emitted by screens, are distracted by various things, or force themselves to multitask. As a result, similar to other forms of addiction, digital addiction has both negative psychological and physical effects on the human body. Although short-term effects may not be particularly harmful, the impact of long-term addiction may lead to severe psychological disorders or obsessive behaviours.

Anxiety, low self-esteem and stress

Rashid and Kenner (2019) state that while a correlation exists between the amount of time spent on social media and such effects, it does not guarantee that every user will experience them. Symptoms depend on various aspects, including the users' mental state, whether social platforms serve as a coping mechanism to suppress other struggles, the nature of the content that is delivered (depressing, shocking, or outraging), or whether the users watch immense amounts of content from friends while sacrificing their own lives. Being exposed to others who share their adventures may cause people to experience anxiety and low self-esteem. When people disconnect from the online world, they might feel stressed due to the potential

of missing engaging content. An essential element of these effects is FOMO, i.e., the fear of possibly missing content or having an adventure in personal life.

Inability to focus

Various factors might result in an inability to focus. The first is anxiety and FOMO, as mentioned earlier. People might face a dilemma balancing their attention between tasks like a lecture and the temptation to reach for their phones in search of more engaging content, driven by the brain's craving for stimulation. Furthermore, this desire may be intensified by notifications, leading to an immediate shift in focus.

The second factor is closely related to accessibility. Performing different tasks, people force themselves into multitasking, such as reading an article while simultaneously listening to music, even at the cost of poorly executed work (Zahariades, 2018). The human brain cannot process both actions and shifts its focus either to reading and ignoring the music or vice versa. Performing this repeatedly results in forgetfulness, where people cannot retain important information, as it disappears in a flood of new information.

Besides, people get easily distracted by any minor events, making it almost impossible to focus on a single task. Zahariades (2018) reports that in 2000, people could retain focus for twelve seconds, and today's attention span is eight seconds.

Sleeping problems

Sleep is a fundamental aspect of the regeneration of the human body that affects people's cognitive, physical, and psychic well-being. Nowreen and Ahad's (2018) research into the impact of smartphone usage on sleep quality showed that respondents who identify themselves as frequent smartphone users are prone to experiencing poor-quality sleep. Excessive exposure to screens emitting light that disrupts the circadian rhythm primarily causes this phenomenon. Typically, when people are in bed in an environment with lights turned off, the body initiates preparations for sleep. However, exposure to artificial light produced by screens prevents this process by suppressing the release of melatonin, a hormone responsible for inducing sleep. Consequently, when individuals fall asleep, their bodies already have increased levels of substances supposed to keep them awake in their bloodstream. Moreover, the inability to sleep may involve stress and anxiety from the content encountered on Internet platforms.

Laziness

With the ongoing development of smartphones and smart gadgets, people are becoming lazier as they heavily rely on digital devices. Rashid and Kenner (2019) comment that this reliance on technology affects several cognitive functions, including memory, orientation, and responsibility. The convenience of applications such as Google Notes for managing shopping lists or retaining any other important information and Google Calendar with notifications for important dates has diminished the need for individuals to retain such information in their memory. In addition, the widespread use of GPS, while highly beneficial, removes the need to remember the path, orient on a regular map, or simply follow the path described by a friend. Although all these applications were designed with positive intentions, over time, people started to rely on them more than on their own capabilities, thereby sacrificing their abilities.

Loose of short-term memory

Individuals grappling with social media addiction often exhibit signs of short-term memory loss. Zahariades (2018) explains that, with a constant stream of information, the short-term memory at one point reaches its maximum. For example, people suffering from this phenomenon cannot list the topics of the last ten Instagram reels they encountered. Long-term effects of short-term memory overloading may influence emotional well-being, motor function, reflexes, and potentially interpersonal relationships.

Reduced productivity

Besides the fact that digital devices, gadgets, and applications advertise how they improve individuals' productivity, the persuasive techniques and distractions provided by digital devices have raised questions regarding productivity. Constant accessibility to entertainment generates various distractions, either active (notifications) or passive (withdrawal effects), which shift focus away from a given task and increase error rates (Rashid & Kenner, 2019).

Zahariades (2018) points out that it is in human nature to put difficult tasks aside. With the accessibility to never-ending entertainment, people spend hours watching short videos on TikTok rather than accomplishing the task. Procrastination often serves as a coping mechanism for stress or anxiety caused by the burden of responsibility. Consequently, it may increase stress and anxiety as the list of unfinished tasks is prolonged.

Indecision

Addiction discussed in Chapter 1.3 might result in an inability to make rational decisions. Rashid and Kenner (2019) posit that an increased number of decisions made throughout the day heightens susceptibility to decision fatigue. Consequently, when an individual wants to make a decision, the brain must process a large amount of accumulated information while being mentally exhausted. This results in prolonged decision-making processes based on irrelevant criteria, and a fear of making mistakes leading to avoidance, procrastination, and a repetitive cycle of reconsideration.

2   The concept of digital detox

Nowadays, the avoidance of digital connections has become nearly unattainable. Moreover, the prevalence of social media incorporating addictive techniques and advanced algorithms raised concerns regarding technology addiction and its impact on overall well-being. Sieberg (2011) says gadgets and websites do not come with nutritional labels since no one regulates the amount of technology people should ingest or its impact.

According to Syvertsen and Enli (2019), "digital detox can be defined as a periodic disconnection from social or online media or strategies to reduce digital media involvement" (p. 1). However, it does not aim to gradually prevent using technologies or social media because, as Syvertsen and Enli (2019) explain, a digital detox is about finding a balance between social media and life. In other words, during digital detox, people should recognise their compulsive behaviour and how much they behave automatically or without thinking.

2.1   Preparatory stage

Before beginning detoxification, it is important to be prepared as the first detox, in particular, may be challenging. Hence, Zaharidies (2018) agrees with Rashid and Kenner (2019) on the importance of creating a plan for the individual's detox consisting of the following elements. The first step involves understanding the interaction between social media and algorithms (see Chapter 1).

Subsequently, people may observe their routines, digital habits, and behaviour patterns in specific situations that force them to use smartphones. With mapped subconscious digital habits, it is possible to plan countermeasures for the following situations.

At a lecture

Attending a monotonous lecture with a tedious presentation, the brain pressures to seek an engagement on the phone to release a dose of dopamine. The solution for this is leaving the phone in the bag, turning off notifications, or putting the phone in flight mode, as an incoming alert may be the trigger to take the phone out of the bag.

Watching videos before sleep

Often, individuals tend to watch videos before sleeping due to boredom or lack of tiredness. Some people argue that they need to have their phones close to bed for morning alarms. The

solution is to purchase an alarm clock and leave the phone charging in another room.

Travelling

Be it by train or walking, people tend to spend time on social media or listening to music. Although music sometimes contributes to relaxation, people force themselves to multitask instead of relaxing. The solution is to leave the phone in the bag and decrease the time spent listening to music, which allows the brain to rest and rejuvenate.

Checking phone without notifications

A common practice involves people seeking missed alerts, often resulting in visiting platform by platform seeking engagement. Similarly, people instinctively reach for their phones to redirect their focus in stressful situations. The solution is to have the phone out of easy reach, whether in a drawer, another room, or a bag.

Checking the time

Another prevalent behaviour is checking the time, often unnecessarily, since it leads individuals to encounter notifications, resulting in prolonged smartphone usage beyond the intended purpose of checking the time. The solution is to wear watches or even smartwatches with notifications turned off.

With friends

In social situations, it is often observed that people tend to check their phones when nothing is interesting to talk about. This behaviour is contagious, and others in the group also start using their phones, making it difficult to continue the conversation. To avoid such situations, it is advised to keep the phone away or resist the urge to use it during social interactions.

Environment

Regarding the environment, it is important to designate a specific place for engaging with digital technologies and to avoid their uses in places like beds. As previously noted in this chapter, people should not engage with smartphones before sleep. Additionally, places where individuals work, learn, and eat should also be avoided. It is advisable to have a dedicated place for social media use to minimize distractions and allow for focused attention.

Finishing the detox

A critical aspect of the planning process involves the phase when individuals believe that they have successfully overcome addiction and are no longer required to limit themselves. Under these circumstances, the risk of gradually relapsing back into addictive patterns increases as they may believe that they have their behaviour under control.

Managing compulsive behaviour is a continuous process and while people may perceive that certain practices are less important during later stages of detox, methods mentioned in this thesis are useful throughout the whole process.

2.2 Process of digital detox

Digital detoxification shares many similarities with other addiction treatment procedures. Nonetheless, in this case, the purpose is not to stop using digital devices or visiting social media platforms. Hence, it is pointless to be restricted from using any electronics for a long time, as individuals are likely to relapse into addiction upon returning to their regular routines.

Detox is a self-imposed procedure, allowing individuals to tailor its difficulty level to their preferences. Zahariades (2018) suggests that people should spend one day without using any screen. Rashid and Kenner (2019) oppose the regulation of daily screen time by removing triggers that force individuals to use their phones and countering those situations. Furthermore, both sources recommend the following steps to reduce the time spent during the day:

Removing social media from the smartphone

While seemingly radical, during detox, individuals experience withdrawal symptoms, and the brain will crave the excitement found on the phone. Additionally, it drastically reduces incoming notifications, allowing individuals to perform the task and put the phone away. It is important to say that emergencies happen, and people cannot have their phones turned off or in a plane mode the whole day. As a result, the lack of social media or other engaging applications will shift focus and break the habit.

Inform family and friends about undergoing detox

There are two main reasons for sharing information about a detox with family and friends. Firstly, it helps to notify them that an individual's response time may be delayed. This step prevents individuals from being accused of neglecting or ignoring messages. Secondly, sharing the detox plan with others can serve as a source of motivation. By telling others about it, individuals will be more likely to complete the detox as they would want to avoid the potential embarrassment of failure.

Find inspiration, idols, and motivation

As mentioned above, maintaining focus and commitment during detox is crucial. During detox, the brain tries to cope with negative effects using methods it has learned. People should remember or write down their reasons for committing to detox. Seeking inspiration from others who have successfully completed it may encourage them to resist the temptations, and positive feelings and restore energy as withdrawal symptoms and cravings exhaust people.

Learn a new skill or find a new hobby

Zahariades (2018) and Rashid and Kenner (2019) agree on the importance of finding activities that will replace time spent on the phone and keep the mind occupied during and after detox. These activities may include spending time with family and friends, playing sports, relaxing, reading books, or developing new skills. Learning a new skill is particularly important as it demands people's full attention on an unfamiliar task and combines positive feelings from performing a new activity with negative feelings from not being good at it, such as playing the piano.

Delayed gratification

Encyclopedia Britannica (2019) defines delayed gratification as "the act of resisting an impulse to take an immediately available reward in the hope of obtaining a more-valued reward in the future." During a digital detox, it could mean finishing the project before going on social media. According to Wulfert et al. (2002), adolescents who delay gratification are likely to have more self-control in various aspects of life and have better academic results than those who choose an immediate reward.

On the contrary, this method introduces new risks, which individuals should be aware of. Reducing the time spent on the phone combined with the performance of an unpleasant task

creates a considerable challenge for discipline as the brain lacks stimulation. The next risk is the frustration of failing the task, as the individual needs to step out of their comfort zone and may still fail.

Single-tasking

In contemporary society, individuals often experience the pressure of managing numerous tasks simultaneously, leading them to multi-tasking to remain productive. However, as noted in Chapter 1.3, this method shatters focus resulting in ineffectiveness in both activities. Instead, an implementation of single-tasking is recommended, which involves concentrating on one task at a time while minimizing distractions. During the planning phase, it is advisable to categorize similar tasks, such as answering all emails and messages in a single session. This planning reduces stress during the initial stages of single-tasking, where individuals may perceive a decrease in productivity compared to multi-tasking. Over time, the results should be noticeable as the tasks get completed more efficiently.

Music

Although it has been suggested that listening to music can be counter-productive when multi-tasking, it is possible to utilize music to enhance individual productivity. This technique follows a similar principle to the one discussed in Chapter 1.1., where people hear the tone of a message, and the brain reacts to it. By playing a particular song or playlist before beginning work, the brain will eventually recognise it as a signal to initiate concentration.

2.3   Negative effects during digital detox

It is unavoidable to perform the detox without encountering any negative effects. Detox aims to reduce the time spent on platforms that make the brain release large doses of dopamine, often eliminating activities that serve as coping mechanisms for nervousness, stress, or even depression. Apart from those mentioned in Chapter 1.5, Zahariades (2018) outlines several negative effects:

Craving for the phone

It exceeds far more than a simple desire to pick up the phone and spend time on social media. The brain attempts to convince individuals to spend time online under any circumstances. In the preparation phase, where it is advisable to carry the phone in the bag, people may automatically reach for their phone in their pocket, only to discover that the phone is not

there, resulting in the feeling that they left it somewhere. Consequently, they will search for it, and upon finding it in the bag while holding the phone, they may as well check the notifications, and suddenly, they are back to old habits. There may be symptoms of FOMO, persuading users that they are missing important updates from their friends and family lives, worldwide news, or the latest trends.

Phantom phone syndrome

This phenomenon appears as a sense of vibration in the pocket without the phone producing vibrations or even without the phone in the pocket. It is described as the brain misinterpreting the sensory input.

Drowsiness

People who spend a long time on social media may experience drowsiness and fatigue during detox, as they are used to stimulating their brains with engaging content. Consequently, in the absence of such content, the brain can rest, leading to feelings of drowsiness.

Mood swings and irritability

These effects are frequent across various types of detox, as people restrict the activities that flood the brain with high doses of dopamine. Social media addicts, who used the platforms as coping mechanisms, are now exposed to emotions they usually avoided on their phones, which makes them more susceptible to mood swings and irritability, as any minor problem or tense situation can displease them.

Inability to focus

Despite the initial goal of detox to enhance focus on their activities, the craving for dopamine and attempts to seek engaging content are making individuals more susceptible to distractions. This results in a shorter attention span and problems with processing and remembering new information. These effects may be experienced, especially at the beginning of the detox, and it is crucial to remember that they are temporary.

Failure

It is important to accept that failures may occur as a result of the addictive techniques mentioned in Chapter 1.4., combined with the brain attempting to return to old habits. It poses a challenge as individuals' minds adopt these digital habits over time, making it the

brain's "default setting". It is necessary to work with the failure as a programme developer, i.e., why it occurred, identify triggers, and create strategies to prevent it in the future.

2.4   Benefits of digital detox

One of the main reasons for undergoing detox is the benefits that arise over time. As the brain adapts to new habits and gains more time to rest, Zahariades (2018) enumerates several positive benefits that people may experience:

Better communication

Reducing the time spent on the phone, eliminating distracting notifications, and participating more in conversations contribute to noticeable improvements in communication. When communicating over the phone, slang and abbreviations are often used to convey information concisely. In contrast, face-to-face interactions often require the use of complete sentences and rich vocabulary.

Stronger memory

The absence of constant distractions and the relief from overwhelmed short-term memory allow the brain to rest and rejuvenate. Therefore, people will be able to retain information and potentially store it in their long-term memory, enhancing their overall cognitive function.

Improved productivity, focus, and longer attention span

Digital devices such as smartphones, smartwatches, and smart rings disrupt focus on tasks in numerous ways. Additionally, exposure to constant stimuli, pressure from social media, and information overload contribute to stress. Therefore, by disconnecting and removing notifications, individuals can focus more on work. Rashid and Kenner (2019) present that people can get into a "zone" while working. It is the state of mind when people are absolutely focused on activity and thus are the most productive.

Reduced stress

While stress is nearly unavoidable in daily life, being addicted to social media introduces an additional layer of stress. By spending time offline, people remove this additional layer, letting their minds rest and enabling individuals to better cope with daily stresses.

Better sleep

Reducing screen time and removing phone usage before bed contribute to improved sleep quality. It is attributed to various factors, such as reduced exposure to blue light emitted by the screen, reduced stress, and reduced compulsive checking of the phone, all of which positively impact sleep quality.

Greater self-discipline

Many addictions are related to low self-discipline, as people are unable to resist the temptation and satisfy the compulsion, thereby reinforcing the addiction. On the contrary, during the detox, when people resist, they are breaking the habit and reinforcing their self-discipline. Over time, individuals will experience better discipline that may extend to various aspects of their lives, as this will teach them to resist temptation and pursue their goals more effectively.

Practical part

3   Research methodology

3.1   Research objective and research questions

The research objective is to examine whether students and teachers at Brno University of Technology show symptoms of digital addiction described in the theoretical part of this thesis. Furthermore, the objective is to reveal whether the respondents are aware of their behaviour and whether they have taken any measures to address it.

For each objective, the following questions were addressed:

RQ1:   What are students' and teachers' digital habits?

RQ2:   How do social media and staying online influence students' and teachers' well-being and academic performance?

RQ3:   To what extent are teachers and students aware of digital detox?

RQ4:   What experience do teachers and students have with digital detox?

3.2 Research tool and participants

The questionnaire for teachers and students was designed based on the theory of behaviourism. Cherry (2022) says that this theory focuses on the study of observable behaviours that happen through interaction with the environment. According to behaviourists, the environment and external stimuli are shaping the way people act. Further, the creation of the questions was based on existing literature, including work from Zahariades (2018), Rashid and Kenner (2019), and other studies addressing the impacts of digital addiction on personal well-being. The initial version of the questionnaire was piloted among a sample of students of the study programme English in Electrical Engineering and Informatics who had personal experience with digital detox. Furthermore, the questionnaire was consulted with a supervisor, Dr Ellederová, who suggested several revisions and adjustments. The final version of the questionnaire was edited to cover various aspects of digital addiction, including digital habits, impacts on well-being and academic performance, and awareness of digital detoxification.

The final version of the questionnaire (see Appendix) is divided into three sections, where the first section provides basic information about the respondent, i.e., gender, age, and their position at the university, to discover a correlation between gender or age groups and digital addiction and digital detox.

The second section examines if the respondent is addicted, shows symptoms of digital addiction and is aware of it. It includes a combination of open questions so that the respondents can easily relate to the situation and closed questions to divide people into groups and find correlations between them.

The third section examines awareness of digital detox, whether the respondent underwent any form of digital detox and what results they achieved. It includes a combination of open questions that allow respondents to openly share their experience with detox and closed questions that do not require anything else.

The sample of respondents was a "purposive sample," which means that the questionnaire survey targeted a particular group of respondents. In this case, it involved students and teachers from Brno University of Technology.

The questionnaire was distributed via email to teachers and shared on Facebook and the faculty's Discord with students. In total, I reached out to 34 teachers via email and asked 5 of them in person. The response rate was 58.97%. The response rate of students could not be established, as the questionnaire was not distributed directly to them.

The questionnaire was distributed to the students and teachers of the Faculty of Electrical Engineering and Communication at Brno University of Technology. A total of 129 respondents participated in the survey: 106 students and 23 teachers from those were 108 males, 16 females, and 5 non-binary respondents. 102 respondents were between ages 18–24, 23 were between ages 25–54 and 4 were between ages 55–80.

3.3 Research results

As Table 1 demonstrates Facebook Messenger dominates as the most commonly used application with a relative frequency of 78.29% of respondents followed by Instagram at 58.14%. The popularity of these platforms can be attributed to the fact that these applications were getting more popular as the respondents were maturing, thereby integrating into individuals' habits. Consequently, it may be the reason why TikTok despite being the most

downloaded application, is only used by 17.05% of respondents. As respondents matured and were used to Facebook and Messenger they refrained from using new platforms. Most of the teachers use Facebook Messenger, while only six teachers use Instagram. This is probably due to the nature of Instagram as it focuses mostly on feed and content instead of sharing. Although the public opinion about Facebook and Instagram might be similar, the results show that most teachers prefer Facebook.

It appears that Twitter (X) and Reddit, despite being older than TikTok, received roughly the same percentage of attention. This may be because all platforms are classified as social media and provide options for sharing opinions, photos, and videos. While Facebook's Messanger is the only option used globally for messaging, all platforms offer it. Additionally, personal and cultural preferences may play a role, as Twitter (X) is often used for sharing opinions and discussing politics, while Reddit is popular among geeks.

Table 1

Applications that respondents use daily

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Facebook + Messenger	101	78.29%	84	79.25%	17	73.91%
Instagram	75	58.14%	69	65.09%	6	26.09%
TikTok	22	17.05%	22	20.75%	0	0.00%
Snapchat	19	14.73%	19	17.92%	0	0.00%
BeReal	7	5.43%	7	6.60%	0	0.00%
Twitter (X)	29	22.48%	28	26.42%	1	4.35%
Reddit	24	18.60%	23	21.70%	1	4.35%
None	8	6.20%	3	2.83%	5	21.74%

Table 2 indicates that most respondents use their phone 2–4 hours a day, followed by 29.46% who extend this duration to 4–6 hours a day, while only 15.50% use their phone for less than 2 hours daily. According to Woo et al. (2021), daily usage of less than 2 hours has negligible impact on mental health or sleep quality. At weekends, usage between 2 to 4 hours worsened sleep but did not affect mental health. Nevertheless, more than 4 hours per weekday or weekend had a negative impact on both mental health and quality of sleep.

Table 2

Daily screen time

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
0-2	20	15.50%	13	12.26%	7	30.43%
2-4	56	43.41%	48	45.28%	8	34.78%
4-6	38	29.46%	33	31.13%	5	21.74%
6-8	6	4.65%	5	4.72%	1	4.35%
8-10	1	0.78%	1	0.94%	0	0.00%
None	8	6.20%	6	5.66%	2	8.70%

Table 3 illustrates that over three-quarters of respondents acknowledge using their phones while waiting in a queue. The primary objective of this question was to indirectly ask whether people force themselves to multitask voluntarily. Subsequently, as Table 9 demonstrates, roughly half of the people stated they do not force themselves to multitask.

Table 3

Spending time on the phone while waiting in a queue

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Strongly agree	28	21.71%	24	22.64%	4	17.39%
Agree	71	55.04%	59	55.66%	12	52.17%
Don't know	7	5.43%	7	6.60%	0	0.00%
Disagree	17	13.18%	12	11.32%	5	21.74%
Strongly disagree	6	4.65%	4	3.77%	2	8.70%

Table 4 depicts that 21 respondents strongly agree and 45 agree on staying up late on the phone, which effects were discussed in Chapter 1.4. On the contrary, not as prevalent, but a significant portion of respondents do not agree with the statement about staying up late on the phone. It may be attributed to the rising awareness of exposure to blue light and the increasing popularity of digital detoxification. Furthermore, half of the teachers do not agree with the statement, which may be caused by various reasons. It may be their different habits or overall, they do not spend time on the phone.

Table 4

Staying up late on the phone

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Strongly agree	21	16.28%	18	16.98%	3	13.04%
Agree	45	34.88%	41	38.68%	4	17.39%
Don't know	13	10.08%	9	8.49%	4	17.39%
Disagree	38	29.46%	31	29.25%	7	30.43%
Strongly disagree	12	9.30%	7	6.60%	5	21.74%

Table 5 reveals that almost 70% of respondents experience phantom vibrations, which Chapter 2.3. describes as the brain misinterpreting the sensory input. It may be caused by various factors, such as an individual who craves stimulation may feel sudden movement or friction from the phone in the pocket. Consequently, this could disrupt their focus on the task, prompting them to check their phone. Wearing smartwatches may include the wrist in this process, although it is relatively uncommon. An effective method to prevent this is to refrain from having a phone in their pocket; having turned off notifications may prove insufficient, as people may feel compelled to check their phones despite knowing that notifications are turned off.

Table 5

Phantom vibrations

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Strongly agree	29	22.48%	25	23.58%	4	17.39%
Agree	59	45.74%	47	44.34%	12	52.17%
Don't know	10	7.75%	8	7.55%	2	8.70%
Disagree	25	19.38%	22	20.75%	3	13.04%
Strongly disagree	6	4.65%	4	3.77%	2	8.70%

Table 6 shows the diversity between respondents that are split into half whether they can or cannot travel without music. A prevalent portion of teachers says that they do not need the music while travelling. On the contrary, almost half of the students listen to music while travelling to keep their minds occupied, improve their mood, or escape from boredom.

According to Krout (2007, p.138), "listening to music may help facilitate a relaxation response in part because of the integrated ways that it is processed by the brain and body." However, if an individual keeps their head occupied throughout the day, or combines music with other activities, it may lead to negative effects. Furthermore, Krout (2007) mentions that listening to individuals' preferred music results in worse rest, potentially attributed to listeners' distraction when engaging with preferred music.

Table 6

Travelling without music

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Strongly agree	31	24.03%	28	26.42%	3	13.04%
Agree	29	22.48%	24	22.64%	5	21.74%
Don't know	10	7.75%	9	8.49%	1	4.35%
Disagree	36	27.91%	31	29.25%	5	21.74%
Strongly disagree	23	17.83%	14	13.21%	9	39.13%

According to Table 7, 72 respondents are aware of their excessive phone usage. This group is either close to starting a digital detox or they have already experimented with such strategies. Recognising and acknowledging one's potential problem is often the initial step towards addressing the problematic behaviour. Conversely, a large group of teachers and students that disagree with the statement either do not perceive their phone usage as problematic or they may struggle to acknowledge it.

Table 7

Spending too much time on the phone

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Strongly agree	27	20.93%	22	20.75%	5	21.74%
Agree	45	34.88%	41	38.68%	4	17.39%
Don't know	13	10.08%	13	12.26%	0	0.00%
Disagree	34	26.36%	26	24.53%	8	34.78%
Strongly disagree	10	7.75%	4	3.77%	6	26.09%

As demonstrated in Table 8, almost 70% of respondents use their phones more than they originally intended. This phenomenon can be attributed to several factors. The first is the mechanism designed to enhance users' engagement, which prolongs their time spent in applications and thereby on the phone. The second factor is notifications, as people reach for their phones to check notifications, and once engaged, they may continue browsing and also look for other news.

Table 8

Staying longer on the phone than originally intended

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Strongly agree	25	19.38%	22	20.75%	3	13.04%
Agree	63	48.84%	54	50.94%	9	39.13%
Don't know	15	11.63%	10	9.43%	5	21.74%
Disagree	21	16.28%	16	15.09%	5	21.74%
Strongly disagree	5	3.88%	4	3.77%	1	4.35%

Table 9 indicates that 44.19% of respondents admit to forcing themselves to multi-tasking, a frequency notably lower than that observed in questions indirectly addressing multi-tasking behaviour (Tables 3 and 6). This difference may be caused by various reasons, such as a lack of recognition of these situations as instances of multi-tasking or the performance of these actions without conscious awareness, resulting in individuals being unaware of their multi-tasking behaviour.

Table 9

Forcing individuals to multi-task

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Strongly agree	17	13.18%	15	14.15%	2	8.70%
Agree	40	31.01%	33	31.13%	7	30.43%
Don't know	17	13.18%	15	14.15%	2	8.70%
Disagree	38	29.46%	31	29.25%	7	30.43%
Strongly disagree	17	13.18%	12	11.32%	5	21.74%

Table 10 illustrates that more than half of respondents disagree with the statement that social media usage affects academic performance. In other words, respondents do not perceive the time spent on social media as a potential issue affecting their academic results. Conversely, 20 students and 2 teachers believe that social media has a negative impact. This group sees social media as a distraction or time-consuming activity that detracts focus from studying. Additionally, 20.93% of the total expressed uncertainty regarding the impact of social media on academic performance.

Table 10

Use of social media affecting academic performance

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Strongly agree	7	5.43%	5	4.72%	2	8.70%
Agree	15	11.63%	15	14.15%	0	0.00%
Don't know	27	20.93%	25	23.58%	2	8.70%
Disagree	38	29.46%	29	27.36%	9	39.13%
Strongly disagree	42	32.56%	32	30.19%	10	43.48%

Table 11 depicts that a prevalent portion of respondents do not feel stress and anxiety when their phone is out of battery or without connection. They may not experience such strong feelings as stress and anxiety, but only a slight change of mood. Additionally, a small portion of respondents experience the mentioned feelings, which may be attributed to FOMO or the sudden urge to engage with the phone, which cannot be fulfilled.

Table 11

Stress and anxiety when the phone is out of battery or without a connection

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Strongly agree	1	0.78%	1	0.94%	0	0.00%
Agree	18	13.95%	12	11.32%	6	26.09%
Don't know	13	10.08%	11	10.38%	2	8.70%
Disagree	47	36.43%	37	34.91%	10	43.48%
Strongly disagree	50	38.76%	45	42.45%	5	21.74%

Table 12 reveals that out of the 66 respondents who stay up late on the phone (see Table 4), 42 agree that they experience sleeplessness, which implies a correlation between late-night phone usage and disrupted sleep patterns. A contributing factor may be the emission of blue light from phone screens, as explained in Chapter 1.1.

Table 12

Poor quality of sleep

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Strongly agree	19	14.73%	17	16.04%	2	8.70%
Agree	23	17.83%	20	18.87%	3	13.04%
Don't know	12	9.30%	10	9.43%	2	8.70%
Disagree	36	27.91%	31	29.25%	5	21.74%
Strongly disagree	39	30.23%	28	26.42%	11	47.83%

Table 13 shows that almost 90% of respondents are aware of digital detox. This can be attributed to raising the phenomenon of digital hygiene practices, increasing awareness of the negative effects associated with excessive social media and internet usage, and emphasising overall Internet well-being. Individuals realise that there is a need to establish boundaries with their digital devices to mitigate the potential negative impacts on mental health, productivity, and relationships.

Table 13

Awareness of digital detox

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Yes	115	89.15%	95	89.62%	20	86.96%
No	14	10.85%	11	10.38%	3	13.04%

Table 14 lists that almost half of the respondents with a prevalence of students have attempted digital detox. This finding suggests a notable interest among individuals in exploring strategies to detach from technological dependence. The prevalent experimentation with digital detox strategies may be attributed to growing awareness of the potential negative effects of excessive technology use and the growing trend of being productive, reclaiming control over technology usage, and engaging in activities other than

online. Additionally, more than half of the teachers have not tried digital detoxification, which suggests that they do not consider it relevant as they do not feel addicted to digital technologies.

Table 14

How many people tried digital detox

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Yes	64	49.61%	55	51.89%	9	39.13%
No	63	48.84%	50	47.17%	13	56.52%
Other	2	1.55%	1	0.94%	1	4.35%

Table 15 presents various methods employed by respondents to undertake digital detox. The data reveals that one of the most common methods is setting limits on social media applications to manage their usage effectively. This method signifies a conscious effort to reduce screen time and prioritise other activities while remaining active on social media. Another method with almost the same frequency involves using social media for essential communication, be it staying connected with family members and friends. This strategy targets removing non-essential browsing. The method involves individuals stopping using particular applications they perceive as too distracting while continuing to use others. It possesses the risk that individuals may seek excitement from remaining applications. The more radical method used by 26 respondents is to stop using all social media platforms. This strategy can be challenging in its initial stages as individuals may be accustomed to activities that trigger dopamine release. After overcoming withdrawal symptoms, it is crucial for people not to revert to their old habits when they decide to start using social media again.

Table 15

Methods of digital detox

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Stopped using all social media platforms	26	32.10%	23	34.33%	3	21.43%
Set limits on social media applications	31	38.27%	29	43.28%	2	14.29%
Stopped using certain applications, but continued with others	32	39.51%	29	43.28%	3	21.43%
Used social media for essential communications	36	44.44%	29	43.28%	7	50.00%
Stopped using the phone at all	2	2.47%	2	2.99%	0	0.00%
Other	10	12.35%	7	10.45%	3	21.43%

As demonstrated in Table 16, the social media that are the most challenging to reduce are Instagram, followed by Facebook and Messenger. They are both social media platforms with instant messaging capabilities. The challenge of reducing their usage may stem from various factors, including platforms' feeds organised by custom-tailored algorithms, which provide constantly updated content according to user preferences. This personalised content, combined with instant messaging, makes them the most difficult platforms to reduce. Although TikTok was mentioned in Chapter 1.3 as the application with the most advanced social media algorithm, only 16 students found it hard to reduce. The main reason is that TikTok targets the young generation, and most contemporary university students feel that they no longer belong to this group, and they may not find TikTok as relevant as other social platforms.

Table 16

Social media hardest to stop/reduce

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Facebook + Messenger	35	48.61%	26	41.94%	9	90.00%
Instagram	31	43.06%	29	46.77%	2	20.00%
TikTok	16	22.22%	16	25.81%	0	0.00%
Snapchat	2	2.78%	2	3.23%	0	0.00%
BeReal	1	1.39%	1	1.61%	0	0.00%
Twitter (X)	11	15.28%	10	16.13%	1	10.00%
Reddit	5	6.94%	5	8.06%	0	0.00%

Table 17 indicates that almost 70% of respondents did not experience any negative effects, which indicates that either their dependence on digital devices was not severe or that their self-imposed detox plan was effective in reducing usage without any negative effects. The most commonly reported negative effect was increased anxiety, which was described further in Chapter 2.3.

Table 17

Negative effects during detox

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Worsened sleep	2	2.53%	2	3.08%	0	0.00%
Negative change in mood	7	8.86%	7	10.77%	0	0.00%
Increased anxiety	14	17.72%	12	18.46%	2	14.29%
Worsened focus	8	10.13%	8	12.31%	0	0.00%
Reduced productivity	6	7.59%	5	7.69%	1	7.14%
Worsened real-life communication	5	6.33%	5	7.69%	0	0.00%
None	54	68.35%	44	67.69%	10	71.43%
Other	3	3.80%	2	3.08%	1	7.14%

Table 18 illustrates that many respondents experienced an increase in focus and productivity. By minimising digital distractions and interruptions, individuals could concentrate better on

their tasks, leading to increased efficiency in their activities. Moreover, 23 respondents experienced a positive change in mood during the detox, which indicates that reducing the constant stream of information and stimulation contributes to overall well-being.

Table 18

Positive effects during detox

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Improved sleep	20	25.64%	18	27.69%	2	15.38%
Positive change in mood	23	29.49%	23	35.38%	0	0.00%
Reduced anxiety	16	20.51%	14	21.54%	2	15.38%
Improved focus	34	43.59%	32	49.23%	2	15.38%
Improved productivity	38	48.72%	35	53.85%	3	23.08%
Improved real-life communication	13	16.67%	13	20.00%	0	0.00%
None	20	25.64%	13	20.00%	7	53.85%
Other	2	2.56%	0	0.00%	2	15.38%

Table 19 shows that most respondents would recommend digital detox to others, which underscores the positive experience of incorporating these practices into their lives. This significant approval may correspond with the results in Table 18, where respondents reported positive changes in mood, improved sleep, and productivity.

Table 19

Recommendation of digital detox to others

Answer	Absolute frequency	Relative frequency	Student absolute frequency	Student relative frequency	Teacher absolute frequency	Teacher relative frequency
Yes	86	91.49%	70	94.59%	16	80.00%
No	3	3.19%	1	1.35%	2	10.00%
Other	5	5.32%	2	2.70%	3	15.00%

Conclusion

The theoretical part of this bachelor's thesis defined the two main objectives: 1) to introduce the symptoms of digital addiction, its causes and effects, and the usage of addictive practices; and 2) to describe approaches to digital detox. The practical part outlined the methodology of the research into digital addiction and digital detox of students and teachers at the Faculty of Electrical Engineering and Communication, Brno University of Technology.

In the theoretical part, I conducted a literature review to identify the key factors that lead to digital addiction and its effects on individuals' well-being and performance. I focused, in particular, on the role of dopamine, machine learning algorithms, and addictive techniques implemented on social media platforms. In the practical part, I designed the questionnaire to analyse teachers' and students' behaviour, digital habits, impact on their mental health and academic performance, their awareness of digital detox and employed methods of digital detox.

The research findings indicate that many respondents exhibit symptoms of digital addiction, such as spending excessive time on their digital devices, experiencing phantom vibrations, and staying up late on their phones. Most respondents acknowledged spending time longer than they originally intended, indicating consciousness of their behaviour. Additionally, a considerable number of respondents recognised instances of multitasking along with phantom vibrations resulting in reduced focus and attention span. The other instances of negative effects were found, but they were not as prevalent. Despite the negative effects, the results showed that digital detox has positive outcomes, including improved focus, productivity, sleep, and mood.

The objectives of the thesis were accomplished, as the research identified the presence of digital addiction among the target group and explored solutions through digital detox. The data also show that older generations, less dependent on digital technology, experience fewer negative effects than students.

The research has some limitations, such as a relatively small sample size of teachers. Moreover, the study relied on self-reported data, which might be subjective, or participants might have provided socially desirable answers to avoid negative judgement, despite personal data not being collected.

Future studies could explore the long-term effects of digital detox and the efficiency of various detox methods. The studies could also investigate how digital addiction correlates with various mental health outcomes, such as depression, anxiety, and stress, across a wider age range of university students and teachers.

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List of Tables

Appendix

Questionnaire: Digital Addiction and Digital Detox

1) Digital habits:

Which of the social media platforms from the list below do you use daily?

- Facebook + Messenger
- Instagram
- TikTok
- Snapchat
- BeReal
- Twitter
- Reddit

If your phone allows you to track the time spent on social media, how much is it?

- 0-2
- 2-4
- 4-6
- 6-8
- 8-10

I chose to spend time on the phone while waiting in line.

I stay up late on the phone.

I check my phone, even if it does not ring or vibrate.

I cannot travel without music.

2) Impact on the individual's well-being and academic performance:

I think I spend too much time on social media.

I feel that I stay online longer than originally intended.

I force myself to multitask (watching TV while on the phone).

My use of social media affects my academic performance negatively.

I experience anxiety and stress when my phone is out of battery or cannot access the Internet.

I experience poor quality sleep, restlessness, and an inability to fall asleep.

3) Awareness of the digital detox:

Have you ever heard of digital detox?

Have you ever tried digital detox?

Which method have you used?

- stopped using all social media platforms
- set limits on social media apps
- stopped using certain, but continued with others
- used social media for essential communications,
- other

Which social media was the most difficult to stop or reduce using?

- Facebook + Messenger
- Instagram
- TikTok
- Snapchat
- BeReal
- Twitter
- Reddit

During your detox, you experienced the following negative effects:

- Worsened sleep
- Negative change in mood
- Increased anxiety
- Worsened focus
- Reduced productivity
- Worsened real-life communication
- Other

During your detox, you experienced the following positive effects:

- Improved sleep
- Positive change in mood
- Reduced anxiety
- Improved focus
- Improved productivity
- Improved real-life communication
- Other

Would you recommend digital detox to others? Why?